CHAPTER II – REVIEW OF LITERATURE

"Whether the ground beneath our feet is heaven or hell depends entirely on our way of seeing and walking”

- Thich Nhat Hanh (2001)
REVIEW OF LITERATURE

Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999) is a unique empirically based psychological intervention that uses acceptance and mindfulness strategies, together with commitment and behavior change strategies, to increase psychological flexibility. This therapy seems extremely viable in the context of OCD as ACT utilizes processes such as acceptance, values, and mindfulness in the treatment to foster willingness to experience obsessions and related anxiety (Hayes et al., 1999). Furthermore, the principles of mindfulness and acceptance in ACT counteract the experiential avoidance in patients with OCD, and also work on the underlying meta-cognitive beliefs and thought-action fusion that in turn cause avoidance or thought suppression. There is substantial evidence to corroborate the efficacy of ACT for OCD; however, literature lacks evidence for the underlying processes and constructs that lead to change and improvement as a result of therapy. The present study was an attempt to examine the effects of acceptance and commitment therapy on psychological flexibility, thought suppression, mindfulness skills and symptoms in patients diagnosed with obsessive compulsive disorder.

The review of literature related to the present study is organized under following sections:

I. Application of Acceptance and Mindfulness based interventions in medical and other psychiatric conditions, and in different groups;

II. Mediators of change in Acceptance and Mindfulness based interventions;

III. Mediating processes and application of Acceptance and Mindfulness based interventions on Obsessive-Compulsive and Related Disorders.
I. Application of Acceptance and Mindfulness based interventions in medical and other psychiatric conditions, and in different groups

Acceptance and Mindfulness based approaches are sensitive to the context and functions of psychological phenomena, not just their form, and thus tend to emphasize contextual and experiential change strategies in addition to more direct and didactic ones. Studies reviewed in this sub-section are related to the application of acceptance and mindfulness based interventions on various medical and psychiatric conditions and also on different groups. The third wave behaviour therapies have found significant popularity in the last 15 years and many researchers have worked in this area to determine the efficacy of acceptance and mindfulness based interventions on various medical and psychiatric conditions. The focus here is primarily on the efficacy of Acceptance and Commitment Therapy; however, similar interventions working on such principles have also been accounted for in this section.

ACT and Psychosis

Bach and Hayes (2002) investigated in a randomized controlled trial, the application of Acceptance and Commitment Therapy to prevent the re-hospitalization of psychotic patients. They examined the impact of a brief version of an acceptance-based treatment (acceptance and commitment therapy; ACT) that teaches patients to accept unavoidable private events; to identify and focus on actions directed toward valued goals; and to defuse from odd cognition, just noticing thoughts rather than treating them as either true or false. Eighty inpatient participants with positive psychotic symptoms were randomly assigned to treatment as usual (TAU) or to 4 sessions of ACT plus TAU. ACT participants showed significantly higher
symptom reporting and lower symptom believability and a rate of re-hospitalization half that of TAU participants over a 4-month follow-up period. The same basic pattern of results was seen with all participant subgroups except delusional participants who denied symptoms. Results revealed that a three-hour ACT intervention reduces re-hospitalization by 50% over a 4 month follow-up as compared to treatment as usual in the seriously mentally ill.

Veiga-Martínez, Pérez-Álvarez and García-Montes (2008) investigated the application of Acceptance and Commitment Therapy (ACT) to treatment of auditory hallucinations in a case report. A 30-year-old male diagnosed with schizophrenia demonstrated the logic and effectiveness of ACT as well as its applicability as part of the routine activities of a clinical psychologist in a public mental health care center. In addition to the efficacy, the authors also discussed specific techniques and modifications that were found suitable for use with schizophrenia, along with precautions for clinicians for using metaphors in therapy with this group.

In another case study, Baruch and others (2009) demonstrated the efficacy of acceptance and commitment therapy (ACT) to alter the function of positive psychotic symptoms. ACT differs with many psychosis approaches in that it does not attempt to reduce psychotic symptoms; instead, it aims to increase psychological flexibility (e.g., acceptance) in the presence of psychotic symptoms while actively pursuing valued living. A goal of treatment was to enable the patient to develop more intimate interpersonal relationships, for which, functional analytic psychotherapy (FAP) techniques were introduced. The authors discussed the benefits and challenges of integrating the two approaches.
Bloy, Oliver and Morris (2011) presented a case study describing the use of ACT in working with a client experiencing long-standing distressing psychosis, specifically, paranoia, delusions, and associated emotional disturbance. Measures of general distress, severity, and intensity of delusional thoughts and depression were taken at two points, pre and post intervention. All measures showed improvement post therapy, although symptoms did not remit completely. However, the client reported significant increases in value-based activities. The results indicated that, although not a primary treatment target, ACT can help in reduction of symptoms.

**ACT and Anxiety Disorders**

The efficacy of acceptance-based treatments integrated with traditional cognitive-behavioural approaches have also been investigated in various conditions, for e.g., Roemer and Orsillo (2002) proposed and described an integration of acceptance-based intervention with existing cognitive-behavioural treatments for Generalized Anxiety Disorder (GAD) to improve the efficacy and clinical significance of the approaches.

Kocovski, Fleming and Rector (2009) conducted an investigation to assess the feasibility and initial effectiveness of Mindfulness and Acceptance-Based Group Therapy (MAGT) for the treatment of Social Anxiety Disorder (SAD). Forty-two SAD patients were invited to take part in an open trial of MAGT. Participants completed measures of social anxiety, mindfulness and acceptance, depression, and rumination at pre-treatment, mid-treatment (6 weeks), post-treatment (12 weeks), and at a 3-month follow-up session. Twenty-nine participants completed the treatment and these participants reported that the treatment was helpful. Effect sizes for treatment completers ranged from 1.00 to 1.17 for the social
anxiety symptom measures at follow-up. Intent-to-treat analyses revealed significant reductions in social anxiety, depression, and rumination and significant increases in mindfulness and acceptance, with effect sizes ranging from .65 to .76 on the social anxiety measures. The study demonstrated that MAGT is feasible and acceptable to SAD patients and provides evidence for the use of mindfulness and acceptance-based interventions for the treatment of SAD.

Codd et al. (2011) presented a case series examining the application of Acceptance and Commitment Therapy (ACT) on 3 cases of anxiety disorders. According to the authors, ACT for anxiety disorders is a type of cognitive behaviour therapy that focuses on decreasing the behaviour regulatory function of anxiety and related cognitions, having a strong focus on behaviour change that is consistent with client values. The three cases were treated with 9 to 13 sessions of ACT. In-session exposure therapy was not included in order to determine the effects of ACT without the compounding effects of already proven treatment procedures. The treatment procedure was identical across disorders in order to test the utility of a unified treatment protocol for anxiety disorders: Panic Disorder with Agoraphobia, co-morbid Social Phobia and Generalized Anxiety Disorder, and Posttraumatic Stress Disorder. All participants showed clinical improvement in their specific anxiety disorders as rated on multiple standardized assessments after treatment, with gains maintained at follow-up (8 months or greater). Time-series assessments, taken throughout treatment, of anxiety and avoidance behaviours showed large decreases in avoidance but not anxiety, suggesting ACT was effective by changing the way participants responded to anxiety rather than anxiety itself.

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Meuret and others (2012) examined the feasibility and efficacy of combining a brief ACT protocol with traditional exposure therapy. Eleven patients with panic disorder with or without agoraphobia received 4 sessions of ACT followed by 6 sessions of exposure therapy, with data collected on a weekly basis. Acquisition of ACT skills and their application during exposure was monitored using a novel “think-aloud” technology. Treatment was associated with clinically significant improvements in panic symptom severity, willingness to allow inner experiences to occur, and reductions in avoidant behaviour. Results suggest that brief training in ACT only (as assessed prior to exposure exercises) and in combination with exposure therapy was acceptable to patients and offered benefits.

Rafiee, Sedrpoushan and Abedi (2014) investigated the effect of Acceptance and Commitment Therapy (ACT) on reducing anxiety symptoms and body image dissatisfaction in obese women in a semi-experimental study with a control and an experimental group, with pre-test, post-test, and follow-up. Sample consisted of 30 obese women with a Fisher's body image test score ranging between 46 to 138 and a Beck Anxiety Inventory score ranging between 17 to 63. The sample was randomly assigned to the two groups. The treatment group (Acceptance and Commitment Approach) received eight sessions of two-hour once a week, the control group did not receive any training. Results of the analysis of variance with repeated measures revealed that the independent variable was effective in reducing anxiety and reducing body image dissatisfaction. The authors concluded that Acceptance and Commitment Therapy (ACT) leads to reduced body image dissatisfaction (p<0.01, F=38.03) and anxiety (F=3.28, p<0.05) in obese women.
ACT and Sleep Disturbance

Lundh (2005) explored the application of acceptance and mindfulness techniques in the treatment of insomnia. The author argued that sleep is facilitated by cognitive deactivation, with less controlled information processing as compared with daytime functioning, and correspondingly more acceptance of spontaneously occurring physiological and mental processes. According to Lundh, mindfulness practice, in the form of nonjudgmental observation of spontaneously occurring physical and psychological processes, may be an effective way of training the skills of cognitive deactivation. Furthermore, psychoeducational methods were discussed by the author to help clients develop a more functional schematic model of sleep and sleeplessness.

ACT and Depression

Kanter, Baruch and Gaynor (2006) described and compared two intervention strategies for clinical depression, acceptance and commitment therapy (ACT) and behavioral activation (BA). According to them, ACT differs from BA on theoretical grounds for three reasons. First, BA can be seen as reinforcing verbal processes that support the control of aversive private events whereas ACT seeks to weaken attempts at verbal control of private events; this includes eliminating changing private events as an explicit goal of treatment. Second, according to ACT, verbally controlled behaviour leads to insensitivity to changes in schedules of reinforcement and may reduce the value of reinforcers while BA suggests that verbal processes may prevent and disrupt contact with environmental contingencies that will reinforce and maintain behaviours alternative to avoidance. Third, even when environmental contingencies that support active and goal-directed behaviour are contacted, ACT would consider such contact to be limited and risk for relapse substantial as long as underlying
verbal processes that support experiential avoidance are not addressed. ACT aims to counteract experiential avoidance that may be triggered by aversive private experiences even in an active and goal-directed.

Mojtabaie and Gholamhosseini (2014) examined the effectiveness of Acceptance and Commitment Therapy (ACT) using a quasi-experimental study with a pre-test, post-test and control group, to reduce the symptoms of depression in women with breast cancer. Tools used were clinical interview and second version of the Beck Depression Inventory (BDI-II). 30 women breast cancer patients with depressive symptoms were selected and randomly divided to experimental group (n = 15) and controls (n = 15) group. Acceptance and Commitment Therapy was administered in 8 sessions of 45-60 minutes to the experimental group, where as the control group received no intervention. Analysis of pre-test and post-test scores of both groups with one-way analysis of covariance (ANCOVA) revealed a significant difference between experimental and control groups at 95% confidence level and depression scores of the experimental group were significantly decreased as compared to the control group. Acceptance and commitment therapy (ACT) was found to be effective in reducing the symptoms of depression in women with breast cancer.

**ACT and Substance Use**

Twohig, Shoenberger and Hayes (2007) investigated the application of acceptance and commitment therapy as a treatment for marijuana dependence in adults. 3 adults who met criteria for marijuana dependence were treated using an abbreviated version of acceptance and commitment therapy (ACT). The treatment was delivered in eight weekly 90-min individual sessions. The effects of the intervention were assessed using a non-concurrent
multiple baseline across participants design. Self-reported marijuana use, confirmed through oral swabs, reached zero levels for all participants at post-treatment. At a 3-month follow-up, 1 participant was still abstinent and the other 2 were using but at a lower average level of consumption compared to baseline. Depression, anxiety, withdrawal symptoms, and general levels of experiential avoidance generally improved.

**ACT and Pain**

In a pilot investigation, 14 adolescents referred to the pain treatment service due to chronic debilitating pain, were treated using an ACT-based approach. In contrast to emphasizing reductions in pain and distress, the treatment objective was to improve functioning by increasing the patient's ability to act in line with personal values in the presence of negative thoughts, emotions or bodily sensations. Following treatment, and retained at 3- and 6-month follow-up, improvements in functional ability, school attendance, catastrophizing and pain (i.e., intensity and interference) were seen (Wicksell, Melin and Olsson, 2007).

In another study, Wicksell et al. (2008) examined the application of exposure and acceptance strategies on people with chronic pain and whiplash associated disorders. They highlighted the significance of an approach that promotes acceptance of, or willingness to experience, pain and other associated negative private events (e.g. fear, anxiety, and fatigue) instead of reducing or controlling symptoms. 21 participants with chronic pain and whiplash-associated disorders were recruited from a patient organization and randomized to either a treatment or a wait-list control condition. Both groups continued to receive treatment as usual. In the experimental condition, a learning theory framework was applied to the analysis
and treatment. The intervention consisted of a 10-session protocol emphasizing values-based exposure and acceptance strategies to improve functioning and life satisfaction by increasing the participants' abilities to behave in accordance with values in the presence of interfering pain and distress (psychological flexibility). After treatment, significant differences in favour of the treatment group were seen in pain disability, life satisfaction, and fear of movements, depression, and psychological inflexibility. No change for any of the groups was seen in pain intensity. Improvements in the treatment group were maintained at 7-month follow-up.

