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Author(s): Madi A Ruby

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TITLE

What does Neuroscience offer us in Understanding Cognitive Therapy and Person-Centred Therapy for Depression? A Realist Synthesis Review.

M A Ruby

Dissertation submitted to the University of Chester for the Degree of Master of Arts (Clinical Counselling) in part fulfilment of the Modular Programme in Clinical Counselling 2011.

ABSTRACT

Background: A need for increased access to effective therapies for depression has been identified in the United Kingdom. There has been significant investment in Cognitive Therapy but a perceived lack of funding for alternatives. This study takes a pluralistic perspective in enquiring into what neuroscience offers us in understanding Cognitive Therapy and Person-Centred Therapy for Depression.

Methodology: This realist synthesis review provides a background of the theories, mapped for commonality in causality and therapy for depression. It examines neuroscience theory of depression and fMRI evidence of the effects of Cognitive Therapy and Person-Centred therapeutic concepts on the brain.

Findings: This review highlights some of the limitations of scanning technology and the way that research within 'schools' interprets evidence from the perspective of a particular theory. This has led to evidence being presented for the case of cognitive control of emotion. The alternate hypothesis for emotional regulation was not tested in the studies reviewed despite being observed as the mechanism of change in drug therapy for depression. Since all disciplines and theories reviewed suggest the involvement of both cognitive and affective processes further research is suggested to clarify their interaction.

DECLARATION

This work is original and has not been submitted previously in support of any qualification or course.

Signed.....Madi Anna Ruby

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LIST OF ABBREVIATIONS

| | |
|---------------|---|
| ACC | Anterior Cingulated Cortex |
| AI | Anterior Insula |
| BOLD | Blood Oxygen Level Dependant |
| CBT | Cognitive Behaviour Therapy |
| CT | Cognitive Therapy |
| DSM-IV | Diagnostic and Statistical Manual of Mental Disorders 4 th Edition |
| fMRI | functional Magnetic Resonance Imaging |
| ICD-10 | International Classification of Diseases and Related Health |
| LSE | London School of Economics |
| MRI | Magnetic Resonance Imaging |
| NICE | National Institute for Clinical Excellence |
| PCT | Person-Centred Therapy |
| PET | Positron Emission Tomography |
| PFC | Pre-Frontal Cortex |
| RCT | Randomized Controlled Trial |
| SPECT | Single Photon Emission Computed Tomography |
| UPR | Unconditional Positive Regard |

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CHAPTER ONE

Introduction

"If theory could be seen for what it is - a fallible, changing attempt to construct a network of gossamer threads which will contain the solid facts - then a theory will serve as it should, as a stimulus to further creative thinking."

(Rogers, 1959, p191).

This study originated to enquire if neuroscience could prove that different therapies have different mechanisms of action in the brain. I soon realised that the answer would be much more complicated. I have had to lay aside my original ideas that on reflection I realise were about finding nice neat answers. Instead I have learned to look at what the literature reviewed is able to show and also crucially what it is not able to show. I aim to be explicit as to the reasons for my initial assumptions and what prompted me to change them in a reflexive statement in chapter 7.

All theories of psychological distress and theories of therapy have to some degree been developed because a theoretician or practitioner has observed a phenomenon that has intrigued them and they have sought to explain that phenomenon (Elton-Wilson, 1996). This can be summarised as how humans get into psychological difficulties such as depression, and how we get out of them.

There is only one phenomenon under investigation (human distress), yet a staggering variety of competing and complimentary theories abound. In current times the drive for evidence based practice has led to much study of what works and outcome studies of therapy, measuring therapy as if it were a medication or manualised clinical treatment with an emphasis on Randomised Controlled Trials

(RCT's). This has led to considerable investment in the UK in Cognitive Behaviour Therapy (CBT) which since its inception has been presented as relatively manualised (Beck, 1964, p 571).

This follows the secessionist model underpinning clinical trials which holds that causality is established when the cause is activated and the effect is observed to follow. In contrast the generative model of causality holds that to infer a causal outcome between two events we need to understand the underlying *mechanism* that connects them and the *context* in which the relationship occurs. Under realism the basic question changes from "what works?" to "what works for whom in what circumstances?" (Pawson et al, 2005, p22).

Rationale.

Since reality is complex and we can never control all the variables in the way the secessionist model requires, realism takes a different approach. Pawson (2006, p22) states that an option is to consider the role of social science to be primarily critical of the lay thoughts and actions that lie behind false explanations. This is my overall aim - to be critical of misinterpretation and over-extrapolation, to synthesise in context what can be synthesised and to allow to remain separate what is separate or unexplained.

Since the information required for answering the review question was to be drawn from disparate sources it was important to choose a method of review that could deal with this level of complexity (Petticrew & Roberts, 2006, p20).

Instead of focussing on outcomes a realist synthesis focuses on gathering evidence on how complex social interventions are theorized to work and evidence to test or refine this theory or theories. Petticrew & Roberts (2006, p20) argue that "Systematic reviews allow challenge to the paradigm to occur - a challenge permitted by close examination of the underpinning evidence".

My overall goal is to produce a realist synthesis review of literature from Cognitive Therapy (CT), Person-Centred Therapy (PCT), Cognitive Affective Neuroscience and Social Affective Neuroscience in order to answer the main review question:

What does Neuroscience offer us in understanding Cognitive Therapy and Person-Centred Therapy for Depression?

This investigation considers theories in the way that Pawson et al suggest "reviews should pick up, track and evaluate theories that implicitly or explicitly underlie interventions" (Pawson, 2005, p22).

Aims of the Review:

- 1) To define the concept of depression.
- 2) To define the causality of depression as proposed in Cognitive Therapy & Person-Centred Therapy in order to ascertain whether we should expect different or similar underlying brain mechanisms (neural signatures) for the theories considered.
- 3) To make explicit my understanding of CT & PCT theories of *therapy* for depression in order to understand whether we should expect different or

similar neural pathways for *recovery* from depression for the therapies considered.

- 4) To make explicit what fMRI studies of therapy offer us in understanding CT and PCT therapy for depression.
- 5) To make explicit my understanding of the neural correlates of depression from the perspective of neuroscience, through examining fMRI studies relating to therapy for depression and concepts relating to CT and PCT.
- 6) To make explicit the conclusions that I draw from the review process in a narrative synthesis, in order to answer the review question, advance the literature and contribute to the contemporary debate.

Aims 1 to 5 will primarily be achieved within the literature review (chapter two). Aim 6 is presented in the literature review, the findings (chapter four) and discussion (chapter five).

Introduction to Methodology; a narrative review in 3 steps:

- a) Meta-ethnography for the qualitative studies (exploring the relationships and differences between study findings and the extent to which they reflect common, higher order themes).
- b) Analyzing the findings within each of the categories.
- c) Synthesising the findings across all included studies.

Needing to tightly control my focus for the purpose of this review brings some limitations. In this review I will not consider cultural, genetic, social or other potentially impactful aspects of context in detail. I am acutely aware of the hole that not including contributions from the theories, literature and research in the

psychodynamic tradition leaves in my work. In this I am aware of a frustration at not being able to get at the whole answer. I hope that I can improve my understanding, and possibly that of others. I see this work as a pilot project for future research since my conclusions point to further areas for investigation.

In the following literature review I will define the key concepts considered as outlined in the above aims in order to provide a context for the study.

CHAPTER TWO

Literature Review

"There are so many things you can learn about BUT...you'll miss the best bits if you keep your eyes shut." Dr. Seuss (1999, p26)

This chapter has two purposes and is divided into subsections which relate to the study aims as outlined in chapter 1. The first purpose is to provide a background to the study including defining key concepts and the second is to critically appraise the literature retrieved during the search. Both contribute to answering the review question in chapter 5.

Defining Depression:

Depression has been called the common cold of mental health (Hoag & Deffenbacher, 1998). This is related to its prevalence. Depression without anxiety is experienced by 2.6% of the population in England (Mind, 2011). This is based on the Health & Social Care Information Centre (2009) results of a household survey. The London School of Economics (LSE, 2006) state that depression accounts for 17% of causes of disability and that 38% of incapacity benefits are given due to 'Mental Disorder', with 2.5% of people between 16 and 75 suffering from depression at that time. The LSE stress that people's lives are crippled by depression and that there are few forms of deprivation worse than chronic mental illness. Due to the public health significance, much research effort has been focussed on understanding the underlying causes of depression (Beevers, 2005).

Central to depression is depressed mood and/or loss of pleasure in most activities. Severity is determined by both the number and severity of symptoms, as well as how much it interferes with the effected person's life. (NICE, 2010, p3). A formal diagnosis using the ICD-10 classification system requires at least four out of ten depressive symptoms, whereas the DSM-IV system requires at least five out of nine for a diagnosis of major depression (NICE, 2010). Symptoms should be present for at least 2 weeks and each symptom should be present at sufficient severity for most of every day. Both diagnostic systems require key symptoms to be present (DSM-IV x 2 and ICD-10 x 1). Key symptoms include low mood,¹ loss of interest and pleasure² or loss of energy³. I do not include an exhaustive list of symptoms as both systems emphasise that symptoms vary by individual, by intensity and combination. Cognitive symptoms include negative thoughts and affective symptoms include sadness.

CT Causality of Depression:

Westbrook, Kennerley and Kirk (2011) explain that there are many approaches within the therapeutic banner termed Cognitive Behaviour Therapy, and that it is still evolving in both theory and practice.

In this study I focus on Beckian Cognitive Therapy (CT) as originally outlined by and still reviewed and developed by Beck (1963, 1964, 2005, 2008, Davis & Beck, 2010). The theory has strong roots in phenomenology as well as more modern cognitive psychology. "The philosophical origins of cognitive therapy can be traced back to the Stoic philosophers" (Beck, Rush, Shaw, & Emery, 1979, p. 8), demonstrating the attitude of both pessimism and optimism (that human beings have a strong tendency

² In both ICD-10 and DSM-IV.

³ In ICD-10 only.

to sabotage themselves as well as also holding the capacity for change and to self-actualize).

