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NEW AND EMERGING AREAS

Metacognitive Therapy: Cognition Applied To Regulating Cognition

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Abstract. The theory and principles of Metacognitive therapy (MCT) are described and data supporting its effects are summarized. MCT does not advocate challenging of negative automatic thoughts or traditional schemas. It proposes the existence of a universal maladaptive thinking style that causes disorder and focuses on helping patients regulate their cognition more adaptively. It aims to reduce worry and rumination and alter problematic patterns of attention and coping. In doing so it targets underlying metacognition that controls thinking and helps patients develop new ways of consciously experiencing inner events. Data from treatment studies suggest that individual MCT techniques and full treatment are highly effective. Further randomized trials are clearly warranted.

Keywords: Metacognition, metacognitive therapy, anxiety, depression, rumination, worry.

Introduction

Metacognitive therapy (MCT: Wells, 1995) is about how and why people re-generate or extend negative ideas. Processes of perseveration and fixation are thought to lead to psychological disorder. Three of these processes are worry, rumination and threat monitoring.

Cognitive-behavioural therapy covers a wide range of orientations and approaches but most of them have a principal focus on mental content. For instance, Beck (1976) describes the content of negative automatic thoughts and schemas as giving rise to emotional disorder. In contrast, the metacognitive approach focuses on mental processes of thinking style, attending and controlling cognition. The bottom-line is this: in CBT, disorder is caused by the content of cognition but in MCT disorder is caused by the way thinking processes are controlled and the style they take. Content *is* important in MCT but it is the content of metacognition rather than the content of cognition that counts.

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Whilst CBT is concerned with testing the validity of thoughts (e.g. "Where's your evidence you will have an accident?") MCT is primarily concerned with modifying the way in which thoughts are experienced and regulated (e.g. "What's the point in worrying about accidents?"). When MCT does focus on testing the validity of thoughts it focuses on metacognitive beliefs (e.g. "I have no control over my worries") rather than on ordinary cognitions (e.g. "the world is dangerous"). The effectiveness of standard CBT is attributed to a change in metacognitions and reduction in the Cognitive Attentional Syndrome (CAS) that occur fortuitously during treatment.

The theoretical grounding of MCT is the Self-Regulatory Executive Function model (S-REF: Wells and Matthews, 1994). It proposes that a thinking style called the Cognitive Attentional Syndrome (CAS) is a universal feature of disorder and is responsible for prolonging and intensifying distressing emotions. The CAS consists of: (1) worry and rumination; (2) threat monitoring; and (3) coping behaviours that are maladaptive because they impair flexible self-control or prevent corrective learning experiences.

Worry and rumination are predominantly verbal thinking styles in which the person analyses potential threats and attempts to find answers to problems or ways of avoiding danger. These thinking styles often occur in response to initial negative automatic thoughts or intrusions and are conceptualized as a form of coping. The problem with worry and rumination is that they prolong anxiety and negative affect and they focus the individual on ideas and processes that strengthen dysfunctional knowledge. They also interfere with in-built self-regulatory processes needed for emotional processing.

Another important feature of the CAS is threat-monitoring, which refers to focusing attention on sources of internal or external threat or negative information as a means of coping. This process backfires because it increases awareness of threat and leads to greater negative thoughts and anxiety. For example, a patient with contamination fears described how she was hyper-vigilant for stains that could be caused by bodily fluids. This process elevated her sense of threat as she became more aware of how much staining there was in public places.

Other coping behaviours that constitute the CAS include avoidance and thought suppression. They are problematic because they are not consistently effective in regulating emotion and thinking, and they fail to provide unambiguous evidence that contradicts erroneous beliefs. For example, the act of suppressing a thought by attempting to remove it from consciousness is likely to activate a self-monitoring plan aimed at detecting the presence or absence of the thought. This can maintain preoccupation with the suppressed topic.

There is now a large evidence-base that self-regulatory strategies, specifically those linked to the CAS (e.g. worry) are associated with vulnerability to emotional disorder and are predictors of traumatic stress (see Wells, 2008 for a review). According to the metacognitive (S-REF) model the CAS is the result of metacognition that controls thinking processes. Metacognition is comprised of tacit knowledge or programs and verbally accessible beliefs. Two types of belief are implicated: positive beliefs about the need to worry, ruminate and engage in strategies such as threat monitoring (e.g. "If I analyse why I've failed I'll be able to overcome my depression"), and negative beliefs about the uncontrollability, danger, and meaning of thoughts (e.g. "My worrying is uncontrollable; if I think bad thoughts I will act badly; some thoughts will make me go insane"). These metacognitions contribute to the extension and fixation on negative thinking.