In 2009, Wicksell et al. evaluated the effectiveness of an ACT-oriented intervention based on exposure and acceptance strategies for pediatric longstanding pain syndromes, and to compare this with a multidisciplinary treatment (MDT) approach including amitriptyline (n=32). The ACT condition underwent a relatively brief treatment protocol of approximately 10 weekly sessions. Assessments were made before and immediately after treatment, as well as at 3.5 and 6.5 months follow-up. Prolonged treatment in the MDT group complicated comparisons between groups at follow-up assessments. Results showed substantial and sustained improvements for the ACT group. On follow-up assessments, ACT performed significantly better than MDT on perceived functional ability in relation to pain, pain intensity and to pain-related discomfort (intent-to-treat analyses). At post-treatment, significant differences in favour of the ACT condition were also seen in fear of re-injury or kinesiophobia, pain interference and in quality of life.

Wetherell et al. (2011) investigated the efficacy of acceptance and commitment therapy and cognitive-behaviour therapy in a randomized control trial on chronic pain. Individuals reporting chronic, non-malignant pain for at least 6 months (N=114) were randomly assigned
to 8 weekly group sessions of acceptance and commitment therapy (ACT) or cognitive-behavioural therapy (CBT) after a 4-6 week pre-treatment period and were assessed after treatment and at 6-month follow-up. All participants remained stable on other pain and mood treatments over the course of the intervention. ACT participants improved on pain interference, depression, and pain-related anxiety, and reported significantly higher levels of satisfaction than did CBT participants. However, there were no significant differences in improvement between the treatment conditions on any outcome variables.

**ACT and Post-Traumatic Stress Disorder**

Twohig (2009) demonstrated the application of Acceptance and Commitment Therapy (ACT) in a case of treatment-resistant post-traumatic stress disorder. An adult woman with chronic posttraumatic stress disorder (PTSD) and major depressive disorder who was nonresponsive to 20 sessions of cognitive behaviour therapy (CBT) was treated with 21 sessions of ACT for PTSD. Measurements of PTSD severity, depression, anxiety, psychological flexibility and trauma-related thoughts and beliefs were taken at pre-treatment, after Sessions 8 and 16, and at post-treatment. Results showed significant reduction on all measures throughout treatment, except for trauma-related thoughts and beliefs, which did not decrease until near the end of treatment.

**ACT and Irritable Bowel Syndrome**

In another study, Ferreira, Eugenicos, Morris and Gillanders (2011) discussed a new functional conceptualization of the suffering in irritable bowel syndrome (IBS). Unlike the bio-psycho-social conceptualizations of irritable bowel syndrome (IBS) that views the physical and psychological experiences (e.g. bowel discomfort, pain, stress, IBS-related
anxiety) of this condition as the key influence in the poorer outcomes of this population, they view maintenance of IBS as a result of psychological inflexibility. They proposed acceptance and commitment therapy (ACT) as a new form of approach, not based on control, elimination or change strategies, but based on acceptance and increasing psychological flexibility, for the improvement of IBS outcomes.

ACT and Care-giver Population

Blackledge and Hayes (2006) investigated the application of acceptance and commitment training in the support of parents of children diagnosed with autism. The study used a within-subject, repeated measures design to test the effects of 2-day (14 hour) group ACT workshop on 20 normal parents/guardians of children diagnosed with autism. Parents were assessed three weeks before the workshop, one week before, one week after, and three months after. No significant changes occurred while waiting for treatment, but pre to post improvements were found on the Beck Depression Inventory-II (BDI-II), and the Global Severity Index (GSI) of the Brief Symptom Inventory (BSI). Significant pre to follow-up improvements were observed on the BDI-II, BSI, and the General Health Questionnaire-12. Processes measures of experiential avoidance and cognitive fusion also changed and there was some evidence that these changes mediated the outcomes seen. Results suggest that ACT may have promise in helping parents better adjust to the difficulties in raising children diagnosed with autism.

Bethay et al. (2013) in their pilot evaluation of acceptance and commitment training for intellectual disability staff tested a mindfulness and acceptance-based work stress reduction intervention on the group of intellectual disability staff. The intervention combined
Acceptance and Commitment Training (ACT) with instruction in applied behaviour analysis and was compared to a control condition consisting of applied behaviour analysis training only. Considering both distressed and non-distressed participants, between-group differences were observed only for participants who reported that they had been consistently applying the techniques they had learned. In addition, ACT group participants with higher levels of psychological distress at pre-test showed greater reductions in psychological distress from pre-test to follow-up when compared to their control group counterparts. A concurrent decrease in the believability of burnout-related thoughts was observed in the ACT group from pre-test to follow-up, relative to the control group.

**ACT and Treatment-Resistant Population**

Clarke et al. (2012) reported an innovative treatment development evaluation of ACT for a heterogeneous group of ‘treatment-resistant clients’ (N=10) who had attended a mean of 3.5 previous psychological interventions. All clients had Axis I presentations and half met diagnostic criteria for Axis II disorders. Functioning, assessed at pre- and post-intervention, and at 6- and 12-month follow-up, showed improvements over time on all primary outcome measures, driven largely by significant changes occurring between baseline and 6-month follow-up. Improvements were associated with ACT processes of change. Results suggest that a broad range of clients who had not benefited from standard care may benefit from ACT.

**ACT compared to Other Interventions**

Öst (2014) reviewed and presented a meta-analysis of 60 RCTs (4234 participants) using Acceptance and Commitment Therapy (ACT) on psychiatric disorders, somatic
disorders, and stress at work. The mean effect size across all comparisons was found to be small (0.42). Compared to a previous meta-analysis by the author, there was no significant improvement in methodological quality and deterioration in effect size (from 0.68). When ACT was compared to various forms of cognitive or behavioral treatments a small and non-significant effect size of 0.16 was obtained. An evidence-base evaluation showed that ACT is not yet well-established for any disorder. It is probably efficacious for chronic pain and tinnitus, possibly efficacious for depression, psychotic symptoms, OCD, mixed anxiety, drug abuse, and stress at work, and experimental for the remaining disorders.

Tjak and others (2015) presented the results of a meta-analysis of 39 randomized controlled trials on the efficacy of acceptance and commitment therapy (ACT), including 1,821 patients with mental disorders or somatic health problems. Statistical calculations revealed that ACT outperformed control conditions (Hedges' g = 0.57) at post-treatment and follow-up assessments in completer and intent-to-treat analyses for primary outcomes. ACT was superior to waitlist (Hedges' g = 0.82), to psychological placebo (Hedges' g = 0.51) and to treatment as usual (TAU) (Hedges' g = 0.64). ACT was also superior on secondary outcomes (Hedges' g = 0.30), life satisfaction/quality measures (Hedges' g = 0.37) and process measures (Hedges' g = 0.56) compared to control conditions. The comparison between ACT and established treatments (cognitive behavioral therapy) did not reveal any significant differences between these treatments (p = 0.140). The authors concluded that ACT is more effective than treatment as usual or placebo and that ACT may be as effective in treating anxiety disorders, depression, addiction, and somatic health problems as established psychological interventions; However, more research that focuses
on quality of life and processes of change is needed to understand the added value of ACT and its diagnostic nature.

**Summary:** The studies reviewed in this section highlighted the efficacy of acceptance and mindfulness approaches in various clinical groups, such as anxiety, psychosis, pain, parents and caregivers of patient groups, substance use, lifestyle disorders etc, in dealing with symptoms and also maintenance of therapy outcome at follow-up. Most studies brought out the variables of experiential avoidance, cultivation of mindfulness, and changes in attitudes towards symptoms such as acceptance and willingness as related factors in therapy outcome. This signifies the role of the mediating factors in acceptance based approaches that are discussed in the next sub-section.

**II. Mediators of change in Acceptance and Mindfulness based interventions**

In the following sub-section, researches investigating the mediators of change in acceptance and mindfulness based interventions have been discussed. Subsequent to the studies examining the efficacy of these interventions, there was a growing need to explore the mediating processes that lead to the treatment outcome, in order to enhance the therapeutic procedures.

**Psychological Flexibility as a Mediating Factor**

Bond and Bunce (2000) investigated in their research, the mediators of change in emotion-focused and problem-focused worksite stress management interventions. Ninety
volunteers in a media organization were randomly allocated to an Acceptance and Commitment Therapy (ACT, n = 30) group that sought to enhance people's ability to cope with work-related strain; to an Innovation Promotion Program (IPP, n = 30) that helped individuals to identify and then innovatively change causes of occupational strain; or to a waitlist control group (n = 30). Both interventions lasted 9 sessions each, spread over 3 months. Improvements in mental health and work-related variables were found following both interventions. It was found that changes in outcome variables in the ACT condition were mediated only by the acceptance of undesirable thoughts and feelings; and in the IPP condition, outcome change was mediated only by attempts to modify stressors.

Gifford et al. (2004) in a pilot study applied a theoretically derived model of acceptance-based treatment process to smoking cessation, and compared it to a pharmacological treatment based on a medical dependence model. Seventy-six nicotine dependent smokers were randomly assigned to one of two treatments: Nicotine Replacement Treatment (NRT), or a smoking-focused version of Acceptance and Commitment Therapy (ACT). There were no differences between conditions at post-treatment; however, participants in the ACT condition had better long-term smoking outcomes at one-year follow-up. The ACT group had maintained their gains (35% quit rates) while the NRT quit rates had fallen (less than 10%). Mediation analyses showed that ACT worked through acceptance and response flexibility. Withdrawal symptoms and negative affect neither differed between conditions nor predicted outcomes.

Levitt and others (2004) examined the effects of acceptance versus suppression of emotion in 60 patients with panic disorder. Prior to undergoing a 15-minute 5.5% carbon
dioxide challenge, participants were randomly assigned to 1 of 3 conditions: a 10-minute audiotape describing 1 of 2 emotion-regulation strategies (acceptance or suppression) or a neutral narrative (control group). The acceptance group was significantly less anxious and less avoidant than the suppression or control groups in terms of subjective anxiety and willingness to participate in a second challenge, but not in terms of self-report panic symptoms or physiological measures. No differences were found between suppression and control groups on any measures. Use of suppression was related to more subjective anxiety during the challenge, and use of acceptance was related to more willingness to participate in a second challenge. The results suggested that acceptance may be a useful intervention for reducing subjective anxiety and avoidance in patients with panic disorder.

McCracken, Vowles and Eccleston (2005) investigated the application of acceptance-based treatment for persons with complex, long standing chronic pain within an interdisciplinary treatment program. One hundred and eight patients with complex chronic pain conditions underwent treatment conducted in a 3- or 4-week residential or hospital-based format. Treatment included a number of exposure-based, experiential, and other behaviour change methods focusing on increasing (a) engagement in daily activity regardless of pain and (b) willingness to have pain present without responding to it. Significant improvements in emotional, social, and physical functioning, and healthcare use were demonstrated following treatment. The majority of improvements continued at 3-months post-treatment. Improvements in most outcomes during treatment were correlated with increases in acceptance, supporting ‘acceptance’ as a mediating process of treatment.
Bond and Flaxman (2006) examined the role of psychological flexibility on the mental health and job performance of workers in an organizational setting. This longitudinal study tested the degree to which an individual characteristic, psychological flexibility, and a work organization variable, job control, predicted ability to learn new skills at work, job performance, and mental health, amongst call center workers in the United Kingdom (N = 448). Results indicated that job control, psychological flexibility, and the synergistic interaction between the two, predicted people’s ability to learn a new computer software program, as well as their mental health and job performance, which was objectively measured.

In another RCT by Gregg and others (2007) to investigate the efficacy of acceptance and commitment therapy (ACT) on Type II diabetes, it was found that ACT along with patient education was significantly better than patient education alone in producing good self-management and better blood glucose levels in lower SES patients. Effects at follow-up were found to be mediated by changes in self-management and greater psychological flexibility with regard to diabetes related thoughts and feelings.

McCracken and Vowles (2007) investigated the relationship between patient functioning and behaviours demonstrating psychological flexibility, as compared to traditionally conceived pain coping strategies. Two hundred-sixty treatment-seeking chronic pain patients completed a battery of measures, including a clinical instrument assessing a range of responses to pain. After initial psychometric evaluation of the instrument, two subscales were identified, one labeled “Psychological Flexibility” and the other “Pain Management”. Both subscales were related to emotional functioning and
psychosocial disability, although Psychological Flexibility achieved larger correlations and was associated with additional indices of distress, physical functioning, healthcare use and work status. Regression analyses indicated that Psychological Flexibility accounted for significant variability in eight of ten measures of functioning, after controlling for pain and demographic variables, whereas Pain Management did not achieve significance for any measure. Results suggested that psychological flexibility, defined by its constituent processes (acceptance, moment to moment awareness, values-based action, and separation of problematic thoughts and beliefs from the behaviour that follows them), may be a powerful predictor of patient functioning in chronic pain.