The fundamental principle is that different cognitions defined by Beck (1964, p562/3) "as any mental activity that has a verbal content" give rise to different emotions. Beck proposes that cognitions operate on more than one level and has advanced a theory of cognitive vulnerability to depression (Beck, 2008) based on the idea that adverse early life experiences cause dysfunctional attitudes to develop resulting in a *cognitive vulnerability to depression*. This vulnerability is located in the hypothetical construct of cognitive *schemas* which can be seen as the deepest level of cognitive processing. This schema can then be activated by adverse daily life events through *cognitive reactivity*. The repeated cognitive activation of negative schemas become organised into a depressive *mode*. This mode becomes the most prominent mode of information processing resulting in a decreased ability to reappraise negative views culminating in depression. Beck also proposes that negative life stresses that match the underlying *mode* are more likely to provoke depression than those experiences that differ from it.

PCT Causality of Depression.

In defining PCT I rely on the original theory of Carl Rogers (1957, 1959, 1969, 1974, 1979, 1989) and on developments of his theory by Mearns and Thorne (2007).

Rogers' theory is rooted in the philosophy of phenomenology and humanism. Rogers' (1959) relies on the existence of the *actualising tendency* or motivational force which drives humans to grow and develop. He states that it is our relationships with others, due to our need for *positive regard* that have an ability to cause us psychological

damage through the ways that we *symbolise*, or *distort symbolisation* of our experience in order to fit with our *self-concept* or the way we perceive that we need to be to receive positive regard from significant others. This differs from our *ideal self* which is the way we judge things when using undistorted experience to evaluate and appraise a situation. He states that this distortion of experience leaves us *vulnerable* (to neurosis) or *incongruent*.

Rogers does not specifically use the term depression. I will make clear the reasons that I consider Rogers' concepts of vulnerability and incongruence to relate to depression as this has a bearing on the validity of this study. Are the constructs of the two theories addressing the same, or different psychological issues? Unless they are sufficiently similar then the conclusions that may be drawn will be weakened.

Beck is very specific in his early work as to the symptomology of depression. This is a good match to diagnostic criteria used today. Rogers did not seek as Beck did to define specific disorders or separate causes for them. He did however define the concepts of vulnerability and incongruence and it is within these definitions that the link with depression can be made.

Rogers (1959) suggested that the concept of self was disorganized by contradictory experience and a difficulty assimilating the contradictory experience causes the person to experience threat as disorganised or incongruent or "what is commonly called neurotic behaviour" (p203). Neurosis is defined by the online oxford dictionary as:

"...a relatively mild mental illness that is not caused by organic disease, involving symptoms of stress (depression, anxiety, obsessive behaviour, hypochondria) but not a radical loss of touch with reality."

Hence I rely on Rogers' use of the term neurosis in making the link to what today is commonly known as depression. The person centred tradition is keen to emphasise the importance of the phenomenological experience of the person experiencing distress and this seems to lead to avoiding terms such as depression in an attempt to avoid pejoratively labelling a person. The literature reviewed from other disciplines also stresses the differences in individual experiences of depression.

The Role of Cognition and Affect in CT and PCT.

Rogers' thoughts on the role of cognition in experiencing are not often highlighted in the literature. Perhaps this is as he stated that his 1959 paper is the most universally ignored of all his papers; despite being the one he was most satisfied with (Rogers, 1974). In this paper he makes explicit that:

"Experiencing - experiencing a feeling an emotionally tinged experience, together with its personal meaning. Thus it includes emotion, but also the cognitive content of the meaning of that emotion in its experiential context. It thus refers to the unity of emotion and cognition as they are experienced inseparably in the moment." (Rogers, 1959, p198).

Similarly Beck's thoughts on the role of affect are less easy to locate than his views on cognition. However in his original 1964 paper he states that there:

"...appears to be an interaction between cognition and affect because the converse also seems to be true; the more intense the affective state, the more credible the depressive cognitions seem to the patient. Also when the intensity of the affect is reduced, there is apt to be a diminution in the compelling quality of the cognition." (Beck, 1964, p568).

CT Theory of Therapy.

Beck (2010, p419) states that CT:

"...is a structured, collaborative and problem-oriented psychotherapy that seeks to reduce symptom expression by modifying maladaptive thought, attitudes and beliefs as well as faulty information processing biases that characterize emotional disturbance."

In CT the therapist educates the client about how CT is supposed to work (Westbrook, Kennerley & Kirk, 2011). This may include didactic teaching and experiential exercises with the underlying premise as Beevers (2005) states that a person can be taught to challenge negative thinking. Beck states that in examining the validity of the cognition the patient learns to make a distinction between "thinking" and "believing" (1964, p569).

Therapist qualities that are valued in other therapies are equally important in CT. Warmth, empathy and UPR as defined by Rogers have been found to be typical of CT therapists (Wright and Davis, 1994 cited by Westbrook et al p40). Therapists who act with Rogers conditions are shown to have consistently better outcomes (Lambert & Bergin, 1994; Orlinsky et al, 1994 cited by Westbrook). CBT sees the relationship not as the fundamental tool, but as the foundation for effective therapy "necessary but not sufficient for good treatment result" (Westbrook & Kennerley, 2011, p 39).

Overall the aims of CT are challenging negative assumptions and building new schemas through practice with the goal of relief from depression.

PCT Theory of Therapy.

Rogers (1959) proposed that six conditions were necessary for therapy although other elements were often or usually present. The conditions can be summarised as that two people are in psychological contact; that the client is incongruent and vulnerable or anxious; That the therapist is congruent in the relationship; that the therapist is experiencing unconditional positive regard toward the client; that the therapist is experiencing an empathic understanding of the client's internal frame of reference; and that the client perceives, at least to a minimal degree the empathy and UPR of the therapist for the client (p213).

Rogers was clear that each therapist's way of being may be different than another's and that the key aspect of congruence or realness on the part of the therapist over that of adopting a therapeutic role was what mattered. The emphasis is on understanding the client's perspective. Empathy and UPR are aimed at reducing threat, since threat increases the client's need to defend the existing self-concept rather than symbolising new experience accurately. This comes with an emphasis on the affective. However Rogers is explicit about the process of accurate symbolisation "Accurate symbolisation in awareness rests on the ability to test a hypothesis - failure to test leads to incongruence" (Rogers, 1959, p199). So whilst the emphasis may be on the importance of affective understanding the aim of the therapist must also be toward helping the client to a full experiencing, not simply an affective over cognitive experiencing.

Potential and Limitations of fMRI.

Before making explicit the neural correlates for depression suggested by Neuroscience I will discuss some of the potential and limitations of fMRI imaging in order to provide a context in which to understand the suggested neural correlates.

With the advent of fMRI scanning neuroscientists have been able to start exploring the biological basis of emotion and even how the adult brain responds to psychotherapeutic interventions. Cozolino examines the multiplicity of ways that psychotherapy conceptualises helping clients through an Interpersonal Neuroscience lens, arguing that an understanding of neuroscience is essential to the practice of good psychotherapy, since psychotherapy has demonstrable effects on the brain (Cozolino, 2010).

fMRI has no therapeutic benefits in itself. Its potential value lies in determining the effects of person to person psychotherapy and observable effects on the brain. It could be argued that the fMRI environment produces counter-therapeutic experiences. It is difficult to imagine how we could arrive at a situation where therapy is measurable in real time with a therapist in one scanner and a client in another due to the potentially deleterious effects of the clinical environment, although Bozarth (2011) seems enthused at this prospect. Perhaps appropriate technology will exist in the future where a scanner may be simply a room that both may work in, for now though we can work only with the evidence available.

Cognitive affective and social psychology research are increasingly becoming integrated with the neurobiological study of emotion, depression and anxiety under the banner of the social, cognitive and affective neurosciences (Frewen, Dozois, &

Lanius, 2008). Research on the mechanisms of change through neuro-imaging is still in its infancy with the general assumption that clinical outcomes can be attributed to common factors such as the therapeutic alliance and specific factors of different therapeutic techniques.

Frewen, Dozois, & Lanius (2008) state that it is possible that the effects of the therapeutic alliance have their own substrates (signatures) or that both common and specific factors may act on similar neural mechanisms.

Carter (2003) warns that it is dangerous territory to relate specific brain areas or brain systems to particular constructs within psychotherapeutic approaches. This however has been done by many researchers. Carrig & Kolden (2009) argue that as long as the constructs of interest can be associated reliably with patterns of brain activation, fMRI is potentially valuable, assuming that the task selected for use during scanning is appropriate for testing a hypothesis. The types of tasks used may be related to therapeutic constructs, but are not synonymous with therapy itself making extrapolation risky as Carter suggests.

Walter, Berger & Schnell (2009) make explicit some of the ethical considerations; such as if treatment models may become available but are too expensive. They comfort themselves that reports in the media of what scanning techniques such as fMRI tell us are exaggerated, so there is time to consider research findings and appropriate ethics before such knowledge is available.

Walter, Berger and Schnell provide a good description of what fMRI can and cannot show us, urging that a good understanding of techniques is vital before trying to

interpret results. In this study I look only for evidence that has already been interpreted and to critique and apply this to a detailed review of theory. I am not trained to directly interpret scanning data, which is a complex process and involves correlation and synthesis of subject's scans.

fMRI only measures the reaction of the vascular system induced by the mass action of neurons but cannot measure neuron activation itself. Therefore it cannot distinguish between neuron excitation and inhibition. To be clear, scans that show activity in a particular brain region only show activity and not the meaning of it. The data is interpreted against the proposed theory and hypothesis which has a bearing on the validity of conclusions drawn. Mapping is not precise and can only measure blood-oxygen-level-dependant levels (BOLD) and as such indicate where the brain is most actively using blood as a source of oxygen (Walter, Berger, & Schnell, 2009). This may be influenced by many things present in the scanning environment. Additionally group differences are what are usually reported and this cannot ethically be generalised to individuals.

Advantages are that brain activity can now be mapped (although only indirectly) to functional brain systems during psychological experiments across the whole brain and that scanning is non-invasive, repeatable and standardisable (Walter et al, 2009). Cohen (2005) points out the most important caution about fMRI is that it reveals a correlation between brain activity and task manipulation or behavioural response and cannot definitively establish a relationship between patterns of brain activity and a particular psychological function.