In summary, thinking styles apart from the content of negative automatic thoughts and standard schemas are important in the development of psychological disorder. The focus is

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on longer chains of conceptual activity in the form of worry and rumination and strategies of voluntary allocation of attention to threat. These thinking styles emerge from a distinct system of metacognitive beliefs (Wells and Matthews, 1994; Wells, 2000). The negative automatic thoughts of CBT are seen merely as triggers for the true pathological processes (the CAS), and negative beliefs such as "I'm a failure, I'm vulnerable" are the trigger, products or content of the CAS and not the cause of disorder.

Principles of metacognitive therapy

MCT presents the idea that treatment should be focused at the metacognitive level without the need to challenge the content of negative automatic thoughts or standard schemas. MCT presents a therapeutic principle that patients need to know both what to do in response to threat and negative thoughts (i.e. reduce the CAS); and also how best to do it. More specifically, they need to strengthen flexibility and skills for the regulation of extended thinking. Metacognitive programs or "how-to" knowledge are shaped through experiencing different types of relationships with cognition and through manipulating cognitive processes such as the control of attention and worry. MCT therefore incorporates techniques such as attention training (Wells, 1990), detached mindfulness (Wells and Matthews, 1994; Wells, 2005) and situational attentional refocusing (Wells and Papageorgiou, 1998) to modify and develop the necessary procedural or "how to" (i.e. experiential) metacognitions.

Whilst MCT is based on the principle that it is beneficial to control thinking, it differentiates between helpful and unhelpful instances of control. Specifically, it is beneficial to suspend the CAS, but it is often unhelpful to try to remove the content of thoughts from consciousness (suppression). For example, a patient with generalized anxiety reported that he tried to suppress all health-related ideas since these triggered worry. This form of control backfired and increased his preoccupation with themes of illness. When it was successful it was still a problem because it prevented him discovering that worrying was harmless and could not lead to mental breakdown. His control strategy was inefficient and did not allow him to develop alternative ways of experiencing thoughts or modify his metacognitive beliefs about their significance.

In MCT the therapist asked him to ban suppressing the content of thoughts, to allow any intrusive thought about health to remain in consciousness, and to postpone any subsequent worrying that was attached to it. In this way the patient learned to distinguish between the content of consciousness and regulation of the responses to that content. The therapist used worry postponement experiments and subsequently worry enhancement experiments to challenge negative and positive metacognitive beliefs about the consequences of worrying.

The MCT therapist works on metacognitive beliefs, such as the belief that thoughts cannot be controlled and the belief in their importance and danger. The therapist challenges positive beliefs that give rise to unhelpful brooding in the form of worry and rumination and threat-focused attentional processing styles. Techniques from standard CBT can be used, such as questioning the evidence and behavioural experiments, but they are targeted at the metacognitive belief level rather than the cognitive level. For example, in the metacognitive treatment of post-traumatic stress (e.g. Wells and Sembi, 2004) the therapist questions the advantages of ruminating about and going over the memory of trauma, and also runs

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experiments to show how focusing on neutral signals in the environment instead of danger can overcome the sense of threat.

MCT normally proceeds on the basis of a case formulation that is grounded in disorder-specific models. However, a universal treatment is plausible. The S-REF model is transdiagnostic and it is possible to specify the nature of a generic treatment that aims to treat the CAS. But the S-REF model also cautions that different components of cognition and metacognition and specific connections between levels may be involved in different disorders and for optimal treatment effects this should be considered.

Effectiveness of MCT and its techniques

The effects of individual MCT treatment techniques and of full treatment packages have been evaluated in several studies. The methodologies used include single case-replication series, experimental reversal designs, open-trials, and randomized controlled evaluations. These studies are briefly summarized in the remainder of this paper.

Attention training technique

Attention Training Technique (ATT) is an externally focused auditory attention exercise, consisting of selective attention, attention switching and divided attention instructions. It is designed to reduce self-focused attention (required for the CAS), restore flexible control over thinking, and promote detachment from thoughts.