Lundgren, Dahl and Hayes (2008) examined the mediators of change accounting for outcomes of a previously published study on Acceptance and Commitment Therapy for the self-management of epilepsy and its life restricting impact. Conducted with 27 poor South Africans, a nine-hour ACT protocol that included seizure management methods was shown to greatly reduce epileptic seizures and to increase quality of life over the next year as compared to an attention placebo control. A series of bootstrapped non-parametric multiple mediator tests showed that pre- to follow-up changes in: seizures, quality of life, and well-being outcomes were mediated to a degree by ACT process measures of epilepsy-related acceptance or defusion, values attainment, persistence in the face of barriers, or their combination. The results contributed to the understanding of the contextual conditioning mechanisms at work for those suffering from epilepsy and how ACT modules may be efficacious.
In order to study the mechanisms underlying acceptance- and mindfulness-based approaches to anxiety, Degen (2008) investigated two possible mediators, perceived control and mindfulness, of acceptance based coping instruction on fear responding in nonclinical participants, who underwent voluntary hyperventilation. Selected relationships between experiential avoidance (EA), anxiety sensitivity (AS), coping strategy choice, perceived control and mindfulness, and anxious responding were also examined in a no instruction comparison condition. It was found that acceptance coping manipulation did not produce any significant between-group differences in indexes of fear of avoidance. Exploratory analyses indicated, however, that use of acceptance coping was prospectively associated with decreased behavioural avoidance of the second hyperventilation across the sample. Though both the acceptance manipulation and use of acceptance-based coping were positively associated with facets of state mindfulness (i.e., decentering), the post-hoc effect of acceptance-based coping on avoidance was mediated by a willingness to experience emotions and symptoms during initial hyperventilation. Modest support for most of the no instruction group hypotheses was indicated.

Vowles amd McCracken (2008) investigated the effectiveness of acceptance and commitment therapy in the treatment of chronic pain and also examined 2 processes from this model, acceptance and values-based action. Participants included 171 completers of an interdisciplinary treatment program, 66.7% of whom completed a 3-month follow-up assessment as well. Results indicated significant improvements for pain, depression, pain-related anxiety, disability, medical visits, work status, and physical performance. According to reliable change analyses, 75.4% of patients demonstrated improvement in at least one
key domain. Both acceptance of pain and values-based action improved, and increases in these processes were associated with improvements in the primary outcome domains.

Bond, Flaxman and Bunce (2008) examined in using a quasi-experimental design, the extent to which an individual characteristic, psychological flexibility, moderated the effects of a control-enhancing work reorganization intervention in a call center. Results indicated that, compared with a control group, this intervention produced improvements in mental health and absence rates, particularly for individuals with higher levels of psychological flexibility. Findings also showed that these moderated intervention effects were mediated by job control. Specifically, the intervention enhanced perceptions of job control, and hence its outcomes, for the people who received it, especially for those who had greater psychological flexibility.

Bilich-Erich (2009) investigated the implementation of a worksite stress management intervention based on Acceptance and Commitment Therapy (ACT), called Mindfulness-based Emotional Intelligence Training (MBEIT) intervention on NSW police officers. This intervention was designed to promote emotional well-being and workplace effectiveness, and improve interpersonal relationships. 123 police officers were randomly assigned to either the MBEIT condition or the control condition. The MBEIT intervention consisted of a total of 4 days of training that was completed over 4 months. Outcome (i.e., mental health, innovativeness, sick leave) and process of change (i.e., acceptance) measures were administered at baseline (Time 1), at the completion of the training after four months (Time 2), and again 3 months later (Time 3). Participants in the MBEIT intervention group also completed a measure on personal values at Time 1 and Time 2 in order to examine
their values and the impact of MBEIT on values over time. Results indicated that participants in the MBEIT intervention showed significantly greater improvements in their general mental health compared to those in the control condition over the 4 month training period (T1 to T2). It was predicted that an increase in psychological flexibility, or acceptance, would mediate this effect but mediation was not found. Over the 4 month period, participant’s increased their level of success in pursuing their family relationship values, and also indicated that they chose their relationship values for more intrinsic reasons over time. There were no other significant changes in any of the other outcome measures over time or between groups.

Masuda and others (2009) examined whether there was a link between stigmatizing attitudes toward people with psychological disorders and one's own level of psychological distress, and the role of psychotherapy flexibility in mental health stigma and psychological distress for the stigmatizer. Results revealed that there was a significant positive correlation between mental health stigma and psychological distress. Furthermore, the results suggested that psychological flexibility may be a shared feature of mental health stigma and psychological distress, indicating it as a promising construct for conceptualizing and treatment of mental health stigma.

Lillis, Hayes, Bunting and Masuda (2009) proposed a new model for improving the lives of the obese which was aimed at reducing avoidant behaviour and increasing psychological flexibility. 84 patients who had completed at least 6 months of a weight loss program were randomly assigned to receive a 1-day, mindfulness and acceptance-based workshop targeting obesity-related stigma and psychological distress, and the waiting list.
At a 3-month follow-up, workshop participants showed greater improvements in obesity-related stigma, quality of life, psychological distress, and body mass, as well as improvements in distress tolerance, and both general and weight-specific acceptance and psychological flexibility. Effects on distress, stigma, and quality of life were above and beyond the effects due to improved weight control. Mediational analyses indicated that changes in weight-specific acceptance coping and psychological flexibility mediated changes in outcomes.

According to Biglan (2009), recent research on psychological flexibility suggests that helping people to accept, but not believe, their unpleasant thoughts and feelings contributes to people becoming more caring. The author reviewed evidence of the value of Acceptance and Commitment Therapy (ACT) for increasing psychological flexibility focusing, in particular, on its impact on prejudice and caring. The paper discussed the application of ACT for increasing psychological flexibility and how it could contribute to the evolution of a more caring society with less conflict and prejudice, and is less punitive and more sustainable.

Wicksell, Olsson and Hayes (2010) explored the processes of change in a successful randomized controlled trial evaluating the effectiveness of Acceptance and Commitment Therapy (ACT), on improvement in pain-related disability and life satisfaction for patients suffering from whiplash-associated disorder (WAD). Mediation analyses were performed using a non-parametric cross-product of the coefficients approach. Results illustrated that pain intensity, anxiety, depression, kinesiophobia, and self-efficacy did not have significant mediating effects on the dependent variables. In contrast, significant indirect effects were
seen for psychological inflexibility on pain-related disability (pre- to post-change scores) and life satisfaction (pre- to post; pre- to 4-month follow-up change scores).

Kashdan (2010) reviewed literature and described psychological flexibility as a prominent aspect of health. According to the author, psychological flexibility spans a wide range of human abilities, such as to recognize and adapt to various situational demands, shift mindsets or behavioural repertoires when these strategies compromise personal or social functioning, maintain balance among important life domains, and be aware, open, and committed to behaviours that are congruent with deeply held values. Psychological inflexibility is viewed as integral to a variety of psychopathology. These pathological processes span cognitive rigidities such as rumination and worry, patterns of behavioural perseveration, as well as a relative inability to rebound following stressful events, and difficulties planning and working for distant goals. It was concluded, that interventions to increase flexibility that can be informed by strong basic science will potentially viable to aid people suffering from pathology, as well help highly functioning people find greater efficacy and fulfilment in their daily lives.

Kashdan and Rottenberg (2010) reviewed literature to offer evidence for the prominence of psychological flexibility in understanding psychological health. According to the authors, psychological flexibility spans a wide range of human abilities to: recognize and adapt to various situational demands; shift mindsets or behavioral repertoires when these strategies compromise personal or social functioning; maintain balance among important life domains; and be aware, open, and committed to behaviors that are congruent with deeply held values. They synthesized work in emotion regulation, mindfulness and
acceptance, social and personality psychology, and neuropsychology providing insight into the nature, correlates, and consequences of psychological flexibility and view it as a significant construct promising viability in interventions.

Flederus and others (2010) assessed whether an intervention based on acceptance and commitment therapy (ACT) and mindfulness was successful in promoting positive mental health by enhancing psychological flexibility. 93 adults participants with mild to moderate psychological distress were randomly assigned to the group intervention (n=49) or to a waiting-list control group (n=44). Participants completed measures before and after the intervention as well as 3 months later at follow-up to assess mental health in terms of emotional, psychological, and social well-being (Mental Health Continuum - Short Form) as well as psychological flexibility (i.e., acceptance of present experiences and value-based behaviour, Acceptance and Action Questionnaire-II). Regression analyses showed that compared to the participants on the waiting list, participants in the ACT and mindfulness intervention had greater emotional and psychological well-being after the intervention and also greater psychological flexibility at follow-up. Mediational analyses showed that the enhancement of psychological flexibility during the intervention mediated the effects of the intervention on positive mental health. ACT is an intervention that stimulates skills of acceptance and value-based action.

Vowles & McCracken (2010) examined how changes in traditionally conceived methods of coping compare to changes in psychological flexibility in relation to improvements in functioning over the course of an interdisciplinary treatment program, in a group of 114 chronic pain sufferers. Results indicated that changes in the traditionally
conceived methods were essentially unrelated to treatment improvements, while changes in psychological flexibility were consistently and significantly related to these improvements. The authors suggested that psychological flexibility appears highly relevant to the study of chronic pain and to future treatment developments.

Masuda and others (2010) in a cross-sectional study investigated the relation among disordered eating-related cognition, psychological flexibility, and poor psychological outcomes among a nonclinical college sample. As predicted, conviction of disordered eating-related cognitions was positively associated with general psychological ill-health and emotional distress in interpersonal contexts. Disordered eating-related cognition was also inversely related to psychological flexibility, which was inversely related to poor psychological health and emotional distress in interpersonal contexts. The combination of disordered eating-related cognition and psychological flexibility accounted for the proportion of variance of these poor psychological outcomes greater than disordered eating-related cognition alone. Finally, psychological flexibility accounted for the proportion of variance of these negative psychological variables greater than did disordered eating-related cognition.

In a study by McCracken and Vellerman (2010), 239 adults with chronic pain were surveyed in primary care, through contact with their General Practitioners in the UK. They completed measures of acceptance of chronic pain, mindfulness, psychological acceptance, values-based action, health status, and GP visits related to pain. Correlation coefficients demonstrated significant relations between the components of psychological flexibility and the measures of health and GP visits. In regression analyses, including both pain intensity
and psychological flexibility as potential predictors, psychological flexibility accounted for significant variance; pain intensity accounted for an average of 9.2% of variance while psychological flexibility accounted for 24.1%. Results suggested that psychological flexibility may reduce the impact of chronic pain in patients with low to moderately complex problems outside of specialty care.

Bohlmeijera et al. (2011) examined the efficacy of an early intervention based on acceptance and commitment therapy (ACT) for depressive symptomatology. The intervention was aimed at increasing the acceptance of negative thoughts and emotions and living a mindful and value-based life. Adults with mild to moderate depressive symptomatology were randomly assigned to the ACT intervention (n = 49) or to a waiting list (n = 44). They completed the measures to assess depression (CES-D), anxiety (HADS-A), fatigue (CIS), alcohol use and acceptance (AAQ-II) before and after the intervention, as well as three months later at follow-up. Results revealed that ACT intervention led to statistically significant reduction in depressive symptomatology (Cohen’s d = .60), anxiety and fatigue. Reductions in depressive symptoms were maintained at the three-month follow-up. Mediation analysis showed that the improvement of acceptance during the intervention mediated the effects of the intervention on depressive symptomatology at follow-up, suggesting that an early intervention based on ACT, aimed at increasing acceptance, is effective in reducing depressive symptomatology.

Wicksell, Olsson and Hayes (2011) examined mediators of change in an ACT-oriented treatment for pediatric chronic pain using a bootstrapped cross product of coefficients approach. Pain interference and depression were used as outcome variables. Six
different variables relevant to theories underlying ACT and cognitive behaviour therapy were included in the analyses as possible mediators of change. Results illustrated that pain impairment beliefs and pain reactivity were the only variables that significantly mediated the differential effects of treatment on outcomes at follow-up. For the ACT condition, these mediators were found to also independently predict effects in outcome variables at follow-up. The pattern of results suggested that variables consistent with psychological flexibility mediate the effects of ACT-based interventions to improve functioning in patients with chronic debilitating pain.

In an attempt to examine compassion in organizations, Atkins and Parker (2012) developed an expanded model of the components of compassionate responding (noticing, appraising, feeling and acting) and proposed that psychological flexibility (mindfulness combined with values-directed action) contributed to enhancing the perceptual, cognitive, affective and behavioral aspects of compassion. Specifically, mindfulness processes support the capacity to be compassionate, while values processes motivate effort to engage in compassionate action. The authors concluded that training in psychological flexibility should be considered as one element of programs designed to increase compassion in organizational settings.

Bricker et al. (2013) conducted a pilot randomized controlled trial of the first web-based acceptance and commitment therapy (ACT) intervention for smoking cessation. The aims were to determine design feasibility, user receptivity, effect on 30-day point prevalence quit rate at 3 months post-randomization, and mediation by ACT theory-based processes of acceptance. 222 adult participants were recruited into the double-blind
randomized controlled pilot trial, which compared web-based ACT for smoking cessation (WebQuit.org) with the National Cancer Institute’s Smokefree.gov (the U.S. national standard for web-based smoking cessation interventions). Results revealed that participants spent significantly longer on the ACT WebQuit.org site per login (18.98 vs. 10.72 min; p = .001) and were more satisfied with the site (74% vs. 42%; p = .002), more than double the fraction of participants in the ACT WebQuit.org arm had quit smoking at the 3-month follow-up (23% vs. 10%; OR = 3.05; 95% CI = 1.01–9.32; p = .050). Eighty percent of this effect was mediated by ACT theory-based increases in total acceptance of physical, cognitive, and emotional cues to smoke (p < .001).