Linden (2006) in his review of functional neuro-imaging of psychotherapy effects and their methodological background recognises that therapeutic improvement of a complex disorder like depression is likely to be achieved through altered interactions between several brain areas rather than unidirectional changes in a single region. He suggests that fMRI also allows for predictions about changes in specific brain networks based on the psychological tests associated with particular theories. He cites Goldapple's (2004) Positron Emission Topography (PET) study. This study, like most others looks at the effects of CBT and does not consider reasons for results from outside this therapeutic framework. There are social neuroscience studies that look at relational processes such as empathy which I will relate these findings to in gaining a broader perspective.

The Neural Correlates of Depression.

The neural correlates of depression have been investigated by many studies. Studies of depression show increased activation in the amygdala and hippocampus (emotion processing) with decreased activity in the Pre-Frontal Cortex (PFC) associated with rational thought (Cozolino, 2010). Sharpley and Bitsika (2010) suggest that the amygdala enlarges and the PFC and hippocampus shrink either before or during the initial stages of depression, producing a more emotion-oriented response pattern in the depressed individual. Hence these are the areas we would expect to see changes in fMRI studies of therapy and emotion processing.

This is often referred to as top down processing (PFC executive or thinking control) or bottom up (amygdala, hippocampus, limbic region) emotional reactivity (Cozolino, 2010). This can be related to theories of how therapies work based on the original concepts and developments to theory. CT with its emphasis on the cognitive control

of emotion relates to top-down processing and PCT to bottom up processing through its emphasis on reducing threat through appropriate relationship conditions. Both theories highlight the interaction between cognition and affect as already shown, with different emphasis, but still implicating both types of processing.

Whilst this is broadly representative of the literature reviewed in considering the neural correlates of depression (Cozolino, 2010; Cohen, 2005; Davidson, Pizzagalli, Nitschike, & Putnam, 2002; DeRubeis, Siegle, & Hollon, 2008; Moras, 2006; Toomey & Ecker, 2009) it belies the complexity of the brain and the mechanisms potentially at work in depression.

Cohen (2005) suggests that the human brain is best understood as a confederation of mechanisms that usually act together, but sometimes may come into competition with one another.

Davidson, Pizzagalli, Nitschike, & Putnam (2002) point out that one of the crucial issues underpinning research in affective neuroscience relating to depression is the heterogeneity of mood disorders. Depression may arise from many distinct causes and whilst the broad symptoms may share some similarities the underlying mechanisms may differ. Pathways into depression are likely to involve different neural circuits despite the fact that they have a set of symptoms that are partially shared. This suggestion is supported by Clark, Chamberlain & Sahakian (2009) in their review evaluating progress in understanding neuro-cognitive mechanisms of depression. They state that a distributed neural circuit composed of multiple sectors of the prefrontal cortex in interaction with sub-cortical regions (striatum, thalamus) and temporal lobe structures (amygdala, hippocampus) are all implicated. They

stress that we still have a limited understanding of the neural structures relating to depression. However they conclude that the symptomology of depression suggests a processing bias towards negative aspects of the environment and that the amygdala is connected with multiple regions in the PFC which may allow top-down control of emotional behaviour.

DeRubeis, Siegle & Hollon (2008) state that increased or sustained amygdala activity is understood to be central to depressive symptoms and that sustained emotional reactivity might result from decreased pre-frontal executive control. The pre-frontal cortex is understood to exert an inhibitory effect on limbic regions such as the amygdala with a damping effect emotional reactivity.

They consider two mechanisms that could be implicated in maintaining depressive functioning:

- a) Abnormally low pre-frontal cortex activity and the hypothesis of decreased pre-frontal control stating that studies suggest that depressed individuals have decreased pre-frontal activity compared with healthy individuals.
- b) Abnormally increased and sustained limbic (especially amygdala) activity based on the idea that increased limbic activity interferes with pre-frontal regulatory function processes such as rumination that are seen to interfere with cognitive tasks in patients with depression.

Davidson et al (2002) state that the amygdala has long been linked with negative affect but that more recent studies suggest that its role is more about directing attention to stimuli and requesting further processing of stimuli. Structurally the hippocampal changes may arise owing to neuronal loss through stress induced cell

loss or stress induced reduction in neuro-genesis (new neuronal growth). Whether this is a cause or consequence of depression cannot be answered from the current data. We cannot yet specify which of the abnormalities may be primary (occurring first) and which may be secondary to activity in another brain region. They could also be related or independent.

Davidson et al (p563) also explain that the Anterior Cingulate Cortex (ACC) is frequently activated in imaging studies of emotion partly because when emotion is elicited in the laboratory it produces a response conflict:

"...a general expectation to behave unemotionally for science yet responses pulled by emotional challenge such as patterns of facial expressions are commonly reported by subjects."

They argue that their review is evidence for a heterogeneous group of disorders rather than a single condition.

Moras (2006) in reviewing ways that Neuroscience may accelerate research in psychotherapy argues that practice relevant progress in neuroscience means findings that readily translate into more broadly effective and efficient psychological treatments than those now available.

Neural Correlates of CT Therapy for Depression.

Moras highlights Mayberg's limbic-cortical network model of brain processes suggesting that they maintain, if they do not cause major depression. She suggests that preliminary findings (not fMRI) suggest that when observed at the level of brain processes mechanisms of change between CT and anti-depressant medication differ, and differ in ways that match different hypothesised causal mechanisms; CT

as top-down, with cortical changes occurring first whereas medication may trigger bottom up processing which changes limbic function leading to cortical changes.

Moras concluded that observations of brain functioning using contemporary methods are consistent with the hypothesis that cognition, affect and behaviour can be simultaneously, rather than sequentially changed by interventions that initiate synaptic changes via different causal mechanisms.

Toomey & Ecker, (2009, p124) state that "the interest of Neuroscientists in cognitive regulation of emotion lie in the view that emotionally intense implicit memory in the amygdala is indelible." If they are indelible the only strategy for such emotionality is enlisting another brain region; particularly the cortex to compete with, moderate and manage the responses of the amygdala and other implicit memory systems. They point out that relying on the cortex to exert a counteractive, regulating influence on symptoms driven by sub-cortical emotional brain centres is the strategy of Cognitive Behaviour Therapy.

Toomey & Ecker (p125) argue that studies show that "implicit memory is not indelible after all and can be changed rather than suppressed through an experience driven neurological process called reconsolidation." This unlocks an implicit memory circuit leaving it open to change rather than relying on a cognitive brain system to control it.

They suggest that:

"...because it is not yet apparent to neuroscientists how this can be used therapeutically in humans that the cortical regulation of emotion continues to be the therapeutic strategy studied by researchers and used by clinicians." (p131).

They suggest that closer working between Neuroscience and Psychotherapy could help identify more reliable and effective methodologies and techniques.

The depression studies reviewed adopt cognitive models of mediation. None look at other therapeutic methods that may indicate a bottom up rather than top down mechanism of recovery despite findings that this may be the pathway in the case of some medications for depression.

So in therapy for depression we may expect cognitive therapy to begin with cognitive brain areas, and PCT to begin with the development of the relationship and affective areas. But as both Beck and Rogers point to the importance of both cognitive and affective processes being interlinked it seems unreasonable to expect the two to be entirely divorced from each other.

Neural Correlates of Theoretical Constructs Relating to Therapy.

However there are additional theoretical constructs that may have a bearing on our understanding that are seen as important, if not sufficient by both therapies such as empathy and UPR. For this perspective we must turn to social affective neuroscience.

Bozarth (2011, p110) states that three primary components of empathy were identified by Decety and Jackson (2004) in their examination of its functional architecture. These components include:

"...the ability to share the experience of another, the cognitive capacity to understand it and the ability to simultaneously regulate one's own feelings. That is to maintain the distinction between self and others feelings."

This matches very well Roger's descriptions of empathy.

Most studies on empathy relate to empathy for physical pain (Singer & Lamm, 2009). Decety and Lamm (2006) describe the key areas indicated in empathy in fMRI

studies. They describe how brain areas linked with emotional processing and activation or movement are observed to be active in response to observing images of others in pain, or at risk of pain. The areas they highlight are the ACC, thalamus, amygdala and parts of the cortical network associated with movement such as the pre-motor cortex (Decety & Jackson, 2006; Decety & Lamm, 2006; Jackson, Meltzoff, & Decety, 2005; Singer, Seymour, O'Doherty, & Kaube, 2004). They also mention the mirror system as part of the cortical network. Mirror neurons are described by Damasio (2004) as part of the process of experiencing the emotion of another. Decety and Lamm conclude that similar circuits are activated when experiencing emotions as when we perceive another experiencing that emotion.

Singer, Seymour, O'Doherty & Kaube (2004) found using fMRI that empathy for pain involves the affective but not sensory components of pain. They reached this conclusion by comparing scan images of subjects receiving physical pain and witnessing their partner receive pain. They found that some areas were specific to receiving pain and that others were specific to perceiving pain in another person. The bilateral anterior insula (AI), rostral anterior cingulate cortex (ACC), brainstem, and cerebellum were activated when subjects received pain and also by a signal that a loved one experienced pain. AI and ACC activation correlated with individual empathy scores. They conclude that only the part of the pain network associated with its affective qualities, but not its sensory qualities, is involved in empathy. Hence the AI, ACC, brainstem and cerebellum are understood to be involved in the processing of the affective component of pain. The firsthand experience of pain and the knowledge that a partner is experiencing pain activates the same affective brain circuits which suggests that our own neural response reflects our partner's negative affect (Singer & Lamm, 2009).

Singer & Lamm (2009) in a review of the literature on empathy research conclude that consistent evidence shows that sharing the emotions of others is associated with activation in neural structures that are also active during the firsthand experience of that emotion. They also state that one of the factors influencing empathy is the interpersonal relationship between the empathizer and the other.

They state that caution is required as to whether the observed involvement of AI or ACC is specifically related to empathy but that substantial empirical evidence suggests that shared neural activations are at the root of sharing feelings, sensations, and actions of others. They point out that additional research is required to clarify whether these activations are actually shared on the neural level and to what extent we share either the bodily sensations or only the affective consequences of another person's experience.