In a single case, Wells (1990) used a reversal methodology to isolate the effects specific to ATT. Treatment was associated with a reduction in symptoms and eventual elimination of panic attacks. The treatment gains were maintained over 12-month follow-up.

Single-case replication series have consistently demonstrated that ATT is associated with significant beneficial effects. These studies have included two panic disorder and one social phobia case (Wells, White and Carter, 1997), three cases of hypochondriasis (Papageorgiou and Wells, 1998), and four cases of recurrent major depressive disorder (Papageorgiou and Wells, 2000). Recently, Valmaggia, Bouman and Schuurman (2007) applied ATT to treating a patient with hallucinations.

Siegle, Ghinassi and Thase (2007) used an augmented version of ATT as an adjunct to medication in treating depressed patients ($n = 15$) and found that the treatment was superior to treatment as usual (antidepressant medication). Furthermore, these researchers subjected a subgroup of six patients receiving attention treatment to fMRI to explore neurobiological effects. They found that treatment appeared to result in significant reductions in right-Amygdala activity when the patients were exposed to emotional material.

Cavanagh and Franklin (2000) conducted a randomized controlled trial of 5-weekly sessions of ATT ($n = 21$) versus wait-list ($n = 15$) in the treatment of hypochondriasis. They found significant and substantial improvements in symptoms, behaviours and distress in the treated patients that were maintained over follow-up.

Metacognitively delivered exposure

There are two types of metacognitively delivered exposure: one that modifies the person's attention and thinking style in connection with exposure, and the other that explicitly presents

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exposure as an experiment to test metacognitive beliefs. These types of exposure have been isolated and investigated in experimental studies.

In an example of the first type, Wells and Papageorgiou (1998) asked social phobia patients ($n = 8$) to enter an idiosyncratic feared situation under two conditions that were presented with a habituation rationale (control condition) or with instructions to focus on external aspects of the social environment. This latter condition is a form of metacognitive delivered exposure, since it specifies the regulation of attention and counteracting of the CAS during exposure. The attention regulation condition was found to be superior to the habituation condition in reducing anxiety and negative beliefs.

In an example of the second type, Fisher and Wells (2005) asked patients with obsessive-compulsive disorder ($n = 8$) to listen to a loop-tape of their obsessional thoughts under a control condition (exposure and response prevention) or a metacognitive condition. In the metacognitive condition subjects were told to stop their neutralizing to test specific erroneous metacognitive beliefs about the importance of their thoughts (e.g. "Thoughts about incest mean I will be incestuous"). The metacognitive condition was superior to the exposure condition in reducing anxiety, negative beliefs and urges to neutralize.

Full protocol-based treatments

There have been several evaluations of full MCT across different psychological disorders, including generalized anxiety, post-traumatic stress, obsessive-compulsive disorder, and major depression.

Generalized Anxiety Disorder (GAD). In an open trial, Wells and King (2006) administered 3–12 sessions of MCT to10 patients diagnosed with DSM-IV GAD. The outcome showed that treatment was associated with very large and significant improvements in symptoms of worry, anxiety and depression. Treatment had an impact on metacognitive appraisals as would be predicted. Recovery rates based on formal clinical criteria (Jacobson and Truax, 1991) were 87% at post-treatment and 75% at 6 and 12-month follow-up.

In a randomized trial, Wells, Welford, et al. (in preparation) compared MCT ($n = 10$) with applied relaxation (AR, $n = 10$). MCT was superior to AR on all measures of anxiety and worry. Following MCT, 80% of patients met standardized recovery criteria on measures of anxiety and worry, with 60 or 80% recovered at 12-month follow-up depending on the measure used.

Post-Traumatic Stress Disorder (PTSD). A systematic replication series is reported by Wells and Sembi (2004). A total of 8 cases received 5–11 sessions of treatment. Treatment did not involve imaginal reliving or restructuring of thoughts or memories about the trauma. Patients were socialized to the specific metacognitive formulation of PTSD and then instructed in detached mindfulness, giving up worry and rumination, and reversing threat monitoring. Positive and negative beliefs about worry, rumination and intrusive thoughts were challenged. The treatment was associated with large improvements in symptoms with all of the patients no longer meeting criteria for PTSD at post-treatment and follow-up

In an open-trial of chronic PTSD, Wells et al. (2008) treated 12 patients in a mean of 8.5 sessions. Large and statistically significant improvements were observed in traumatic symptoms, anxiety and depression and gains were maintained over 6-month follow-up. The

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application of standardized recovery criteria showed that at 6-month follow-up 89% of patients were reliably improved or recovered as measured by the Impact of Events Scale.