Luoma and Vilardaga (2013) examined the effects of Acceptance and Commitment Therapy (ACT) training on therapist psychological flexibility. The pilot study examined the effects of experiential phone consultation as an adjunct to a standard continuing education workshop on psychological flexibility and burnout among therapists learning ACT. Counsellors taking a 2-day ACT workshop were randomly assigned to either six 30-min phone consultation sessions (n = 10) or no additional contact (n = 10). The results showed that those in the consultation condition reported higher psychological flexibility at the 3-month follow-up compared to the workshop-only condition. Improvements in ACT knowledge, overall burnout, and personal accomplishment were found in both groups, independent of whether they received phone consultation, and this increase was maintained over time. It was concluded, that ACT phone consultation contributed to counsellor psychological flexibility above the workshop alone and appears to be feasible as a means to improve counsellor psychological flexibility.
Morris, Garety and Peters (2014) investigated the psychological flexibility model’s applicability to the experience of hearing distressing voices. Fifty people experiencing persisting auditory hallucinations were administered the Kentucky Inventory of Mindfulness Skills, Acceptance and Action Questionnaire, Beliefs about Voices Questionnaire-Revised, Thought Control Questionnaire, and the Beck Anxiety and Depression Inventories. The results showed differential contributions between measures of psychological flexibility and non-judgmental acceptance. Psychological flexibility accounted for a significant proportion of the variance in regression-based models of depression and anxiety, while non-judgmental acceptance contributed to the prediction of emotional and behavioural resistance to voices, in addition to appraisals of voices and use of thought-control strategies. Results suggested that psychological flexibility and non-judgmental acceptance are related to general emotional well-being and resistance response styles to voices, but not to specific dimensions of voice hearing.

**Experiential Avoidance as a Mediating Factor**

Eifert and Heffner (2003) compared the effects of creating an acceptance versus a control treatment context on the avoidance of aversive interoceptive stimulation (panic-related symptoms). Sixty high anxiety sensitive females were exposed to two 10-min periods of 10% carbon dioxide enriched air, an anxiogenic stimulus. Before each inhalation period, participants underwent a training procedure aimed at encouraging them either to mindfully observe (acceptance context) or to control symptoms via diaphragmatic breathing (control context). A third group was given no particular training or instructions. Compared to control context and no-instruction participants, acceptance context participants who were trained in acceptance oriented exercise (the finger trap), showed reduced avoidance,
reported less intense fear and cognitive symptoms and fewer catastrophic thoughts during the carbon dioxide inhalations.

Sloan (2004) examined the relationship between emotional reactivity (self-report and physiological reactivity) to pleasant, unpleasant, and neutral emotion-eliciting stimuli and experiential avoidance (EA) as measured by the AAQ. Sixty-two participants were divided and grouped into high and low experiential avoiders. Results indicated that high EA participants reported greater emotional experience to both unpleasant and pleasant stimuli compared to low EA participants. In contrast to their heightened reports of emotion, high EA participants displayed attenuated heart rate reactivity to the unpleasant stimuli relative to the low EA participants. These findings are interpreted as reflecting an emotion regulation attempt by high EA participants when confronted with unpleasant emotionally-evocative stimuli.

Luciano, Rodríguez Valverde and Gutiérrez Martínez (2004) described the natural bi-directionality and function-altering properties of language or verbal behaviour may give rise to the pathogenic verbal contexts proposed within the framework of Acceptance and Commitment Therapy (ACT) as responsible for Experiential Avoidance Disorder (EAD). Specifically, it is argued that these four contexts (literality, evaluation, reason-giving and the verbal regulation of the control of private events) are all of them part of a process where the last of them (verbal regulation of the control of private events) is the main one that encloses and gives rise to the other three, by virtue of the fact that it is the only context that involves effective actions and, subsequently, that has contingencies. Accordingly, for the other three contexts become a limitation, it is necessary that the person
initiates avoidance attempts that, although reinforcing in the short run, necessarily involve a loss in long-term contingencies (going against personal values). An explanation in RFT terms is offered of how aversive private events increase or decrease their aversiveness (by transformation of functions) depending on how they are experienced in regard to personal values: either when the person behaves as if negatively evaluated private events were in opposition to valuable actions, or when the person behaves as if private events were in coordination to valuable actions. The paper also focuses in the RFT analysis of the verbal processes under which some ACT clinical methods might be operating, either in altering both the context of value in which experiential avoidance becomes a problem and in altering cognitive defusion.

Orcutt, Pickett, & Pope (2005) investigated experiential avoidance and forgiveness, two general response styles to emotional distress that may impact reactions to trauma exposure, as potential mediators of the link between interpersonal trauma exposure and Posttraumatic Stress Disorder (PTSD) symptoms in a cross-sectional survey of 229 undergraduate students reporting interpersonal trauma exposure. Utilizing structural equation modeling techniques, both constructs were found to significantly partially mediate the relation between interpersonal trauma exposure and PTSD symptoms; experiential avoidance reduced the relation between interpersonal trauma exposure and PTSD symptoms by 22% while forgiveness reduced this relation by 14%. Thus, individuals who were lower in forgiveness and higher in experiential avoidance reported higher PTSD symptoms than those higher in forgiveness and lower in experiential avoidance. This provided implications for treatment and prevention of PTSD symptoms.
Reddy, Pickett and Orcutt (2006) examined experiential avoidance, a response style characterized by avoidance of negative private events, as a potential mediator of the relationship between reports of childhood psychological abuse and current mental health symptoms in a cross-sectional sample of 987 college undergraduates. Utilizing structural equation modeling techniques, experiential avoidance was found to significantly mediate the relationship between childhood psychological abuse and current mental health symptoms, reducing the direct effect by 77%. A history of childhood psychological abuse was related to increased levels of experiential avoidance and current mental health symptoms, and experiential avoidance was also directly related to increased levels of current mental health symptoms.

Kashdan and others (2006) in their dual studies, a correlation and a longitudinal, found that experiential avoidance as measured by the AAQ fully or partially mediated the relationships between coping and emotion regulation strategies on anxiety-related pathology, (Study 1) and between psychological distress and hedonic functioning over the course of a 21-day monitoring period (Study 2). The variables examined included maladaptive coping, emotional responses styles, and uncontrollability on anxiety-related distress (e.g., anxiety sensitivity, trait anxiety, suffocation fears, and body sensation fears), and suppression and cognitive reappraisal on daily negative and positive experiences. The data showed that cognitive reappraisal, a primary process of traditional cognitive-behaviour therapy, was much less predictive of the quality of psychological experiences and events in everyday life compared with EA.
Cochrane and others (2007) examined experiential avoidance and aversive visual images using response delays and event related potentials on a simple matching task. In one experiment, participants high (n=15) or low in avoidance (n=14), as measured by the Acceptance and Action Questionnaire, completed a simple matching task that required them to choose whether or not to look at an aversive visual image. Only the high-avoidance participants took longer to emit a correct response that produced an aversive rather than a neutral picture. Additionally, the high-avoiders reported greater levels of anxiety following the experiment even though they rated the aversive images as less unpleasant and less emotionally arousing than their low-avoidant counterparts. In the other experiment, three groups, representing high-, mid- and low-avoidance (n=6 in each) repeated the matching task with the additional recording of event-related potentials (ERPs). The findings of the first experiment were replicated in terms of reaction times and subjective ratings. The ERPs confirmed that the participants attended to the content of the images and differentiated between the aversive and neutral image types. The ERPs also showed significantly greater negativity for electrodes over the left hemisphere relative to the midline for only the high-experiential avoidance (EA) group. Given the left hemisphere dominance for language, the data suggest that the high-EA group engaged in verbal strategies to regulate their emotional responses.

Dalrymple and Herbert (2007) evaluated the efficacy of acceptance and commitment therapy (ACT) for social anxiety disorder (SAD). 19 individuals who were diagnosed with SAD underwent a 12-week program integrating exposure therapy and ACT. Results revealed no changes across a 4-week baseline control period. However, from pre-treatment to follow-up, significant improvements occurred in social anxiety symptoms and
quality of life, yielding large effect size gains. Significant changes also were found in ACT-consistent process measures, and earlier changes in experiential avoidance predicted later changes in symptom severity.

Chowla and Ostafin (2007) reviewed literature on experiential avoidance and summarized the empirical studies on experiential avoidance as a factor in the etiology of maladaptive behaviour and its relationship to specific diagnostic categories. Experiential avoidance involves the unwillingness to remain in contact with private experiences such as painful thoughts and emotions and is often proposed to be critical to the development and maintenance of psychopathology. They suggested that future studies should attempt to understand the core processes involved in experiential avoidance, and then clearly operationalize the construct and determine its incremental validity relative to other constructs.

Tull and Roemer (2007) examined emotion regulation difficulties among nonclinical uncued panickers in two studies. In Study 1, participants with a recent history of uncued panic attacks (n = 91), compared to a non-panic sample (n = 91), reported significantly greater levels of experiential avoidance, lack of emotional acceptance, and lack of emotional clarity. In Study 2, a subset of uncued panickers and non-panickers from Study 1 (n=17 per group) viewed positive and negative emotion-eliciting film clips. Despite comparable levels of self-reported distress and physiological arousal, panickers reported using more emotionally avoidant regulation strategies during both film clips. Panic participants also responded with greater negative emotion to the positive emotion-eliciting clip, demonstrating emotional non-acceptance and decreased emotional clarity.
Tull and Gratz (2008) examined the role of experiential avoidance and difficulties engaging in goal-directed behaviour when distressed in the relationship between anxiety sensitivity (AS) and depressive symptom severity. A sample of 391 undergraduate students completed a series of questionnaires assessing the constructs of interest. Results provided support for a model where experiential avoidance and difficulties engaging in goal-directed behaviour mediate the relationship between the AS dimensions of fear of cognitive dyscontrol and fear of publicly observable anxiety reactions and depressive symptom severity. The ability of this model to distinguish participants (N = 53) reporting clinical levels of depression from those without (N = 53) was then examined. The model was found to reliably distinguish between participants with and without clinical levels of depression. However, only experiential avoidance was found to be a significant mediator.

Ruiz (2010) reviewed correlational, experimental psychopathology and component, and outcome studies relevant to the ACT model. The author found that experiential avoidance was related with a wide range of psychological disorders and mediating the relation between different type of symptoms and psychological constructs; component studies showed that acceptance-based protocols are usually more efficacious than other control-based protocols; outcome studies showed the efficacy of ACT in a wide range of psychological problems and suggested that it is worked through its hypothesized processes of change. However, the author recognized the limitations of the actual empirical status of ACT and emphasized further research.

Lavender, Jardin and Anderson (2009) examined whether one form of experiential avoidance (thought suppression) and the theoretically opposing construct of dispositional
mindfulness are associated with bulimic symptoms. Undergraduate men (N=219) and women (N=187) completed questionnaires assessing mindful attention and awareness, chronic thought suppression, and bulimic symptoms. A series of hierarchical regression analyses revealed that thought suppression and mindfulness accounted for unique variance in bulimic symptoms among men and women after accounting for BMI.

Fledderus, Bohlmeijer and Pieterse (2010) investigated whether experiential avoidance (EA) mediates the relationship between maladaptive coping styles (palliative, avoidance, and passive coping) and psychopathology and positive mental health. A total of 93 adults with mild to moderate psychological distress completed measures assessing coping styles, psychopathology (depression, anxiety, and alcohol use), and mental health (emotional, psychological, and social well-being). Results showed that EA mediated the effects of passive coping on both increased anxiety and depression and decreased emotional and psychological well-being. These results suggest that a person who is prone to use EA or has learned EA in stressful situations has a higher risk of developing psychopathology and lower mental health. The findings suggested that early interventions that would aim at people with high levels of EA would be highly relevant.

Burrows (2011) applied Acceptance and Commitment Therapy (ACT) as a treatment model to three survivors of adult sexual assault. The nature of the participants’ experiential avoidance and the role of ACT in influencing it were examined. The participants completed the Acceptance and Action Questionnaire (AAQ-II), White Bear Suppression Inventory (WBSI), Trauma Symptom Checklist (TSC-40) and Valued Living Questionnaire (VLQ) at the start and conclusion of treatment and participated in a post-
treatment interview. Internal control strategies, particularly rumination about the future and thought suppression, were found to be the most common manifestations of experiential avoidance. At the end of treatment all three participants reported a reduction in their level of experiential avoidance, thought suppression, trauma symptomatology and an increase in their valued action and quality of life. It was concluded that ACT reduced experiential avoidance by offering willingness as an alternative to avoidance and control, grounding the participants in the present moment, reducing their fear of trauma symptoms, restoring their personal values and engaging them in values-guided action. The author concluded that the creative use of visual metaphors and experiential exercises in ACT and its emphasis on translating values into committed action make it a unique treatment approach for survivors of adult sexual assault.

**Cognitive Defusion as a Mediating Factor**

Masuda and others (2004) examined one of the cognitive defusion techniques which are designed to reduce the functions of thoughts by altering the context in which they occur, rather than the attempting to alter the form, frequency, or situational sensitivity of the thoughts themselves. They examined the impact of a cognitive defusion technique first described by Titchener nearly 90 years ago: rapidly repeating a single word. In series of eight single-case alternating treatment designs, this defusion technique was compared to a distraction task, and to a thought control task, on reductions in the discomfort and believability of self-relevant negative thoughts. The study suggested that repetition of negative self-referential words, at least when combined with a clinical rationale, can reduce their believability and their negative emotional impact. The cognitive defusion technique was found to reduce both discomfort and believability more so than the comparison
approaches. Control studies showed that the effect was probably not due to demand characteristics.

Blackledge (2007) examined the technique of cognitive defusion in Acceptance and Commitment Therapy (ACT) which aims to counteract problematic verbal transformations of function. The author described how cognitive defusion is used in ACT and mindfulness-based frameworks in the formation and alteration of stimulus function. Cognitive fusion refers to contexts in which verbal transformations of function are readily occurring, while cognitive defusion refers to contexts in which these verbal transformations are at least temporarily disrupted. Within ACT, defusion techniques involve a variety of actions designed to expose thoughts simply as thoughts rather than binding realities. Paradox, mindfulness, cognitive distancing, and a variety of other strategies are used to help clients experience problematic thoughts in a new context—one where the debilitating functions of such thoughts are disrupted even when the form (or content) of these thoughts remains the same. It was concluded that cognitive defusion strategy of ACT has functional and topographical similarities with techniques evident in mindfulness-based psychotherapies and the cognitive distancing elements of CBT, and have broad implications of application.