Decety and Lamm (2006) proposed a model in which bottom-up (i.e. direct matching between perception and action) and top-down (i.e. regulation, contextual appraisal and control) information processes are fundamentally intertwined in the generation and modulation of empathy. In this model, bottom-up processes account for direct emotion sharing which is automatically activated (unless inhibited) by perceptual input. On the other hand, executive functions implemented in the pre-frontal and cingulate cortex are seen to serve to regulate both cognition and emotion through selective attention and self-regulation. This meta-cognitive level is continuously updated by bottom-up information, and in return controls the lower level by providing top-down feedback. Thus top-down regulation through executive functions modulates lower levels and adds flexibility, making the individual less dependent on external cues. The meta-cognitive feedback loop also plays a crucial role in taking into

account one's own mental competence in order to react (or not) to the affective states of others.

Beauregard, Courtemanche, Paquette & St-Pierre (2009) conducted an fMRI study to attempt to identify the neural correlates of unconditional love. Which I relate to the Rogerian construct of UPR. They identified the following areas; the middle insula, superior parietal lobule, right periaqueductal gray, right globus pallidus (medial), right caudate nucleus (dorsal head), left ventral tegmental area and left rostral anterior cingulate cortex. These results were seen to suggest that unconditional love is controlled by a distinct neural network relative to that managing other emotions. They state that this network contains cerebral structures known to be involved in romantic love or maternal love. They also suggest that some of these structures represent key components of the brain's reward system.

In this review of the literature I have critically evaluated the CT and PCT theories of causality and therapy of depression; the neural substrates of depression and how they may relate to theoretical concepts; what fMRI may offer including some limitations and what evidence neuroscience offers in considering how the therapies have been suggested to act on the brain in line with the aims set out in chapter 1.

I will now describe and critically appraise the methodology of this study including detailing the underlying philosophy, providing a rationale for the study and considering ethics and issues of validity.

CHAPTER THREE

Methodology

"...the object of thought becomes progressively clearer with this accumulation of different perspectives on it."

(Berger & Luckman, 1967)

Underlying Philosophy

Recently Cooper & McLeod (2010) called for pluralistic researchers to add their voices to establishing what is effective for different clients, in different ways and different times. As I share their philosophy I have decided to accept their challenge in the small way I am able.

Positivism and phenomenology are the two overarching perspectives that shape our overall understanding of research (Maykut & Morehouse, 1994). I personally value a non-polarised view of research (Silverman, 2010) and will discuss in the validity section how they may be complimentary. I accept Rogers' (1959, p185) idea that it is important to be very clear what 'soil' my thinking springs from and subscribe to McLeod's (2001) view that methodology, epistemology and ontology are interconnected.

Since all the major schools of therapy have been shown through research to be roughly equally effective (Cooper, 2008, 2010) I am interested in whether this is reflected in studies of neural processes underpinning studies of depression and therapy for depression.

My understanding of the phenomena to be investigated is rooted in my particular personal construct (Kelly, 1963) which includes learning through experience (Kolb in Petty, 2006) and through prior personal and academic exposure to both positivist and phenomenological perspectives. This exposure to psychological, neuro-scientific and learning theory necessarily affects my selection of and involvement with methodological process and causes me to adopt a pluralistic stance (Cooper & McLeod, 2007). I concur with Cooper and McLeod (2010, p14) that:

"...perhaps now more than ever, there is a need for those who hold a pluralistic vision to articulate it as fully as possible and to look at how it can be developed and applied through research."

The basic principle of pluralism in therapeutic terms is that there is unlikely to be one right approach that will be appropriate in all situations (Cooper & McLeod, 2007). This is aligned with postmodernist thinking (Lyotard, 1984 cited in Cooper and McLeod, 2007) and the idea that any substantial question admits of a variety of plausible but mutually conflicting responses (Rescher, 1993 cited in Cooper & McLeod, 2007). This has been extended to research in the social sciences (Petticrew & Roberts, 2006) where the value of interrogating data from multiple disciplines to better understand phenomena is stressed.

Rationale

"Single studies can be seen as similar to single respondents in a survey. Each respondent may say important and contradictory things. By looking at the range of answers and how they vary and attempting to summarize them, learning is possible." (Petticrew & Roberts, 2006, p15).

There is potential in establishing support for the efficacy of multiple models of therapy to empower service users a greater choice of what suits them at a given time and supporting informed consent (BACP, 2010) by establishing underlying neural mechanisms implicated in therapy.

McLeod (2003) points to the risks of contradiction or confusion from the inclusion of disparate methods of analysis.

A realist synthesis methodology is derived from systematic reviews and as such the quality of a review depends on how well and inclusively the literature search is done as well as how well the studies are assessed and interpreted. Systematic reviews by their nature define criteria for selection and analysis of data with the aim of producing a synthesis of the current knowledge based on systematic, rigorous and repeatable steps (Timulak, 2008). Rather than use different methods of analysis the result of a realist synthesis is a narrative analysis.

I suggest that psychotherapy and counselling are complex social interventions and that there is pluralistic data to evaluate from disparate sources. More traditional methods tend to contribute to entrenched schoolism (Petticrew & Roberts, 2006) with findings written and published in the language of a particular discipline or philosophy. This risks valid findings from other disciplines being ignored, misinterpreted or at worst misrepresented.

When deciding on a method of enquiry for the topic I considered several possibilities. Conducting field research did not seem an appropriate way forward as I have no training or access to fMRI scanners. I considered a study looking at therapist's views of the relevance or otherwise of Neuroscience to therapy but felt that this would not get me closer to understanding the underlying neuroscience. My interest in the area was very strong and it is an area especially in humanistic therapies that is relatively underrepresented in the literature. I saw the potential to review a relatively broad spectrum of literature at a point in time when debates about the future of the profession of therapy are in full swing and felt that a review of the literature may have potential to contribute to the debate as well as my own interest and understanding.

In initially contemplating research in neuroscience for psychotherapy I considered a systematic review. I was attracted by the rigour and repeatability criteria required in such a process due to my dislike of "bad science" (Goldacre, 2009) or claims based on uncritically tested hypotheses. This did not fit well with my pluralist philosophy or seeking to understand what lay behind the interpretations that systematic reviews make of the data.

Conducting a traditional systematic review within the framework of a single therapeutic modality may highlight strengths and weaknesses of the research within that school but does not allow for the benefit of learning from the research already conducted in other disciplines. In remaining true to my pluralist position I did not want to potentially add support for only one school and actually counter my own pluralist position.

Realist review is a:

"...logic of enquiry that is inherently pluralistic and flexible, it seeks to explain rather than judge and its main task in synthesis is one of refining theory to make progress in explanation." (Pawson, 2005, p32).

Realist synthesis seemed the best match for my philosophical position and the blend of rigour with flexibility appealed to me and has helped me be thorough whilst open to different possibilities. In this way positivism and phenomenology can be seen as complimentary.

Since part of my aim in conducting this study was to contribute to the contemporary debate it was important for my evidence to be as up to date as possible. Hence I chose to focus on fMRI as the most modern tool for neuro-imaging.

Ethics:

Ethical researchers in counselling and psychotherapy take into account the trust placed in them in practice and in research. This relates to other people involved in the research, the discovery and construction of new knowledge, how this is communicated and the application of research to practice (Bond, 2004). This is just as true of literature based studies as those involving human participants due to the potential to impact on the researcher (and their clients when this is a practitioner researcher) and to impact other researchers whose papers have been reviewed and future readers who may rely on the validity of the research.

In a qualitative literature review one of the key concerns is the trustworthiness of the work. The potential knowledge that is produced by a literature review is dependent on the integrity and openness of the researcher (McLeod, 2011). I have aimed to work with the same ethical values as I would in therapeutic practice and considered

The Ethical Framework for Good Practice (BACP, 2010) and The Ethical Guidelines for Researching Counselling and Psychotherapy (2004) in reflecting on the design and process of the research in seeking to achieve a valid and fair appraisal of the texts under consideration.

From the outset I have aimed at transparency, both as to my philosophical position and to providing clarity about how knowledge was gained (Petticrew & Roberts, 2006). I have detailed my methodology, methods of data collection and analysis, and critically evaluated their purposivity (fitness of purpose for the question under consideration). I have aimed toward academic conventions and criteria of the critical appraisal and synthesis of information whilst bearing in mind that no research is perfect. Petticrew & Roberts emphasise the value of attempting to avoid excessive scrutiny that risks disregarding valid evidence of an intervention working through adopting an overly critical stance to the ways evidence is presented in different studies. This addresses ethical principles such as justice and wisdom (BACP, 2010).

I have aimed to answer a research question that has relevance to the field of counselling and psychotherapy as an offer to join contemporary debate in the field. I have sought to open the debate rather than test a hypothesis. I hope to highlight some valid areas where further enquiry may be fruitful and beneficial for clients suffering from depression. Relevance is an ethical consideration for a practitioner researcher. As continuing study forms part of my continuing professional development it seems appropriate that this development should be in the direction of providing an enhanced service to my own clients and the clients of practitioners who may be influenced by my work. This relates to the ethical principles of beneficence and non-maleficence (BACP, 2010).

Another cornerstone of ethical practice is competence and this also applies to research. As Bond points out research studies require a higher level of competence if they involve complexity of design. The relative novelty of realist synthesis reviews and the methodological complexity they contain makes this a key consideration. In having my research proposal reviewed and approved by the university I have demonstrated my potential competence to undertake this study. My desire has been to develop new competence by stretching my ability whilst using supervision and personal reflection to ensure the integrity of my work.

By selecting a methodology that includes requirements for rigour and accountability as well as flexibility the design of the study both matches the needs of the question and helps to ensure trustworthiness through the requirement to be openly reflexive and provide access to data. Additionally "the wide ranging data collection, data analysis and presentation minimise selection and observer bias" (Petticrew & Roberts, p127).

The following section on validity demonstrates the ways I have managed the ethical considerations.

Validity:

Prior to beginning the study my expectation was that the search would uncover both quantitative and qualitative data. This fits my underlying philosophical position of adopting a non-polarised view of research; that positivism and phenomenology are complimentary rather than competing positions. I was open to using both quantitative and qualitative methods dependant on what was appropriate to the studies found. In fact the result was that only qualitative data was recovered.