Colbear and Wells (in preparation) conducted a randomized controlled trial of MCT for PTSD. They found that MCT ($n = 10$) was superior to a no-treatment waiting period ($n = 10$). Using Jacobson criteria (Jacobson and Truax, 1991), 80% of patients were recovered at post treatment compared with only 10% recovered in the wait-list condition.

Obsessive Compulsive Disorder (OCD). In the treatment of OCD two studies provide preliminary data. Fisher and Wells (2008) used an A-B direct replication series across four patients with DSM-IV OCD. Each patient showed substantial reductions in anxiety and OCD symptom measures and at 6-month follow-up continued to show a substantial reduction from baseline. Standardized recovery criteria indicated that all patients were recovered at post-treatment and 2 out of 3 maintained recovery status at follow-up.

Simons, Schneider and Herpertz-Dahlmann (2006) used a derivative of the metacognitive treatment to treat children and adolescents suffering from OCD. Patients were randomized to either exposure and response prevention or the metacognitive treatment. The results suggested that the metacognitive treatment might be a useful alternative to exposure and response prevention.

Depression. Two studies support an effect of MCT in treating major-depressive disorder. Wells et al. (in press) used a multiple-baseline A-B series across four patients with chronic and recurrent depression. Patients received 6–8 sessions of MCT and were followed up 3 and 6-months after treatment. Mean pre-treatment score on the BDI was 24.3 and at post treatment it was 6.5. Large gains were also evident in assessor ratings of depression (HRSD17), which decreased from a mean of 20.6 at baseline to 2.5 at post-treatment. None of the patients met diagnostic criteria for depression at post treatment. Treatment was also associated with large decreases in weekly rumination time, from a mean of 75% at baseline to 13% at post-treatment. These gains persisted over follow-up.

In a subsequent open trial, 11 patients with major depressive disorder were treated with up to 8 sessions of MCT (Wells, Fisher, et al., in preparation). Treatment was associated with large improvements in depression, anxiety, rumination and metacognitive beliefs. Seventy-five per cent of patients were recovered at post treatment and 66% were recovered at 6-month follow-up based on the Hamilton depression scale in an intent-to-treat analysis.

Conclusion

This paper outlines the nature of metacognitive therapy with reference to the relationship and distinction between metacognitions and the more traditional cognitions that are the focus of CBT. Metacognitive therapy differs significantly from cognitive (schema) theories. It does not view disorder as driven by negative automatic thoughts, cognitive distortions or the content of beliefs about the self and world. In contrast, MCT is based on the principle that a style of thinking characterized by excessive conceptual activity in the form of worry and rumination, and threat monitoring is central to disorder. These processes or styles of thinking rather than the content of ordinary cognition should be modified in treatment. To do so it is necessary to change the underlying metacognitive beliefs and metacognitive appraisals that give rise to unhelpful patterns of thinking and coping.

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MCT introduces varieties of change involving ways of experiencing thoughts and the strengthening of tacit knowledge for cognitive regulation. Unlike schema theory MCT does not ascribe the control of thinking to general beliefs about the self and world it attributes the control of thinking to a separate class of metacognitions.

There is a large database supporting the metacognitive theory of emotional disorder (Wells, 2000, 2008 for reviews) and a smaller but emerging database on the effects of treatment and individual techniques. A summary of the treatment studies suggests that individual techniques and full MCT are associated with substantial improvements in symptoms and these effects appear to be consistent across disorders. The changes observed have been shown to be stable over follow-up intervals but in most cases studies have not exceeded 12 months. A feature of MCT is that treatments have often been brief, they require minimal or no exposure and do not focus on challenging the content of individual thoughts and beliefs outside of the metacognitive domain.

Inevitably, given the initial effort devoted to testing the theory, there is limited data at this time on treatment effects in the form of controlled trials. Whilst MCT appears to be promising, significant questions need to be answered concerning the relative effectiveness of MCT against CBT and the contribution of factors such as therapist competency. The next stage is larger randomized comparative trials of this new treatment.

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