Healy et al. (2008) evaluated a cognitive defusion exercise and investigated the impact of defusion on a nonclinical sample (n = 60) in the context of negative (e.g., “I am a bad person”) and positive (e.g., “I am whole”) self-statements. Participants were assigned to one of three experimental conditions (Pro-Defusion, Anti-Defusion, and Neutral) that manipulated instructions about the impact of a defusion strategy. Defusion was also manipulated through the visual presentation of the self-statements, with each presented in
three formats (normal, defused, abnormal). Participants rated each self-statement for comfort, believability, and willingness. Although the instructions did not affect ratings, negative statements presented in the defused format decreased discomfort and increased willingness and believability relative to the non-defused statements. The findings provide evidence for the application of defusion strategies in coping with negative psychological content.

In another study, Masuda et al. (2009) examined whether durations of word repetition were differentially effective in altering the discomfort and believability of negative self-referential thought. In two studies, both discomfort and believability varied systematically with the duration of word repetition. The effects of rapid repetition on emotional discomfort bottomed out after 3 s to 10 s of rapid repetition, whereas the effects on believability did so after 20 s to 30 s of repetition. The study extended support to the cognitive defusion interpretation of the effect of word repetition, suggesting that emotional discomfort and believability may be distinctive functional aspects of cognitive events, thus, provided evidence for the efficacy of this technique to alter the discomfort and believability of negative self-referential thoughts.

Gaudiano, Herbert and Hayes (2010) investigated the potential mediators of change in psychological treatments for psychosis using data from a previously published randomized trial comparing brief treatment with Acceptance and Commitment Therapy (ACT) versus treatment as usual for hospitalized patients with psychotic symptoms (Gaudiano & Herbert, 2006a). Results showed that the believability of hallucinations at post-treatment statistically mediated the effect of treatment condition on hallucination-
related distress. Hallucination frequency was not found to have a mediational role in the outcome.

Zettle, Rains and Hayes (2011) presented a reanalysis of data from Zettle and Rains that compared 12 weeks of group CT with group ACT. A modified form of CT that did not include distancing was applied, and a no intent-to-treat analysis was included. ACT was shown to produce greater reductions in levels of self-reported depression using an intent-to-treat analysis. Post-treatment levels of cognitive defusion mediated this effect at follow-up. The occurrence of depressogenic thoughts and level of dysfunctional attitudes did not function as mediators.

Hooper and others (2012) aimed to compare two techniques, thought suppression and acceptance, as coping techniques for food cravings. Participants were instructed in either a thought suppression or defusion technique at the beginning of a week-long period of attempted chocolate abstinence. A control group was given no instruction. It was predicted that the participants given the defusion intervention would eat less chocolate during six days and during a final taste test. It was found that participants in the defusion group ate significantly less chocolate during the taste test than other groups. However, no difference was found in the amount of chocolate eaten throughout the duration of the experiment. The results indicate the possibility of utilizing acceptance-based techniques in promoting weight management.

Hooper and McHugh (2013) in their investigation compared cognitive defusion and experiential avoidance as strategies for coping with unwanted thoughts during a learned
helplessness preparation. Before entering the learned helplessness preparation, participants were provided with 1 of 3 instructions: defusion, experiential avoidance (via a thought distraction instruction), or control (i.e., no instruction). Directly after the learned helplessness preparation, participants were instructed to attempt a pen-and-paper maze task, where their completion time was recorded. Results indicated that participants who received the defusion instruction produced maze times that were significantly shorter than the thought distraction and control groups. It was concluded that defusion instructions were efficacious in the management of unwanted thoughts, and that engaging in experiential avoidance was maladaptive.

**Mindfulness as a Mediating Factor**

Brown and Ryan (2003) in their research provided a theoretical and empirical examination of the role of mindfulness in psychological well-being. They described how mindfulness practitioners differentiate from others, and mindfulness and its association with enhanced self-awareness. In an experience-sampling study, it was found that both dispositional and state mindfulness predict self-regulated behaviour and positive emotional states. A clinical intervention study with cancer patients, demonstrated that increases in mindfulness over time relates to decline in mood disturbance and stress.

Relational Frame Theory describes how human suffering is created by entanglement with the cognitive networks made possible by language. According to Fletcher and Hayes (2005), mindfulness can be understood as a collection of related processes that function to undermine the dominance of verbal networks, especially involving temporal and evaluative relations. These processes include acceptance, defusion, contact with the present moment,
and the transcendent sense of self. According to the authors, each of these components of mindfulness is targeted in Acceptance and Commitment Therapy, and there is some evidence that they underlie the therapeutic changes induced by this approach.

Arch and Craske (2006) investigated whether a 15 min recorded focused breathing induction in a normal, primarily undergraduate population would decrease the intensity and negativity of emotional responses to affectively valenced picture slides and increase willingness to remain in contact with aversive picture slides. The effects of the focused breathing induction were compared with the effects of 15 min recorded inductions of unfocused attention and worrying. The focused breathing group maintained consistent, moderately positive responses to the neutral slides before and after the induction, whereas the unfocused attention and worry groups responded significantly more negatively to the neutral slides after the induction than before it. The focusing breathing group also reported lower negative affect and overall emotional volatility in response to the post-induction slides than the worry group, and greater willingness to view highly negative slides than the unfocused attention group. The lower-reported negative and overall affect in response to the final slide blocks, and greater willingness to view optional negative slides by the focused breathing group may be viewed as more adaptive responding to negative stimuli. These findings were found to be consistent with the emotional regulatory properties of mindfulness.

Bowen and colleagues (2007) examined the mediating effects of thought suppression in the relationship between participation in an incarcerated Vipassana course (mindfulness meditation) and subsequent alcohol use. Results revealed that participants in
the course reported significant decrease in avoidance of thoughts when compared to controls. The decrease in avoidance partially mediated effects of the course on post-release alcohol use and consequences.

Forman et al. (2007) conducted a randomized controlled effectiveness trial of Acceptance and Commitment Therapy (ACT) and Cognitive Therapy (CT) for anxiety and depression. One hundred one heterogeneous outpatients reporting moderate to severe levels of anxiety or depression were randomly assigned to traditional cognitive therapy (CT) or to ACT. Participants receiving CT and ACT evidenced large, equivalent improvements in depression, anxiety, functioning difficulties, quality of life, life satisfaction, and clinician-rated functioning. The mechanisms of action however, appeared to differ. Changes in ‘observing’ and ‘describing’ one’s experiences appeared to mediate outcomes for the CT group relative to the ACT group, whereas ‘experiential avoidance’, ‘acting with awareness’, and ‘acceptance’ mediated outcomes for the ACT group.

Kingston et al. (2007) investigated the effect of mindfulness training on pain tolerance, psychological well-being, physiological activity, and the acquisition of mindfulness skills. Forty-two asymptomatic University students participated in a randomized, single-blind, active control pilot study. Participants in the experimental condition were offered six (1-h) mindfulness sessions; control participants were offered two (1-h) Guided Visual Imagery sessions. Both groups were provided with practice CDs and encouraged to practice daily. Pre–post pain tolerance, mood, blood pressure, pulse, and mindfulness skills were obtained. Results indicated that pain tolerance significantly increased in the mindfulness condition only. There was a strong trend indicating that
mindfulness skills increased in the mindfulness condition, but this was not related to improved pain tolerance. Diastolic blood pressure significantly decreased in both conditions. The authors concluded that mindfulness training did increase pain tolerance, but this was not related to the acquisition of mindfulness skills.

Frewen and others (2008) examined associations between mindfulness and responses to negative automatic thoughts, such as the ability to let go of negative cognition. Results revealed that measures of dispositional mindfulness were negatively correlated with negative thought frequency and perceptions of the ability to let go of negative thoughts in an unselected student sample. In another study, these associations were replicated in a treatment-seeking student sample, where participation in a mindfulness meditation-based clinical intervention was shown to be associated with decreases in both frequency and perceptions of difficulty in letting-go of negative automatic thoughts.

Heeren, Van Broeck and Philippot (2009) explored the role of executive processes as a mediator of mindfulness training effects in an unselected sample. An autobiographical memory task, a cognitive inhibition task, a motor inhibition task, a cognitive flexibility task and a motor flexibility task were administered before and after intervention. Compared to matched controls, mindfulness training participants showed increased autobiographical memory specificity, decreased overgenerality, and improved cognitive flexibility capacity and capacity to inhibit cognitive prepotent responses. Mediational analyses indicated that changes in cognitive flexibility partially mediate the impact of mindfulness on overgeneral memories.
Hepburn et al. (2009) in a randomized controlled trial, examined effects of mindfulness-based cognitive therapy (MBCT) on thought suppression and depression in individuals with past depression and suicidality. Sixty-eight participants were allocated to a MBCT group or a treatment-as-usual waitlist control. Measures of thought suppression and depression were taken pre- and post-treatment. Results indicated that MBCT did not reduce thought suppression as measured by the White Bear Suppression Inventory, but significantly reduced self-reported attempts to suppress in the previous week. Depressive symptoms declined from the mild clinical range to normal levels, while controls remained unchanged. The authors concluded that preliminary evidence suggested that MBCT for suicidality may reduce thought suppression; however, the mechanisms involved need further investigation.

McCracken and Keogh (2009) examined the role of anxiety sensitivity (AS), or "fear of anxiety," in relation to chronic pain and to examine whether therapeutic processes designed to reduce emotional avoidance, namely, acceptance, mindfulness, and values, could be demonstrated to reduce the role of AS in relation to this distress and disability based on a statistical model including these variables. 125 consecutive adult patients (64.8% women) seeking services from a specialty pain service in the United Kingdom who were selected for the study completed a standard set of measures of AS, acceptance of pain, mindfulness, and values-based action, as well as measures of pain, disability, and emotional functioning. Correlation and regression analyses, revealed that AS was associated with greater pain, disability, and distress and that AS may amplify the impact of emotional distress on patient functioning in chronic pain. Processes of acceptance, mindfulness, and values-based action may reduce this effect. Results indicated that individuals with chronic
pain have more distress and disability when they manifest more fear of anxiety symptoms, and behaviour patterns of acceptance and mindfulness may reduce this effect.

Moore and Malinowski (2009) compared a group of meditators experienced in mindfulness meditation with a meditation-naïve control group on measures of stroop interference and the “d2-concentration and endurance test”. Results suggested that attentional performance and cognitive flexibility are positively related to meditation practice and levels of mindfulness. Meditators performed significantly better than non-meditators on all measures of attention. Furthermore, self-reported mindfulness was higher in meditators than non-meditators and correlations with all attention measures were of moderate to high strength. This pattern of results suggests that mindfulness is intimately linked to improvements of attentional functions and cognitive flexibility.

Thompson and Waltz (2010) examined the ability of mindfulness to predict the variance of PTSD avoidance symptom severity above and beyond experiential avoidance. 378 introductory psychology students were administered self-report measures of PTSD, mindfulness, experiential avoidance, thought suppression, alexithymia, and avoidant coping. Mindfulness, specifically non-judgment of experiences, was found to account for a unique portion of the variance in PTSD avoidance symptoms.

Heeren and Philippot (2011) investigated whether the clinical benefits of mindfulness training are mediated by a reduction in maladaptive rumination and an increase in adaptive rumination. Participants in eight-session mindfulness training were assessed before and after treatment, while waiting-list controls were assessed at similar times. For
the mindfulness training, a treatment manual was derived from the mindfulness-based
cognitive therapy procedure and adapted to account for the consequences of stress, anxiety,
and depression rather than just depression. Results indicated that mindfulness training, as
compared to the waiting-list condition, reduces general psychopathology, reduces
maladaptive rumination and increases adaptive rumination. Mediational analyses further
suggested that clinical benefits of mindfulness required changes in ruminative mode of
processing.

Hooper and others (2011) compared thought suppression, focused attention
(mindfulness) and unfocused attention as strategies for managing spider fear. Spider fearful
participants were exposed to a strategy induction before completing a Behavioural
Approach Test (BAT). The BAT is a 10-step measurement of how close participants are
willing to move towards a spider. Participants were instructed to use what they learned in
the pre-BAT induction to help them advance through the steps of the BAT. The results of
the study indicated that participants given the thought suppression or the unfocused
attention induction moved through significantly less steps of the BAT than did those given
the focused attention (mindfulness) induction. Additionally, the thought suppression group
felt significantly more anxious than the focused and unfocused attention groups following
completion of the BAT.

Atkins (2013) describes the relationship between mindfulness, empathy and
development of self-other differentiation. According to the author, responding at the level
of present-moment experience is the essence of responding to the others experience but it is
‘here’ that differentiation of self and other is essential for mature, sustainable empathy. At
the level of awareness itself, a stable sense of self beyond threat can be contacted in such a way to support empathy. Furthermore, in rare instances one can experience a sense of shared awareness that transcends difference. Mindfulness training appears to support the development of all three senses of perspective taking in a way that can enhance empathy, but also improve organizational outcomes in other areas such as authentic leadership.