McLeod (2011) highlights some of the difficulties of the concept of validity relating to qualitative research. He suggests that in quantitative research there is a relatively broad consensus as to what makes a piece of research good but that this is not yet the case with qualitative research. He proposes some guidelines for evaluating the credibility of qualitative work which I have considered along with Trochin's (2006) description of Lincoln and Guba's four evaluative criteria.

As McLeod suggests is appropriate I built in validity checks from the design stage by selecting a form of systematic review with a clear emphasis on repeatability and providing a clear audit trail. I have provided potential readers with as much access to data as possible by providing clear tables of the databases and search terms used and detailed records of the studies recovered by database and how I have divided these into logical categories based on the aims for the research.

I have kept the findings of the study separate from the discussion and made it clear where in this document each of the logical categories has been used so that the reader can be clear what I have found and analysed in this study. I have aimed to come to specific and warrantable conclusions.

I have taken reflexivity very seriously and been clear and open as to my position at the outset and how this has changed as a result of the research process.

I have adopted a critical stance to the studies and the literature and considered alternative interpretations of the data paying close attention to replicability, bias and validity.

I take the stance that each researcher brings their own perspective to the study (Trochin, 2006). So whilst I have made every attempt to secure validity through the systemising of my enquiry I hold the view that it would be possible for another researcher to perform the same searches and retrieve different studies based on their understanding of the phenomena under investigation and of the terms used. This was particularly clear to me at the point where I reviewed abstracts for a match against inclusion and exclusion criteria. Applying a quantitative analysis to numerically code matches may have made an exact repetition more possible but I have leant towards Lincoln and Guba's dependability concept as described by Trochin (2006);

"we can't actually measure the same thing twice and that dependability relies on the researcher's ability to account for the ever changing context of the research process".

I have attempted to do this by maintaining a research diary to aid my reflexive process through the inductive aspects of the search and synthesising the results as well as careful record and log keeping of search terms, databases and results.

Epoche or bracketing is the theoretical process of suspending judgement (McLeod, 2003). I have engaged in this process as far as I am able. I am aware that to some degree my own perspective will be evident as I can never wholly sit outside it. . Discussing work with my supervisor has helped in this process through aiding reflection on my perspective.

Since the participants in my study are items of literature they cannot comment on the credibility of my findings. Internal validity (in the quantitative sense) does not apply either since I am not directly trying to establish a causal relationship within this study.

I review theories as background context in which studies are generalized in order to make a critical appraisal of misinterpretation or over extrapolation from these studies.

I have been informed by Pawson et al's (2005, p 24) "steps in a realist review" and Petticrew and Roberts (2006, p170) "narrative synthesis in three steps". Careful documenting and checking and re-checking of findings enhance the likelihood of confirmability of my findings. I have actively searched for negative instances and inconsistencies within the literature reviewed and considered the potential for bias or distortion as proposed by Trochin. In working toward confirmability I have systematically followed up citations in the literature reviewed in order to reduce the potential for distortion. I was keen to allow the evidence that the studies provided to answer the research question rather than direct the outcome. This legacy of phenomenological philosophy demonstrates how ideas from positivism and phenomenology can be complimentary in aiming at a valid conclusion.

Transferability of this method of researching in counselling and psychotherapy will be determined by how well I have defined and described the process of research and the context in which it has taken place. To this end I have paid attention to making explicit my underlying philosophy, definitions of constructs under consideration and outlining a clear methodology with attention to validity. As such another researcher may be able to adopt the same design and transfer it to another context.

Data Collection

In acquiring data for a realist synthesis "the search itself is a complex process" (Pawson, 2005, p28). It was clear that my study would need to consider a great deal of context in terms of theory and evidence from heterogeneous literature. This had implications on the work required to define the main review question and sub-questions (aims). I revisited the question many times before beginning the search in an attempt to finely balance the need for a focussed question with openness to acquiring data from heterogeneous sources. This made the inclusion criteria complex and required "inductive modification of these criteria based on the evidence found during the search process" (Pawson, 2005, p29). This required purposive rather than probability sampling; choosing literature based on its relevance to the research question and potential to add to understanding rather than on its internal validity (Pawson, 2005, p29).

Thus there could not be a pre-defined set of key search terms; literature covering different concepts required searching for different key words and in different places. For example electronic database searching produced very little in terms of the person-centred approach to depression or psychopathology with literature on this area being accessible via the open source of Google Scholar and in most quantity through the hand searching of journals and books. Hence the search process itself was complex, time consuming and difficult to manage.

I made very careful use of forms to capture when, where and how I had located items for the sake of validity and reliability, but also because this had a potential bearing on my study findings at least in terms of publication bias.

It was necessary for me to conduct several types of search:

- a) Electronic database search
- b) Google Scholar search of key terms
- c) Hand search of book chapters, indexes and contents lists
- d) Hand Search of Journals / professional associations websites
- e) Grey literature searching of websites of writers mentioned in other texts and texts already in my collection.
- f) Following up references and citations within the studies my search uncovered in order to check the ways they have been interpreted.

Database Search: Table 1: Inclusion and exclusion criteria

| Inclusion Criteria | Exclusion Criteria |
|---|---|
| Aim 1) Defining Depression | Drug Therapy or other named therapy. |
| Aim 2) Cognitive, Affective or Interpersonal Neuroscience: Neural Correlates, substrates, signatures of depression. | Neural correlates of other disorders |
| Aim 5) fMRI studies of CT or PCT for depression | Studies based on PET scan, MRI, CT scans etc |
| Aim 3) CT theory of causality depression PCT theory of incongruence / vulnerability | Theory of causality of anxiety or other disorders |
| Aim 4) CT theory of therapy for depression PCT theory of therapy for incongruence/vulnerability | Theory of therapy for anxiety or other disorders |
| <i>Aim 4) Developments to CT or PCT theories related to depression *</i> | <i>Developments to other therapies*</i> |
| Aim 4) Cognitive, Affective or Interpersonal Neuroscience Theory relating to CT Psychotherapy or PCT | Cognitive, Affective or Interpersonal Neuroscience related to other therapies |
| Individual Therapy (as opposed to couples or family) | Not = Individual Therapy |
| Symptom / Presenting issue = Depression | Symptom / Presenting issue not = Depression (e.g. Schizophrenia, Bi-Polar Disorder, Anxiety) |
| Age of study | Up to august 2011 |
| Available in English | Not available in English |

An initial search was trialled in January 2011 to aid in the design of search forms. The search was undertaken on the 17th and 18th of May and the 8th, 11th, 13th and 14th of July 2011. Because of the heterogeneous nature of the studies to be located I devised a database search form to keep a log of the searches. These can be found in appendix 2.

Table 2 overleaf is a record of the databases searched, the search terms used and the results of the searches.

Table 2: Record of Searches

| Database | Search terms used | Number of papers retrieved - total 84 |
|--|---|--|
| EbscoHost CINHAL plus with full text MEDLINE PsycArticles PsycBOOKS PsycINFO socINDEX | <p>"cognitive behaviour therapy fmri depression" 14th July 2011</p> <p>"Non directive therapy fMRI depression" 11th july 2011</p> <p>"Counselling neuroscience"</p> <p>"Psychotherapy fMRI depression"</p> <p>"Humanistic therapy fMRI depression"</p> <p>"Psychotherapy neuroscience depression"</p> <p>"person-centred psychopathology"</p> <p>"client incongruence person centred"</p> | <p>5</p> <p>2</p> <p>0</p> <p>5</p> <p>0</p> <p>5</p> <p>0</p> <p>0</p> |
| Campbell Collaboration 13 th July 2011 | Browse search – social and human sciences <ul style="list-style-type: none"> - Psychology - Psychology - Clinical Psychology - Psychotherapy Advanced search using Counselling Psychotherapy Neuroscience in Depression Cognitive behav* (in all text) | <p>0</p> <p>0</p> |
| ZETOC 13 th July 2011 | <p>"person centred counselling depression"</p> <p>"person centred incongruence"</p> <p>"person centred psychopathology"</p> <p>"cognitive behaviour therapy fMRI depression"</p> <p>"neuroscience therapy depression"</p> <p>"counselling neuroscience"</p> <p>'Humanistic therapy fMRI depression"</p> | <p>No results</p> <p>1</p> <p>1</p> <p>1</p> <p>2</p> <p>3</p> <p>No records</p> |
| Cochrane Library | <p>Psychotherapy depression</p> <p>Neuroscience psychotherapy</p> <p>Counselling depression</p> | <p>0</p> <p>0</p> <p>1</p> |

| | | |
|--|---|---|
| Index to Theses 14 th July 2011 | Counselling and depression and Neuroscience Psychotherapy and depression neuroscience Counselling and depression and person centred | 0 0 0 |
| Web of knowledge (including web of science and medline) 14 th July 2011 | Neuroscience psychotherapy Cognitive behaviour therapy and fmri and depression (January 2011) Cognitive behavior therapy AND fMRI AND depression (in title) Client incongruence AND person centred (in title) Person centred AND psychopathology (in title) Neuroscience AND therapy AND depression (in title) Neuroscience AND counselling AND depression (in title) Neuroscience AND psychotherapy AND depression Neuroscience and psychobiology | 11 1 1 0 0 0 0 0 2 |
| Wiley Online Library 13 th July 2011 | “person centred counselling depression” “person centred incongruence” “person centred psychopathology” “cognitive behaviour therapy fmri depression” “neuroscience therapy depression” “counselling Neuroscience” | 0 No results No results No results No results No results |
| Science direct 14 th July 2011 | Cognitive behaviour therapy fMRI depression Person centred therapy depression | 0 0 |
| Biomed central 14 th July 2011 | Psychotherapy neuroscience depression Neuroscience psychotherapy Cognitive behaviour therapy fMRI depression Non directive therapy fMRI depression | 6 0 0 No results |

| | | |
|--|--|--|
| | Counselling neuroscience Person centred psychopathology Client incongruence person centred | 0 0 No results |
| Pubmed Central 14 th July 2011 | Cognitive behaviour therapy fMRI depression | 2 |
| Pubmed 11 th January 2011 | Cognitive behaviour therapy and fmri and depression | 5 |
| JSTOR | fMRI cognitive behaviour therapy fMRI depression Psychotherapy, depression, fMRI Non directive counselling Psychotherapy effectiveness fMRI fMRI empathy fMRI Humanistic therapy fMRI supportive relationship | 0 1 0 0 0 0 0 0 |
| Google Scholar 17 th May 2011 July 8 th 2011 20 th June 2011 27 th September 2011 | "cognitive behaviour therapy fMRI depression" person centred Client incongruence person-centred therapy and depression Cognitive behaviour therapy core concepts Neuroscience empathy fMRI empathy | 4 12 4 1 (from which I located Beck's original papers in the references x 3) 5 |
| Grey lit search – book indexes | Depression Incongruence Neurotic Author websites (N Rogers) NICE depression guidelines ICD10 Depression DSM1V | 0 Did not complete – sufficient in original theory 4 1 2 1 |