Teper and Inzlicht (2013) examined the manifestation of the effect of mindfulness meditation practice on executive control in the brain, hypothesizing that emotional acceptance and performance monitoring play important roles, using the error-related negativity (ERN), a neurophysiological response that occurs within 100 ms of error commission. Meditators and controls completed a Stroop task, during which ERN amplitudes were recorded with electroencephalography. Meditators showed greater executive control (i.e. fewer errors), a higher ERN and more emotional acceptance than controls. Mediation pathway models further revealed that meditation practice was related to greater executive control and that this effect can be accounted for by heightened emotional acceptance, and to a lesser extent, increased brain-based performance monitoring.

**Combination of Mediating Factors**

Hayes and Pankey (2002) applied the framework of Acceptance and Commitment Therapy (ACT) on a case with anorexia nervosa, stressing on some factors mediating the process of change. These included maladaptive control strategies directed toward emotional avoidance, cognitive fusion, and failure to act in accord with chosen values.
Gutiérrez-Martínez et al. (2004) compared specific acceptance-based strategies and cognitive-control-based strategies for coping with ‘experimentally induced pain’. Forty participants were randomly assigned to an acceptance-based protocol (ACT), the goal of which was to disconnect pain-related thoughts and feelings from literal actions, or to a control-based protocol (CONT) that focused on changing or controlling pain-related thoughts and feelings. Participants took part in a nonsense-syllables-matching task that involved successive exposures to increasingly painful shocks. In both conditions, the task involved an overall value-oriented context that encouraged the participants to continue with the task despite the exposure to pain. At times throughout the task, participants were asked to choose to continue with the task and be shocked or stop the task and avoid being shocked. Each choice had specific costs and benefits. Participants performed the task twice, both before and after receiving the assigned experimental protocol. Two measures were obtained at pre- and post-intervention: tolerance of the shocks and self-reports of pain. ACT participants showed significantly higher tolerance to pain and lower believability of experienced pain compared to the CONT condition.

In another study evaluating the application of acceptance and commitment training in the support of parents of children diagnosed with autism, Blackledge and Hayes (2006) reported that measures of experiential avoidance and cognitive fusion may be the mediating factors in the effective treatment outcome.

Arch and Craske (2008) investigated the processes and mechanisms underlying acceptance and commitment therapy (ACT) and cognitive behavioural therapy (CBT) for treatment of anxiety disorders. The study revealed that the treatments were more similar
than distinct. However, the potential treatment mediators differed in the two modalities. For both modalities, potential mediators of effects were changes in dysfunctional beliefs and cognitions about anxiety; however, different variables appeared to mediate outcomes for them. Specifically, changes in ‘experiential avoidance’, ‘acting with awareness’, and ‘acceptance’, mediated changes in the ACT group relative to the CT group, whereas ‘describing’ and ‘observing’ one’s experience appeared to mediate outcomes for the CT group.

McCracken and Yang (2008), in an attempt to identify factors enhancing health and general well-being of rehabilitation workers, examined a set of psychological processes, including psychological acceptance, mindfulness, and values-based action relevant to this. Ninety-eight rehabilitation workers at a rehabilitation centre in Singapore, completed measures of background variables, health, and functioning, in addition to measures of psychological acceptance, mindfulness, and values-based action. Correlation analyses demonstrated significant relations of acceptance, mindfulness, and values measures with the measures of stress, burnout symptoms, health, and well-being; particularly general health perception, vitality, social functioning, and emotional functioning. Regression analyses revealed significant and meaningful increments in explained variance in 10 key outcomes related to work experience and health.

Mitmansgruber, Beck and Schüßler (2008) investigated experiential avoidance, mindful awareness and meta-emotions in psychological well-being and satisfaction with life, in 134 experienced paramedics exposed to a number of potentially traumatic events. Changes in these variables due to experiencing highly stressful incidents were explored by
comparing experts with 105 novices. With accumulating experience, experiential avoidance remained stable, mindful awareness markedly increased at first and declined thereafter. Both positive and negative meta-emotions decreased with the number of stressful incidents. Experiential avoidance and meta-emotions explained 62% of the variance in psychological well-being, and patterns indicate that non-acceptance of thoughts and emotions might not be generally detrimental in this sample. Being stern and contemptuous about one’s own feelings and having little self-compassion has been found to be beneficial for psychological well-being in these experts.

Carrascoso López and Valdivia-Salas (2009) reviewed the basic research sustaining the use of ACT for anxiety disorders in general and panic disorder in particular. Panic disorder is conceptualized as an instance of experiential avoidance. They found more extensive evidence for Acceptance, Defusion, and Mindfulness, while the evidence for Values and Committed Action was found to be less significant. The extent that acting in a valued direction in the presence of pain, discomfort, fear, anxiety and the like, means to accept those experiences as part of the chosen direction which involves defusing and distancing from such experiences and having the experience of self as the context of all those contents and processes. The authors mark out three mail goals of ACT-based interventions, 1) acceptance of the feared private events; 2) weakening the verbal rationale for the avoidance of the private experience; and 3) promotion and reinforcement of behaviours in valued directions.

Eifert and others (2009) described a unified ACT protocol that can be adapted for use with persons presenting with any of the major anxiety disorders. They presented pre-
and post-treatment data from three individuals with different anxiety disorders who underwent treatment over a 12-week period. The results showed positive pre- to post-treatment changes in ACT-relevant process measures (e.g., reductions in experiential avoidance, increases in acceptance and mindfulness skills), increases in quality of life, as well as significant reductions in traditional anxiety and distress measures. All three clients reported maintaining or improving on their post-treatment level of functioning.

Hesser et al. (2009) examined clients' in-session acceptance and cognitive defusion behaviours in acceptance-based treatment of tinnitus distress. The authors coded 57 videotapes (a total of 1710 min) from 19 clients who participated in a controlled trial of an acceptance-based treatment for tinnitus distress, for frequency and peak level of verbal behaviours expressing either acceptance or cognitive defusion. Frequency of cognitive defusion behaviours and peak level of cognitive defusion as well as peak level of acceptance rated in Session 2, predicted symptom reduction 6 month following treatment. These relationships were not accounted for by the improvement that had occurred prior to the measurement point of the process variables. Prior symptom changes could not predict process variables rated later in therapy, after most of the improvement in therapy had occurred. It was concluded that clients’ in-session acceptance and cognitive defusion behaviours appear to play an important role in the reduction of negative impact of tinnitus.

In another study demonstrating the efficacy of ACT on internet pornography viewing, Twohig and Crosby (2010) found reductions on measures of OCD, measures of thought-action fusion, thought control, and large reductions on measure of psychological
flexibility, and improvement in measures of quality of life. Their research highlighted these variables as significant mediators in the ACT-consistent processes.

Olayfig (2010) compared ACT and CBT for anxiety in a self-help context and examined how the two treatments impact ACT-relevant processes in an international community sample (N=200) of persons reporting difficulties with anxiety and fear. Participants were randomized to receive either an ACT or CBT workbook, and five process variables relevant to ACT were assessed at pre- and post-intervention periods twelve weeks apart (i.e., self-compassion, mindfulness, psychological flexibility, thought suppression, and cognitive fusion/defusion). 67 participants completed both pre- and post-intervention assessments. All five variables were seen to mediate the effects in both treatments; however, in all cases, ACT did so to a significantly greater extent than CBT.

Masuda and Tully (2012) investigated whether mindfulness and psychological flexibility uniquely and separately accounted for variability in psychological distress (somatization, depression, anxiety, and general psychological distress). An ethnically diverse, nonclinical sample of college undergraduates (N = 494, 76% female) completed a web-based survey that included the self-report measures of interest. Consistent with prior research, psychological flexibility and mindfulness were positively associated with each other, and tested separately, both variables were negatively associated with somatization, depression, anxiety, and general psychological distress. Results also revealed that psychological flexibility and mindfulness accounted for unique variance in all four measures of distress. These findings suggest that mindfulness and psychological flexibility are interrelated but not redundant constructs, and that both constructs are important for
understanding the onset and maintenance of somatization, depression, anxiety, and general distress.

Biglan and others (2013), using a randomized wait-list control design, evaluated whether ACT workshops delivered to preschool teachers who serve children with developmental disabilities would improve stress-related problems of teachers (i.e., stress, depression, and burnout) and increase collegial support. At pre-test, measures of experiential avoidance (EA) and mindful awareness (MA) showed significant relationships to reports of depression, stress, and burnout. The intervention reduced staff members’ EA, increased teachers’ MA, and valued living (VL), and improved teachers’ sense of efficacy.

**Summary:** This extensive review of studies investigating the mediators of change in acceptance and mindfulness based interventions revealed that the process of change at the core is that of psychological flexibility, which is further mediated by certain variables significant in the therapy. These include acceptance (i.e., willingness to experience and elimination of experiential avoidance), cultivation of mindfulness skills (specially acting with awareness and acceptance of phenomena), cognitive defusion (i.e., deliteralization and eliminating thought fusion), and value-based action. Understanding of these mediators is extremely viable for the development of treatment modules using acceptance and mindfulness based strategies.
III. Mediating processes and application of Acceptance and Mindfulness based interventions on Obsessive-Compulsive and Related Disorders

This sub-section of the review consists of researches investigating (a) the mediating processes and, (b) the application of Acceptance and Mindfulness based interventions on the Obsessive-Compulsive and related disorders. These disorders are characterized as having common features such as obsessive preoccupation and repetitive behaviours. The obsessive–compulsive and related disorders include Obsessive-Compulsive Disorder (OCD), Body Dysmorphic Disorder (BDD), Eating disorders including Anorexia Nervosa, Bulimia Nervosa, and Binge Eating Disorder; Hypochondriasis, Impulse Control Disorders, Tic Disorders, Tourette syndrome, Trichotillomania, etc (Murphy et al., 2010). This section reviews studies investigating the underlying processes that mediate the Obsessive-Compulsive and related disorders and studies that have investigated the application of acceptance and mindfulness based approaches on these disorders.

(a) Mediating processes in therapy of Obsessive-Compulsive and Related Disorders

Thought Action Fusion (TAF) and Thought Suppression (Experiential Avoidance) as mediating processes

Rassin and colleagues (2000) examined the relationship between two concepts that have been invoked to explain how normal obsessions and compulsions may develop into clinical phenomena. First, it is suggested that thought-action fusion (TAF) contributes to obsessive-compulsive symptoms. Second, thought suppression may intensify obsessive-compulsive symptoms due to its paradoxical effects on intrusive thoughts. Although both
phenomena have been found to contribute to obsessive-compulsive symptoms, possible interactions between these two have never been investigated. To explore how TAF and thought suppression interact in the development of obsessive-compulsive symptoms, undergraduate psychology students (N = 173) completed questionnaires pertaining to TAF, thought suppression and obsessive-compulsive symptoms. Results obtained as covariance using the structural equation modelling method, suggested that TAF triggers thought suppression, while thought suppression, in turn, promotes obsessive-compulsive symptoms.

In order to examine the significance of thought-action fusion (TAF) and thought suppression tendencies, Rassin and others (2001) obtained pre- and post-treatment questionnaire data on these constructs in a sample of OCD patients (N=24) and non-OCD anxiety patients (N=20). Results indicated that TAF and suppression are correlated with severity of psychopathology. Yet, the associations between TAF and psychopathology are not typical for OCD, but do also occur in other anxiety disorders (e.g., panic disorder, post traumatic stress disorder, and social phobia). Mean scores on the TAF and thought suppression measures dropped significantly from pre- to post-treatment, indicating that TAF and thought suppression are susceptible to change during psychotherapy.

Coles, Mennin and Heimberg (2001) attempted to differentiate between obsessive features and worry and distinguish between obsessive features and worry using a measure of the cognitive process thought–action fusion. Thought-action fusion was found to be strongly related to obsessive features after controlling for the effects of worry, and was found to be a valuable construct for differentiating between obsessive features and worry.
Heffner and others (2002) summarized in case study, the successful adoption of ACT techniques in the treatment of a 15-year-old female with anorexia nervosa. The authors also described how ACT techniques can be successfully combined with, and set the stage for, more standard cognitive-behavioural interventions, in order to target ineffective control strategies and experiential avoidance—the unwillingness to accept negative thoughts, feelings, and emotions.

Purdon (2004) reviewed empirical investigations and examined the role of thought suppression in OCD. The author found inconsistent findings with respect to the effects of suppression on thought frequency; however, consistent findings suggested that suppression is driven by negative thought appraisal and is associated in turn with greater OCD symptomatology. It was concluded that thought suppression is a key factor in the development and persistence of OCD, implying a mediational role in treatment of the disorder.

In a study conducted by Begotka, Woods and Wetterneck (2004), 436 adults diagnosed with trichotillomania (TTM) completed an anonymous survey examining the relationship between experiential avoidance (i.e., escape from or avoidance of unwanted thoughts or emotions) and TTM severity. Results showed a significant positive correlation between measures of experiential avoidance and TTM severity, indicating that more experientially avoidant individuals tended to exhibit more severe TTM. Subsequent analyses found that persons who scored higher on a measure of experiential avoidance reported more frequent and intense urges to pull, were less able to control their urges, and experienced more pulling-related distress than persons who were not experientially
avoidant. Conversely, results also showed that individuals who were more experientially avoidant were no more likely to actually pull and were no less successful in actually stopping themselves from pulling than non-avoidant individuals. The results suggested that experiential avoidance may be an important in understanding and treating people with TTM.

Lee, Cougle and Telch (2005) examined the relationship between each of the two major types of TAF (i.e., likelihood and moral), schizotypal traits, and OCD symptoms in 969 nonclinical undergraduate students. It was hypothesized that likelihood TAF would be associated with schizotypal traits; whereas moral TAF would not. Consistent with prediction, schizotypal–magical thinking was significantly associated with likelihood TAF even after controlling for the effects of OCD symptoms, general anxiety, and depression. Moreover, the relationship between likelihood TAF and OCD symptoms was significantly attenuated after controlling for schizotypal traits. In contrast, moral TAF demonstrated negligible association with OCD symptoms, depression, or schizotypal traits.

Woods, Wetterneck and Flessner (2006) compared in a randomized trial a combined Acceptance and Commitment Therapy/Habit Reversal Training (ACT/HRT) to a waitlist control in the treatment of adults with trichotillomania (TTM). Twenty-five participants (12 treatment, and 13 waitlist) completed the trial. Results demonstrated a significant reduction in hair pulling severity, impairment ratings, and hairs pulled, along with significant reductions in experiential avoidance and both anxiety and depressive symptoms in the ACT/HRT group compared to the waitlist control. Reductions generally were maintained at a 3-month follow-up. Decreases in experiential avoidance and greater treatment compliance
were significantly correlated with reductions in TTM severity, implying that targeting experiential avoidance may be useful in the treatment of TTM.

Twohig, Hayes and Masuda (2006) evaluated the effectiveness of a deliberately limited version of Acceptance and Commitment Therapy (ACT) for chronic skin picking in a pair of multiple baseline across participants designs. Self-monitoring of skin picking showed that four of the five participants reached near zero levels of picking by post-treatment, but these gains were not fully maintained for three of the four participants at follow-up. The findings of the self-reported skin picking were generally corroborated by ratings of photographs of the damaged areas and by ratings on a validated measure of skin picking severity. All participants rated the intervention as socially acceptable, and reductions were found on measures of anxiety, depression, and experiential avoidance for most participants as a result of the intervention. Results indicated support for the construction of more comprehensive ACT protocols for skin picking.

Santanello and Gardner (2007) examined the role of experiential avoidance in the relationship between maladaptive perfectionism and worry. A total of 125 undergraduate participants completed measures assessing perfectionism, experiential avoidance, worry, depression, and social anxiety. A series of regression analyses showed that maladaptive perfectionism and experiential avoidance were significantly associated with worry and that experiential avoidance was a partial mediator in the relationship between maladaptive perfectionism and worry. Partial correlations revealed significant relationships between experiential avoidance and worry and between one aspect of maladaptive perfectionism and worry independent of depression and social anxiety. Results suggested that experiential
avoidance may be an important variable contributing to the occurrence of worry within the context of maladaptive perfectionism.

Chronic tic disorders (CTDs) are conceived to be conditions that are partially rooted in avoidance of tic-related private experiences (i.e., painful or difficult thoughts and feelings) and internal sensations (i.e., premonitory urges to tic). Best (2009) investigated the possibility that experiential avoidance is related to tic severity and perceived quality of life in individuals with CTDs. It was also examined whether the efficacy of Habit Reversal Training (HRT), the most prevalent and effective behavioural intervention for CTDs, might be enhanced by combining it with Acceptance and Commitment Therapy (ACT), an intervention that directly targets experiential avoidance. In study 1, an online survey on 239 adults (M = 37.6 years; SD = 13.8 years) who reported having been previously diagnosed with a CTD revealed that levels of premonitory urges, as well as both general and tic-specific experiential avoidance, were significantly positively related to tic severity. General and tic-specific experiential avoidance were also significantly negatively related to perceived quality of life. In study 2, a multi-site pilot investigation involving 13 adolescents (M = 15.4 years; SD = 1.3 years) who were treated with either HRT alone or a novel HRT+ACT intervention revealed that the HRT+ACT treatment is feasible, highly acceptable to both patients and parents, and as effective as HRT alone at reducing tic severity from pre-treatment through week 22 follow-up. Participants in both groups reported clinically significant post-treatment decreases in general and tic-specific experiential avoidance and improvements in overall functioning. Researchers concluded that experiential avoidance plays an important role in tic expression and overall functioning for individuals with CTDs.
Abramowitz, Lackey and Wheaton (2009) examined how well experiential (emotional) avoidance (EA), a core concept in acceptance and commitment therapy, involving an unwillingness to endure upsetting emotions, thoughts, memories, and other private experiences; predicts obsessive–compulsive (OC) symptoms. A sample of 353 nonclinical participants completed measures of EA, core obsessive beliefs, and OC symptoms. Individuals reporting greater levels of OC symptoms endorsed more obsessive beliefs and EA relative those with lower levels of OC symptoms, even when accounting for general levels of psychological distress. Among those with more OC symptoms, EA did not show relationships with obsessive beliefs. Moreover, EA did not add significantly to the prediction of OC symptom dimensions over and above the contribution of general distress and obsessive beliefs. Obsessive beliefs, meanwhile, contributed significantly to the prediction of OC checking and obsessing symptoms after accounting for EA. The authors concluded that the construct of EA is too general to explain OC symptoms over and above cognitive–behavioral constructs such as core obsessive beliefs, which are more specific.

Briggs and Price (2009) investigated the relationship between adverse childhood experience and OCD symptoms and related dysfunctional beliefs in a general population using a structural equation modeling approach. The role of experiential avoidance and anxiety and depression were also explored in the model. Results indicated that adverse childhood experience was strongly associated with OCD symptoms and beliefs, but after controlling for anxiety and depression the relationship with OCD symptoms became non-significant and only a weak relationship with OCD beliefs remained. Experiential avoidance was significantly associated with OCD symptoms and beliefs and remained significant after controlling for anxiety and depression.
Manos and others (2010) examined how well experiential avoidance (EA) and obsessive beliefs predicted changes in OC symptoms from pre- to post-treatment utilizing a severe, clinical, treatment-seeking sample (N=108). Results revealed that EA was generally not related to OC severity and did not add significantly to the prediction of OC symptom domains above and beyond depression or general anxiety, whereas obsessive beliefs did. Pre- to post-treatment change in one type of obsessive belief (perfectionism/certainty), but not change in EA, predicted global change in OC severity. Results suggested that EA as it is measured currently may not play a significant role in OC severity or changes in OC severity across treatment.

Hassoulas, McHugh and Reed (2014) conducted a study with three experiments that measured differences in responding between participants scoring either higher or lower on obsessive-compulsive trait measures. In experiment 1, participants were required to identify an avoidance response that postponed an aversive event, and noted that higher scorers maintained this response more successfully. Experiments 2 and 3 involved an operant variability procedure to differentiate between variable and rigid responding among participants demonstrating high versus low obsessive-compulsive traits, and revealed no differential sensitivity to rigid responding between the groups. The results provide insight into the nature of obsessive-compulsive behavioural traits, suggesting that avoidance but not behavioural inflexibility is primary in OCD.

Psychological Flexibility as a mediating process

In an investigation by Twohig et al. (2010), six adults diagnosed with obsessive compulsive disorder (OCD) were treated with either acceptance and commitment therapy
(ACT), cognitive therapy (CT), or exposure with ritual prevention (ERP) in a preliminary attempt to clarify the similarities or differences between the purported mechanisms of change that underlie these treatments. A new process measure was constructed with items assessing psychological flexibility, cognitive reappraisal, and extinction. This process measure was given weekly along with a measure of OCD severity. Visual analyses suggest that one of two participants in the ACT condition exhibited the highest overall changes on psychological flexibility, while the other participant showed equivalent overall scores on all processes. Both CT participants had highest scores on extinction and psychological flexibility, followed by cognitive reappraisal. ERP had the most consistent results, with both participants generally reporting extinction to be the most notable process of change. Although there was individual variability, raw scores indicate that extinction was the most central mechanism, but that psychological flexibility showed the greatest change when accounting for pre-treatment levels of familiarity.

Wendell (2011) conducted an online survey on two hundred thirty-six undergraduates to examine the relationship of ED (Eating Disorder) cognitions and a lack of body image acceptance with psychological flexibility (PF), which is linked to ED and other negative health symptoms. Results revealed that PF fully mediated the relation between ED cognitions and non-specific psychiatric symptoms, partially mediated the link between body image acceptance and non-specific psychiatric symptoms, and partially mediated the link between ED cognitions and ED symptoms. Findings suggested that clinical symptoms and one’s coping style are both important factors to take into consideration in case conceptualization and treatment, implying that therapies such as ACT that target PF may be beneficial in treating ED spectrum problems.
Masuda and Latzman (2012) in a cross-sectional study investigated whether self-concealment and psychological flexibility were uniquely associated with different facets of disordered eating (DE; i.e., dieting, bulimia/food preoccupation, and oral control) and whether these associations varied across gender. Participants included 621 female and 212 male college students, ages 18–24 years old. After controlling for age, ethnicity, and BMI, both self-concealment and psychological flexibility were uniquely related to dieting. Controlling for these demographic variables, psychological flexibility, but not self-concealment, was uniquely associated with bulimia/food preoccupation. Neither self-concealment nor psychological flexibility was uniquely associated with oral control. Finally, gender moderated the association between self-concealment and dieting, suggesting that self-concealment was relevant to dieting in the female group, but not in the male group.

**Mindfulness as a mediating process**

Hanstedt, Gidron and Nyklíček (2008) conducted a controlled pilot study to examine the effects of a mindfulness intervention on obsessive compulsive disorder (OCD) symptoms and the psychological processes possibly mediating such effects. Participants with OCD symptoms (12 women, 5 men) received either mindfulness training (N=8) or formed a waiting list control group (N=9). Meditation included 8 group meetings teaching meditative breathing, body-scan, and mindful daily living, applied to OCD. The intervention had a significant and large effect on mindfulness, OCD symptoms, letting go, and thought-action fusion. Controlling for changes in “letting go,” group effects on change in OCD symptoms disappeared, pointing at a mediating role for letting go.
Fairfax (2008) explored the contribution of mindfulness to cognitive interventions in OCD and suggested that it complements both CBT and ERP. The author explored the application of a mindfulness-based approach to OCD (MOCD), and identified areas of potential overlap, in particular thought-action fusion. It was concluded that if applied properly, mindfulness not only complements traditional CBT interventions, but could also increase their efficacy and perhaps prevent relapse, by working on the underlying mechanisms that maintain the disorder.

Wilkinson-Tough and others (2010) used a case series design to establish whether Mindfulness-Based Therapy could benefit those experiencing obsessive-intrusive thoughts by targeting thought-action fusion and thought suppression. Three participants received a relaxation control intervention followed by a six-session mindfulness-based intervention which emphasized daily practice. Following therapy all participants demonstrated reductions in Yale-Brown Obsessive-Compulsive Scale scores to below clinical levels, with two participants maintaining this at follow-up. Qualitative analysis of post-therapy feedback suggested that mindfulness skills such as observation, awareness and acceptance were seen as helpful in managing thought-action fusion and suppression. Results suggested that mindfulness may be beneficial to some people experiencing intrusive unwanted thoughts.

**Cognitive Flexibility as a mediating process**

Rumination in the context of OCD is characterized by a train of prolonged thinking about a question or theme that is undirected and unproductive. As defined by Nolen-Hoeksema (1991) in the Response Styles Theory, rumination is “compulsively focused attention on the symptoms of one's distress, and on its possible causes and consequences, as
opposed to its solutions”. Davis and Nolen-Hoeksema (2000) investigated whether a ruminative coping style would be related to a cognitive style marked by perseveration and inflexibility. The performance of ruminators and non-ruminators were examined on the Wisconsin Card Sorting Test (WCST), a measure of cognitive flexibility, and tasks measuring related cognitive processes. Ruminators committed significantly more perseverative errors and failed to maintain set significantly more often than non-ruminators on the WCST. On an advanced section of the WCST designed for the study, male ruminators exhibited significantly greater inflexibility than male non-ruminators. These effects could not be attributed to differences in general intelligence or the presence of depressed mood. Results suggested that rumination may be characterized by, and perhaps prolonged by, an inflexible cognitive style. This research highlighted the inverse relationship between rumination and cognitive inflexibility, suggesting the significance of enhancing cognitive flexibility as a treatment of rumination.

Chamberlain et al. (2006) assessed and compared motor inhibition and cognitive flexibility in OCD and trichotillomania, in view of dysfunctional inhibition of pathological behaviours as integral to obsessive-compulsive disorder (OCD), trichotillomania, and other putative obsessive-compulsive spectrum disorders. The Stop-Signal Task and the Intra-dimensional/Extra-dimensional Shift Task were administered to 20 patients with OCD, 17 patients with trichotillomania, and 20 healthy comparison subjects. Results revealed that both OCD and trichotillomania showed impaired inhibition of motor responses. For trichotillomania, the deficit was worse than for OCD, and the degree of the deficit correlated significantly with symptom severity. Only patients with OCD showed deficits in cognitive flexibility. The authors concluded that impaired inhibition of motor responses
(impulsivity) was found in OCD and trichotillomania, whereas cognitive inflexibility (thought to contribute to compulsivity) was limited to OCD.

(b) Application of Acceptance and Mindfulness based interventions on the Obsessive-
Compulsive and Related Disorders

Obsessive-Compulsive Disorder (OCD)

Twohig, Hayes and Masuda (2006) evaluated the effectiveness of an 8-session Acceptance and Commitment Therapy for OCD intervention in a non-concurrent multiple-baseline, across-participants design. Results on self-reported compulsions showed that the intervention produced clinically significant reductions in compulsions by the end of treatment for all participants, with results maintained at 3-month follow-up. Self-monitoring was supported with similar decreases in scores on standardized measures of OCD. Positive changes in anxiety and depression were found for all participants as well as expected process changes in the form of decreased experiential avoidance, believability of obsessions, and need to respond to obsessions. All participants found the treatment to be highly acceptable.