Data Analysis

Methods of analysis: A narrative Analysis in 3 stages

84 papers were retrieved and separated into the following broad categories to correlate with the study aims as described in chapter 1: (Papers retained and reviewed :)

- 1) Defining depression (4 papers) (NICE, LSE, ICD-10, DSM-IV)
- 2) Cognitive Therapy Theory (8 papers and 1 book) (Beck, The Current State of Cognitive Therapy: A 40 Year Retrospective, 2005) (Beck, The Evolution of The Cognitive Model of depression and its Neurobiological correlates, 2008) (Beck, Thinking and Depression: I Idiosyncratic Content and Cognitive Distortions, 1963) (Beck, Thinking and Depression: II Theory and Therapy, 1964) (Beevers, 2005) (Clark & Beck, 2010) (Morley & Moran, 2011) (Westbrook, 2011) (Wright, 2006)
- 3) Person Centred Theory (3 papers) (Rogers C. , A Theory of Therapy, Personality, and Interpersonal Relationships as Developed in the Client-Centred Framework., 1959) (Rogers C. , In Retrospect: Forty-Six Years, 1974) (Rogers C. R., 1979) (1 book– Mearns & Thorne, 2007)
- 4) What Neuroscience offers psychotherapy and understanding fMRI (10 (Fonagy, 2004), (Carrig & Kolden, 2009) (Cohen, 2005) (Frewen, Dozois, & Lanius, 2008) (Hoag & Defenbacher, 1988), (Sharpley & Bitsika, 2010), (Toomey & Ecker, 2009) (Walter, Berger, & Schnell, 2009) (Kumari, 2006) (Linden, 2006) (Motschnig-Pitrik, 2008)
- 5) Neural correlates of depression (5 papers) (Clark, Chamberlain, & Sahakian, 2009), (Toomey & Ecker, 2009), (Moras, 2006), (DeRubeis, Siegle, & Hollon, 2008), (Davidson, Pizzagalli, Nitschike, & Putnam, 2002)

- 6) fMRI studies of therapy or therapeutic concepts (8 papers) (Decety & Jackson, A Social-Neuroscience Perspective on Empathy, 2006) (Decety & Lamm, Human Empathy Through the Lens of Social Neuroscience, 2006) (Jackson, Meltzoff, & Decety, 2005) (Decety & Lamm, 2006) (Singer & Lamm, The Social Neuroscience of Empathy, 2009) (Singer, Seymour, O'Doherty, & Kaube, 2004) (Goldapple, et al., 2004) (Siegle, Carter, & Thase, 2006) (Ritchey, Dolcos, Eddington, Strauman, & Cabeza, 2011) PLUS – 1 PET study found from references searching (Goldapple, et al., 2004)
- 7) Neural correlates of empathy: (Decety & Jackson, 2006) (Jackson, Meltzoff, & Decety, 2005) (Singer & Lamm, The Social Neuroscience of Empathy, 2009) (Singer, Seymour, O'Doherty, & Kaube, 2004) (Decety & Lamm, 2006).
- 8) Neural Correlates of UPR: (Beauregard, Courtemanche, Paquette, & St-Pierre, 2009)
- 9) Developments to CT and PCT theory and therapy (3 papers) Gendlin (1996, 1996) (Perry (1959) , Kirtner & Cartwright (1958).

At this point papers that did not fit the categories were re-assessed for suitability to the focus of the study and 47 papers were categorised as not relevant to the research question and aims and objectives to warrant further consideration in line with purposive sampling. *Following a review of my aims in relation to better focussing on the research question I decided to remove the category of developments to CT and PCT theory and therapy as although this area held great interest to me it did not specifically add to answering the research question.

Due to the paucity of the results of the searches for Person-Centred studies I searched book indexes in PCT literature. This still returned no results for depression.

Re-visiting original theory led to a new search for the terms incongruence, vulnerability and neurosis. Original theory provided sufficient information to address the review question and aims so potential additional literature was not sought.

a) Narrative analysis - common themes:

I undertook a meta-ethnography for the qualitative studies (exploring the relationships and differences between study findings and the extent to which they reflect common, higher order themes).

I conducted this analysis by creating tables that allowed me to cross reference key quotations and concepts from the papers reviewed. These tables can be found in appendix 1.

b) Analyzing the findings within each of the categories

I was then able to review and critically appraise the findings within each of the categories and relate them to the aims of the study. This enabled me to allocate the narrative analysis a place within the structure of the study as indicated within the aims in chapter 1 in order that it contributed in a logical way to critically answering the review question.

The CT and PCT therapy categories were interrogated for key principles and concepts and these were mapped against each other to determine common higher order themes and differences that may be expected in neural substrates. This was a time-consuming and painstaking activity requiring several re-readings of the key papers.

I also represented some of the key features in a table for ease of presentation and understanding of the relationships and common higher order themes. This can be located in appendix 1 (table 3) and visually represents the common themes that I evidenced from CT and PCT theory of causality of depression.

c) Synthesising the findings across all included studies

Synthesising the findings across all of the studies in order to answer the review question forms the basis for chapter four, which follows.

CHAPTER FOUR

Findings

The findings in this study are drawn from the literature recovered relating to the aims as set out in the introduction and critically appraised in the literature review. I will provide a summary of the findings here.

The first aim of this study was to provide a working definition of depression. In reviewing literature from CT theory, PCT theory, neuroscience from cognitive, social and affective perspectives and fMRI studies it is clear that we do not have a single definition of depression. However I was able to arrive at a working definition inclusive enough for the purposes of the study. Depression is depressed mood or loss of pleasure in most activities that persists for more than two weeks and varying in the number and severity of symptoms. It can include both cognitive and affective symptoms.

The second aim of the study was to establish what brain areas CT and PCT theories of depression should be expected to relate to in the causality of depression.

Both CT and PCT theories make explicit statements about the interplay of cognition and affect. The full mapping including extracts from original theory can be found in appendix 1 along with Table 3 which more simply illustrates the relationships between themes in the theories. In summary both theories suggest that both cognitive and affective areas should be expected to be observed at work in the causality of depression.

The third aim of the study was to understand how each theory proposes recovery from depression is achieved through therapy and relate this to brain areas indicated by neuroscience to be indicated in depression. The mapping documents referred to above are available in appendix 1 and provides evidence from original theory of the common themes. The literature review considers how neuroscience and therapeutic concepts of depression relate.

Both therapies can be seen to address cognitive and affective processes and as such we would expect both to be visible in neuroscience evidence. There are some key differences in the emphasis each theory places on either cognitive or affective processes. So in therapy of depression we may expect cognitive therapy to begin with cognitive brain areas, and PCT to begin with the development of the relationship and affective areas. But as both Beck and Rogers point to the importance of both cognitive and affective processes being interlinked it seems unreasonable to expect the two to be entirely divorced from each other.

One key difference arises in the directiveness of the therapist which is directly related to the underlying philosophies of each of the therapies. CT takes an educative stance where PCT takes an exploratory stance to engaging both cognitive and affective processes.

The fourth aim of the study was to consider what fMRI offers us in understanding CT and PCT for depression. Some limitations to fMRI and the ways it is used were discovered including its use to test hypothesis within 'schools' and technological limitations.

The fifth aim was to understand neuroscience perspectives on depression and relate these to the theoretical constructs of CT and PCT.

Neuroscience demonstrates that both cognitive (top-down) and affective (bottom-up) processes are implicated in therapy of depression using CT therapy. It cannot yet tell us which are primary either in the causes of or recovery from depression as the technologies available are not sensitive enough to provide this information.

All domains of neuroscience reviewed concur that both cognitive and affective processes are involved in depression and recovery from depression through CT therapy.

No neuro-imaging studies of PCT for depression were recovered. Studies relating to therapeutic concepts such as empathy and unconditional love (agape) related to social rather than therapeutic context. No studies were recovered for relational genuineness or congruence.

fMRI studies of CT, depression, empathy and UPR indicate some shared and some discrete neural mechanisms. The ACC is indicated in all studies. Studies of CT compared to drug therapy are interpreted to show that drug therapy operates through bottom up (affective changes) and that CT operates through top down (cognitive changes) in line with CT theory of the cognitive control of emotion.

The final aim of the study was to answer the review question through a narrative synthesis which is partly achieved through the literature review (chapter 2) and in the following discussion.

CHAPTER FIVE

Discussion

In seeking to answer the research question literature from heterogeneous sources was utilised in addressing the six aims set out in the introduction. I will discuss how each of the aims were achieved and synthesise the findings of these six aims, critically discussing them in relation to the literature review in order to answer the review question:

What does Neuroscience offer us in understanding Cognitive Therapy and Person-Centred Therapy for Depression?

Aims one to four of this study were primarily focussed on gathering appropriate background or context for the detailed review of neuro-scientific fMRI scans of therapy and therapeutic concepts. Aims five and six were specifically aimed at answering the review question.

Aim one was addressed through reviewing literature from UK policies relating to the treatment of depression, and from manuals of diagnostic criteria as well as the descriptions of depression in studies reviewed. This showed that depression as a condition contained both cognitive and affective symptoms.

Through reviewing the original theories of Beck and Rogers to identify common themes and differences it is clear that both theories consider cognitive and affective processes in the causality of depression. Table 3 (appendix 1) demonstrates the

ways core statements of each theoretician support this assertion. Beck's concept of cognitive schemas containing dysfunctional attitudes can be seen to relate to Rogers' concept of conditions of worth. In this way this deeply held vulnerability, beyond immediate awareness can be seen as the result of a cognitive process of distorting experience.

This cognitive vulnerability can be linked to attentional bias explicitly mentioned by each author. Beck conceives of this as a bias toward negatively based interpretations and Rogers as a bias toward the perceived wishes of others. In either case the result is seen as having an affective consequence which can be termed depression.

Hence aim two of the study to define the causality of depression as proposed by CT and PCT in order to ascertain whether we should expect different or similar neural mechanisms is answered. Both theories implicate both cognitive and affective processes suggesting similar underlying neural mechanisms.

In evaluating CT and PCT theories of therapy for depression towards aim three (to understand if we should expect different or similar neural pathways for recovery from depression) the original theories were mapped and compared for common and distinct themes. This mapping can be found in appendix 1 (table 5) and relies on original theories and later explanations and developments by writers from each school.

There are distinct differences in the role the therapist takes in each therapy. In CT there is "greater activity by the therapist, operationalizing the specific procedures, setting goals for each session as well as for the long term" (Beck, 2005, p955),

whereas in PCT "The same conditions are regarded as sufficient for therapy, regardless of the particular characteristics of the client" (Rogers, 1959, p213).

This initially seems to suggest different processes and does not make distinct either cognitive or affective involvement. In order to understand this in terms of the aims it was necessary to look at the desired outcomes of therapy.

In relation to cognitive processes there are some close matches such as Beck's view that "the individual is able to orient himself in relation to time and space and to categorize his experiences in a meaningful way" (1964, p562) with Rogers' "aware of space time anchorage of facts, dominated by facts not concepts, ...tests his inferences and abstractions against reality" (1959, p206). Both seem to be describing a top-down cognitive process that results in reduced depression.

Another key aspect considered was the relationship between therapist and client in each therapeutic orientation. As demonstrated in the literature review both CT and PCT can be shown to value empathy, UPR and genuineness. Whilst the therapies differ as to the emphasis they place on this, for the purposes of addressing this aim it can be suggested that both therapies can be expected to affect similar affective mechanisms. The key difference then, is in the emphasis in CT of a cognitive route out of depression and the emphasis in PCT on the role of a relationship in which affective threat is minimised in order to provide an appropriate environment for the client to choose their own pathway.

What may to a lay observer be seen to be very different philosophies and models of depression can both be shown to include both cognitive and affective processes.

Hence in neuroscience we may expect to see similar neural circuitry in the causes of and therapy for depression.

In considering aim four of what fMRI studies offer us in understanding CT and PCT for depression the literature review addresses some of the strengths and limitations of this technology. A key point to stress is that whilst fMRI shows activity in the brain it cannot indicate which activity is primary therefore cannot indicate if cognitive processes or affective processes occur first. This weakens the inferences that may be drawn from scanning data. Additionally there appears to be a discrepancy between the way findings are reported in their academic context and how they are represented to the lay public. This is important to note since policy makers responsible for commissioning therapy provision are unlikely to have a detailed knowledge of the limitations of scanning techniques and their decisions may therefore be inappropriately influenced where studies do not make this limitation explicit.

Seeking papers to understand the applicability of fMRI scanning data to psychotherapy revealed this potential weakness strengthening the case for the validity of pluralistic research in a realist synthesis. The emphasis this methodology places on context led to wide ranging search criteria covering background and context as well as specific fMRI evidence to answer the review question fully.

The fifth aim of the study was to answer the review question. This involved seeking fMRI studies across the fields of cognitive, affective and social neuroscience. Seeking only fMRI data limited the field of enquiry but drew attention to the way in

which previous synthesis of may have lead to a lay belief that more evidence exists than is in fact available.

Aiming to understand the neural correlates of depression relied on older studies and it should be noted that very few were fMRI studies. Review studies of neuroscience and its potential for psychotherapy by Kumari (2006) and Linden (2006) explicitly separate out the broad spectrum of techniques and therapies used in study tables and then provide a narrative synthesis of the results they valuably make the distinction between scanning methods clear.

In the literature reviews of the single studies evidence from multiple scanning techniques are used to provide context without making explicit that different scanning techniques have been used in the studies referred to. This is only revealed by a thorough read through of the references and recourse to the review tables in the studies by Kumari and Linden. Aiming to synthesise the results of studies from different disorders and treatments (therapies and medications) and different scanning techniques risk conflating results to imply a clearer answer than is currently available from the data.

Reviewing heterogeneous literature did however yield some answers to understanding the neural correlates of depression and therapy for depression as proposed by neuroscience.

The studies reviewed suggest that there are two key systems in the brain responsible for top-down (rational thinking) and bottom-up (emotional processing) and that these react to each other. Since studies tend to test a hypothesis from within a single

school of therapy there is the increased risk that conclusions are drawn from within that framework. Studies of CT suggest that cognitive and affective area activation indicates the cognitive control of emotion when if we take an alternate stance it could equally indicate relationship elements and activation of emotional areas. Either could be related to excitory or inhibitory processes.

The alternate hypothesis suggested by DeRubeis et al (2008) was not tested in the literature reviewed. This hypothesis that abnormally increased bottom-up activity interferes with top-down processing cognitive tasks is not considered in the studies despite Goldapple's (2004) PET study where anti-depressant medication is seen to work in this way.

The ACC is seen to be active in all of the studies of depression and therapy for depression interpreted by Davidson et al (2002) as suggesting a response conflict caused by subjects being pulled to behave in two different ways due to the environment.

Studies of empathy and studies of depression and therapy for depression all include areas of the PFC, thalamus and limbic region such as the amygdala and hippocampus. The therapeutic studies relate to CT and no studies were recovered relating to PCT.

Social Affective Neuroscience has conducted fMRI studies, specifically related to empathy but in terms of a social rather than therapeutic process. Whilst it indicates that some of the same neural structures are at work as are observed in depression and therapy for depression this has yet to be tested experimentally in relation to the

potential effects of the receiver (or giver) of therapeutic empathy. PFC and limbic regions are both discussed by Decety & Lamm (2006) and as such both top-down and bottom-up processing has been suggested in empathy as well as in CT for depression. In CT for depression this is interpreted as cognitive control of emotion.

A major limitation of this study was the failure to locate neuro-imaging studies of PCT for depression. Studies relating to therapeutic concepts such as empathy and unconditional love (agape) were sought and recovered but related to social rather than therapeutic context. No studies were recovered for relational genuineness or congruence. This has an impact on the inferences made from the studies that are found. On one hand the approach of conducting a realist synthesis made possible the inclusion of heterogeneous data and highlights areas for future research. On the other hand lack of specific evidence in this therapeutic framework makes interpretation speculative at best.

The final aim of this study was to synthesise the findings in order to answer the review question:

What does Neuroscience offer us in understanding Cognitive Therapy and Person-Centred Therapy for Depression?

If as Moras suggests that practice relevant progress means findings that translate into more effective and efficient treatments it is important to consider the current neuroscience evidence in this light.

Neuroscience offers us concepts and theories about depression that to some degree match constructs from psychotherapy. There has been a weighting toward cognitive control of emotion when examining therapeutic constructs in depression with little attention paid to the potential of recruiting the affective neural processes in depression in a positive way. This seems due to the lack of consideration of alternate therapeutic models, or the relevance of the relational aspects of CT despite the fact that this bottom-up processing has been demonstrated in drug therapies for depression. I note a limitation in my own search strategy in not explicitly searching for neuroscience studies relating the therapeutic relationship in CT.

Synergy can be found between the evidence considered across neuro-scientific disciplines such as cognitive, affective and social neuroscience with the concepts of both CT and PCT theory utilising a realist perspective which necessitates drawing meaning from heterogeneous areas of research.

However as Fonagy (2004, p357) stated; "there is a significant risk that the evidence base we compile for psychotherapy will be based on professional priorities rather than criteria important to users". Since the findings of this study indicate that to some degree similar neural structures are involved in both types of therapy considered, and that despite their different philosophies both have been shown to have a similar effect (Cooper, 2008) perhaps at least part of the answer in focussing future research would be to better understand the priorities and personal philosophies of potential service users.

If different theories of causality are so similar, and methods differ based mostly on philosophy perhaps a match to the clients own philosophy, ideas and understanding

of how their difficulties arose and how they prefer to tackle them may be a predictor of outcome. Both therapies rely on the ability of client and therapist to build an empathic, non-judgemental and congruent relationship but this is not reflected in neuroscience studies.

Perhaps as Moras concluded the findings are consistent with the hypothesis that cognition affect and behaviour are changed simultaneously rather than sequentially.

This is a hypothesis advanced by Rogers (1979, p7)

"the transformation of one state to another is a sudden shift, a non-linear event, in which many factors act on each other at once. It is especially interesting to me that this has already been demonstrated in investigating Gendlin's concept of experiencing."

To allow research to become dominant in one area carries the potential to limit client choice. This is especially true when evidence is not being generated for alternative treatments which are then not funded on the NHS leaving only those who can afford a humanistic alternative with the ability to access it. This contravenes the ethical principle of justice (BACP, 2010).

Ultimately the answer to the review question is that neuroscience currently offers us less evidence than may be supposed by lay observers due to the limitations of technology and the limitations of research that is conducted within schools rather than pluralistically. Further research is needed in order to more reliably apply the concepts of neuroscience to CT and PCT for depression.

It is possible different pathways out of depression exist, or that different therapies use different pathways to achieve the same end results. Thus on the basis of neuroscience evidence we are not able to reliably state whether common or discrete

factors in therapy are responsible for the relatively equal effectiveness demonstrated by outcome studies (Cooper, 2008).

CHAPTER SIX

Conclusions

"There are more questions than answers. And the more I find out the less I know"

(Nash, 1972)

This study points to some gaps in our current knowledge which suggest directions for future research. This is important for advancing understanding of Neuroscience, CT and PCT. If ways can be found in which more pluralistic methods can be used then a better overall understanding which respects individuals chosen methods may be possible.