Twohig and colleagues (2010) compared the effectiveness of 8 sessions of acceptance and commitment therapy (ACT) for adult OCD with progressive relaxation training (PRT). Seventy-nine adults (61% female) diagnosed with OCD (mean age of 37 years) participated in a randomized clinical trial of 8 sessions of ACT or PRT with no in-session exposure. The following assessments were completed at pre-treatment, post-treatment, and 3-month follow-up by an assessor who was unaware of treatment conditions: Yale-Brown Obsessive
Compulsive Scale (Y-BOCS), Beck Depression Inventory-II, Quality of Life Scale, Acceptance and Action Questionnaire, Thought Action Fusion Scale, and Thought Control Questionnaire. Treatment Evaluation Inventory was completed at post-treatment. Results revealed that ACT produced greater changes at post-treatment and follow-up over PRT on OCD severity (Y-BOCS), and produced greater change on depression among those reporting at least mild depression before treatment. Clinically significant change in OCD severity occurred more in the ACT condition than PRT, Quality of life improved in both conditions but was marginally in favour of ACT at post-treatment. Treatment refusal and dropout were low in both conditions.

Armstrong, Morrison and Twohig (2013) investigated ACT for youth with OCD using a multiple baseline across participants design. Three adolescents, ages 12 or 13 years, were treated with 8–10 sessions of ACT (without in-session exposure exercises). The primary dependent variable was daily self-monitoring of compulsions. Results showed a 40% mean reduction in self-reported compulsions from pre-treatment to post-treatment, with results maintained at 3-month follow-up, for a reduction of 43.8%. Pre-treatment to post-treatment reductions in Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS) ratings of OCD severity were 50.0%, 12.5%, and 22.0%; pre-treatment to follow-up reductions were 54.0%, 12.5%, and 61.0%. Treatment procedures were rated by participants and parents as highly acceptable.

Dehlin, Morrison and Twohig (2013) evaluated acceptance and commitment therapy (ACT) for scrupulosity-based obsessive compulsive disorder (OCD). Five adults were treated with eight sessions of ACT, without in-session exposure, in a multiple baseline
across participants design. Daily monitoring of compulsions and avoided valued activities were tracked throughout the study. The Obsessive Compulsive Inventory-Revised, Yale-Brown Obsessive Compulsive Scale (Y-BOCS), Penn Inventory of Scrupulosity, Beck Depression Inventory-II, Quality of Life Scale, Santa Clara Strength of Religious Faith Questionnaire, and the Acceptance and Action Questionnaire-II were completed at pre-treatment, post-treatment, and 3-month follow-up. The Treatment Evaluation Inventory was completed at post-treatment. Average daily compulsions reduced as follows: pre-treatment = 25.0, post-treatment = 5.6, and follow-up = 4.3. Average daily avoided valued activities reduced as follows: pre-treatment = 6.0, post-treatment = 0.7, and follow-up = 0.5. Other measures showed similar patterns. Religious faith only slightly declined: 4% at post-treatment and 7% at follow-up. Treatment acceptability was found to be high.

Wetterneck and others (2013) investigated the relationship between values (i.e., self-compassion, courage, and the Valued Living Questionnaire [VLQ; the extent to which one has values and is living out values in everyday life]) and OCD severity. Participants (N=115) who self-reported meeting criteria for OCD completed an online survey assessing levels of different values as well as ratings of importance and consistent living within these values. Analyses yielded significant negative relationships between OCD severity and self-compassion, courage, and the VLQ. In multiple regression analysis, it was found that ‘VLQ’ and ‘courage’ were significant predictors of OCD severity.

Bluett and others (2014) reviewed investigations on Acceptance and Commitment Therapy (ACT) as a model and a treatment for anxiety disorders and OCD spectrum disorders, providing a meta-analysis examining the relationship between psychological
flexibility, measured by versions of the Acceptance and Action Questionnaire (AAQ and AAQ-II) and measures of anxiety. Results showed positive and significant relationships between the AAQ and general measures of anxiety as well as disorder specific measures. Preliminary meta-analytic results showed that ACT is equally effective as other manual based treatments such as cognitive-behaviour therapy.

Trichotillomania

Twohig and Woods (2004) evaluated the combination of Acceptance and Commitment Therapy and Habit Reversal (ACT/HR) as a treatment for trichotillomania with 6 adults. The effectiveness of ACT/HR was assessed within two separate multiple baseline designs. Self-monitoring data showed that treatment was successful in decreasing the numbers of hair pulled to near-0 levels for 4 of the 6 participants, with results being maintained for 3 of the 4 participants at the 3-month follow-up. These findings were confirmed with ancillary measures. The treatment was found to be acceptable by all participants, indicating support for combining the two approaches in treatment of trichotillomania.

Crosby and colleagues (2012) attempted to replicate the effectiveness of the ACT/HRT treatment package for trichotillomania in order to provide practical clinical guidance on how to deliver the treatment. 5 participants demonstrating high levels of pulling at pre-treatment were treated with 8 sessions of a combination of ACT and HRT. Treatment resulted in an 88.87% reduction in pulling across participants from pre-treatment to post-treatment, and all 5 responded to the treatment. At 3-month follow-up, 2 participants
maintained the treatment gains, 2 lost half of the treatment gains, and 1 was at pre-treatment levels. The authors presented the clinical guidance on the basis of this empirical study.

Fine and others (2012) illustrated the use of Acceptance-Enhanced Behavior Therapy (AEBT) for Trichotillomania (TTM) in the treatment of two adolescents. The AEBT protocol (Woods & Twohig, 2008) is a structured treatment manual that was adapted to the individual clients’ needs and clinical progress. Both clients reported clinically significant gains in treatment as determined by at least 2 weeks of abstinence from pulling, and subjective reports of decreased distress and impairment, although one required a booster session due to relapse.

*Tic Disorders and Tourette’s Syndrome*

Franklin and others (2011) described findings from a pilot project which was designed to: (a) train two sites in behaviour therapy involving Habit Reversal Training (HRT) for Chronic tic disorders (CTDs); (b) pilot test the HRT protocol in adolescents and young adults with CTDs; (c) develop and refine a combined Habit Reversal Training plus Acceptance and Commitment Therapy (HRT+ACT) protocol for CTDs; and (d) pilot test the combined protocol in adolescents and young adults with CTDs. Results indicated that, on average, both the HRT alone and the HRT+ACT groups experienced substantial, clinically relevant, durable, and comparable reductions in tic symptoms through the 1 month follow-up, as well as improvements in participant and parent-rated global functioning over this same period.
Sukhodolsky et al. (2009) evaluated the efficacy of a 10-session individually administered anger control training (ACT) for adolescents with Tourette's syndrome (TS) and disruptive behaviour. Twenty-six subjects (24 boys and 2 girls; mean age 12.7 years) with TS and high levels of disruptive behaviour were randomly assigned to ACT or treatment-as-usual (TAU). The parent-rated Disruptive Behaviour Rating Scale and the Clinical Global Impression-Improvement Scale rated by the independent evaluator were used as primary outcome measures. Results revealed that the Disruptive Behaviour Rating Scale score decreased by 52% in the ACT group compared with a decrease of 11% in the TAU control group (p<.001). On the Clinical Global Impression-Improvement Scale, the independent evaluator rated 9 (69%) of 13 subjects in the ACT condition as much improved or very much improved compared with 2 (15%) of 13 in the TAU condition (p <.01). This reduction of disruptive behaviour in the ACT group was well maintained at 3-month follow-up.

**Internet Pornography Viewing**

Twohig and Crosby (2010) examined the efficacy of Acceptance and Commitment Therapy (ACT) for treatment for internet pornography viewing. In the first experiment on the treatment of problematic Internet pornography viewing, 6 adult males who reported that their Internet pornography viewing was affecting their quality of life were treated in eight 1.5-hour sessions of ACT for problematic pornography viewing. The effects of the intervention were assessed in a multiple-baseline-across-participants design with time viewing pornography as the dependent variable. Treatment resulted in an 85% reduction in viewing at post-treatment with results being maintained at 3-month follow-up (83% reduction). Increases were seen on measures of quality of life, and reductions were seen on
measures of OCD and scrupulosity. Weekly measures of ACT-consistent processes showed reductions that corresponded with reductions in viewing. Large reductions were seen on a measure of psychological flexibility, and minor reductions were seen on measures of thought-action fusion and thought control.

**Hypochondriasis**

Eilenberg and others (2013) investigated the efficacy of acceptance and commitment group therapy for health anxiety (or hypochondriasis). 34 consecutive Danish patients with severe health anxiety were referred from general practitioners or hospital departments and received a ten-session ACT group therapy. Patients were followed up by questionnaires for 6 months. There were significant reductions in health anxiety, somatic symptoms and emotional distress at 6 months compared to baseline: a 49% reduction in health anxiety (Whiteley-7 Index), a 47% decrease in emotional distress (SCL-8), and a 40% decrease in somatic symptoms (SCL-90R Somatization Subscale). The patients’ emotional representations and perception of the consequences of their illness (IPQ) improved significantly, and 87% of the patients were very or extremely satisfied with the treatment.

**Eating Disorders**

Juararesco et al. (2013) examined the efficacy of an ACT-based group treatment for eating disorders by examining whether the addition of ACT groups to treatment-as-usual (TAU) at a residential treatment facility for eating disorders would improve treatment outcomes. TAU patients received an intensive residential treatment, while ACT patients received these services but additionally attended, depending on diagnosis, either ACT for anorexia nervosa groups or ACT for bulimia nervosa groups. Although individuals in both
treatment conditions demonstrated large decreases in eating pathology, there were trends towards larger decreases among those receiving ACT. ACT patients also showed lower rates of re-hospitalization during the 6 months after discharge. Overall, results suggest that ACT is a viable treatment option for individuals with eating pathology.

Manlick, Cochran and Koon (2013) reviewed empirical studies using Acceptance and commitment therapy (ACT) and its components to treat eating disorders (EDs). Evidence suggested that emotional avoidance is a major component in the onset and maintenance of EDs. Acceptance and commitment therapy that targeted emotional avoidance and control strategies with its six core processes, when applied to EDs, demonstrated improvement in subjects’ functioning and reduction in disordered eating. According to the authors, the several advantages of using ACT for treating EDs are that ACT fundamentally equalized the therapeutic relationship; experiential techniques in ACT may facilitate lasting treatment gains; ACT navigated the ego-syntonic nature of EDs; the ACT conceptualization based on experiential avoidance and cognitive rigidity in EDs is consistent with literature. They suggested that the six core processes of ACT can be further modified to fit the challenges of treating EDs, and concerns about client motivation for treatment can be addressed by emphasizing creative hopelessness and a values construction process early in treatment.

**Summary:** The review in this sub-section revealed that cognitive inflexibility, thought-action fusion, thought suppression, experiential avoidance and control strategies, psychological flexibility, and beliefs play as major mediating processes that maintain the disorders in the OC spectrum. Few researches outweigh the role of experiential avoidance over beliefs related to the disorder; however, substantial evidence supports the role of
experiential avoidance and control in maintenance of OC spectrum disorders. Mindfulness skills of acceptance (allowing without judgment/letting go), observation and acting with awareness were found to counteract the phenomena of thought-action fusion and thought suppression, thereby, alleviating symptoms of the disorders. Research supports the efficacy of acceptance and mindfulness interventions in treatment of OC spectrum disorders, such as, OCD, Eating disorders, Hypochondriasis, Impulse Control Disorders, Tic disorders, Tourette syndrome, and Trichotillomania. The treatment was found to be highly accepted and resulting in a high quality of life, with results maintaining at follow-up.

**Evaluation of the Review of Literature**

From the review of literature it was found that Acceptance and Mindfulness based interventions have been applied to a variety of medical and psychiatric conditions and have been found to be efficacious. However, limited research has been conducted to examine the mediational processes that make Acceptance and Mindfulness based interventions efficacious. In the Indian scenario, this therapy has neither been sufficiently investigated nor documented. There is hardly any published work on the same. Even in the western scenario, limited research was found related to investigation of process measures of ACT that would enable the development of therapy modules for specific conditions.

**Rationale for the Present Study**

Acceptance Commitment Therapy (ACT) is amongst the third wave behaviour therapies integrating aspects of Acceptance and Mindfulness with behavioural interventions. There have been previous studies that have illustrated the efficacy of Acceptance and Commitment Therapy for Obsessive-Compulsive Disorder, for e.g.,
(Twohig, Hayes & Masuda, 2006; Twohig et al., 2010). However, there is not much empirical data to support the actual impact and effects of Acceptance and Commitment Therapy on measures that may mediate to make this therapy efficacious. It is known that some mechanisms that may explain symptom reduction in OCD include psychological flexibility or acceptance, mindfulness skills, exposure and reduction of experiential avoidance, cognitive defusion and cognitive change in terms of changes in meta-cognition. However, little work has been done in the area of examining the effects of ACT in developing psychological flexibility, mindfulness skills, and preventing thought suppression. In India, there is an extreme paucity of research on Acceptance and Commitment Therapy with hardly any published work. It was found important to investigate the impact of Acceptance and Commitment therapy (ACT) on the mechanisms of psychological flexibility, thought suppression and mindfulness skills in a clinical sample of Obsessive-Compulsive Disorder (OCD) for which the therapy seems very relevant. Therefore, in the present study, an attempt was made to examine the effects of Acceptance and Commitment Therapy on psychological flexibility, thought suppression, mindfulness skills, and symptom severity in patients diagnosed with Obsessive-Compulsive Disorder.