Whilst there are clear weaknesses to what can be extrapolated from fMRI scans there is a proliferation of research in this area. This research spans the disciplines of psychotherapy, cognitive, affective and social neuroscience but appears to currently take place in schools that are largely separate. This is creating gaps in knowledge in each area and risks inappropriate extrapolation in policy decisions which potentially disadvantages service users who have a preference other than CT, or who have tried CT and found it ineffective for them.

Suggestions for Future Research:

This study has identified some specific gaps which indicate a need for further research and in particular pluralistic research aimed at integrating the findings of

different disciplines whilst remaining open to the possibility of the value of each discipline.

There is a need for fMRI studies to compare therapies for depression, rather than only comparing therapies to drugs. If fMRI data indicates the same neural pathways for each therapy then there is not sufficient evidence to distinguish their effectiveness at a neural level. This allows for the consideration of the alternate hypothesis of bottom-up processing interfering with cognition as proposed by DeRubeis et al. Whilst both CT and PCT have been shown to share common themes suggesting both have impact on similar neural processes this has yet to be demonstrated by research.

Closer working between neuroscientists and psychotherapists to define appropriate research methods may prove fruitful for both disciplines as suggested by Toomey and Ecker (2009) and lead to more available and effective treatments as proposed by Moras.

A potential limitation to the above suggestions is the caveat that scanning techniques are not yet sensitive enough to directly observe or evaluate the process of therapy but only to infer causality from scanning prior to, at intervals of and following therapy. However only looking in one direction will not allow other potential effects to be observed.

Perhaps in the future technology will exist that is sufficiently unobtrusive as to allow imaging a therapist and client interactions without negatively impacting the therapeutic environment. Until this time we must avoid overstating the findings of

neuroscience for psychotherapy and broaden its horizons. We must also place value in other validated methods of research to pluralistically contribute to expanding knowledge.

CHAPTER SEVEN

Reflexive statement

"No theory can be adequately understood without some knowledge of the cultural and personal soil from which it springs."

Carl Rogers (1959, p185).

I have chosen to include a reflexive statement due to Pawson et al's (2005) insistence that the researcher's openness to evidence and reflexivity form an integral part of the validity in a realist review.

I am no different than other theoreticians or investigators in that my enquiry begins from observation and personal experience. I was brought up in a humanistic family with a high degree of personal responsibility coupled with respect for human diversity. I have had some challenging experiences in my life. In coping with some I have benefitted from medical interventions, such as surgery for my brain tumour and medication for resultant epilepsy. For other problems counselling and psychotherapy have been just as dramatically healing. I have developed an interest in how the brain works. I am also influenced by the biological theories of Richard Dawkins (2005) and by a distaste for uncritically accepted 'truths' or 'bad science' (Goldacre, 2009).

My core therapeutic training is PCT. I have had Cognitive Therapy and benefitted greatly from both the relational aspects and exercises suggested by the therapist.

I have undertaken the majority of my therapeutic practice to date within the NHS, in primary care. There is a great deal of change and some tension caused by the active investment in CBT and the perceived disinvestment in non-manualised forms of therapy such as counselling. To some degree I see my research as translational; interpreting the different languages used and drawing out both common and distinct factors.

Evidence based practice is a key principle in contemporary healthcare. I wholeheartedly approve of evidence which is why I am frustrated at the way that so much evidence seems to be discounted. Adopting a realist approach to the evidence fits my aim to be inclusive as well as open to pluralistic outcomes.

The process of research has been a process of learning. I held the view that neuroscience may be able to provide some explicit answers to potential differences in therapeutic concepts and how they acted on the brain. This is derived from a desire to be scientific and accurate and not make unsubstantiated claims. I have had to substantially adjust my understanding of what neuroscience can offer us in understanding therapies for depression on the basis of the evidence reviewed. I have been able to adjust my position and understanding due to my personal philosophy and belief in the value of evidence and will continue to adjust it on the basis of future evidence.

The impact on my own therapeutic work has been that I retain my pluralistic position. By this I mean that I am open to the benefits of other approaches and may yet decide to undertake training in them. However my own way of working is based upon a person-centred foundation as this is the area of my trained competence.

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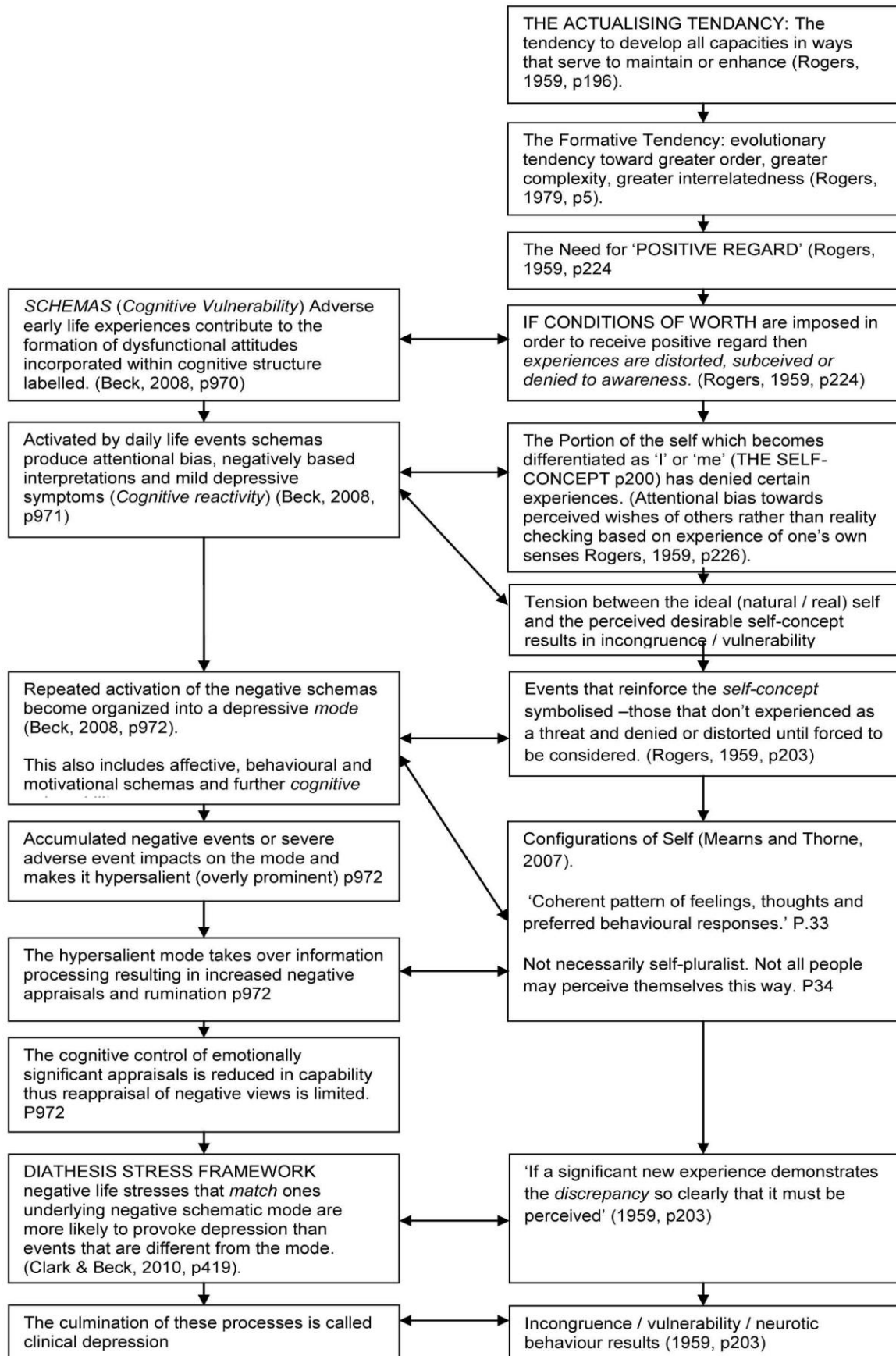
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Appendix 1, Table 3

Cognitive Theory

Person-Centred Theory



Appendix 1, Table 4: Mapping Common Higher Order Themes in CT and PCT Causality & Therapy of Depression.

| <i>Theory of Causation: CT</i> | <i>Theory of Causation: PCT</i> |
|--|---|
| <p><u>Philosophy:</u> stoic and realistic attitude of both pessimism and optimism (that human beings have a strong tendency to sabotage themselves as well as also holding great capacity to change and self-actualise).</p> <p>Strong roots in phenomenology as well as more modern cognitive psychology in his attitude towards ability to change.</p> | <p><u>Philosophy:</u> Phenomenological and humanism Anti power of therapist but also aware of the need for some imbalance (Rogers, ----)</p> <p>‘the individual has the capacity to guide, regulate and control himself, providing only that certain definable conditions exist’. (Rogers. 1979, p1.)</p> |
| <p><u>Diathesis-stress framework (genetic/innate)</u></p> <p>“Operates within a <i>diathesis-stress framework</i> in which negative life stresses that match that match ones underlying <i>negative schematic mode</i> are more likely to provoke depression than events that are different from the mode.” (Clark & Beck, 2010, p419)</p> | <p><u>Actualising tendency (innate)</u></p> <p>The only motive in the theory. The inherent tendency to develop all capacities in ways that serve to maintain or enhance (Rogers, 1959, p196).</p> |
| <p>Cognition <i>The fundamental principle</i> that different cognitions (defined by Beck (1964, p562/3) as” any mental activity that has a verbal content) give rise to different emotions”.</p> <p>“Appears to be an interaction between cognition and affect because the converse also seems to be true; the more intense the affective state, the credible the depressive cognitions seem to the patient. Also when the intensity of the affect is reduced, there is apt to be a diminution in the compelling quality of the cognition.”(Beck, 1964, p568)</p> | <p><i>Fundamental principle</i> that distorting or denying experience causes tension / distress through discrepancy between ideal-self and the self-concept re-enforced by conditionality of others.</p> <p>” Reciprocal relationship between cause and effect and in awareness that choices are made, spontaneous forms created. We see here perhaps the highest of human functions” (Rogers 1979, p5)</p> <p>Definition of experiencing – experiencing a feeling ‘an emotionally tinged experience, together with its personal meaning. Thus it includes emotion, but also the cognitive content of the meaning of that emotion in its experiential context. It thus refers to the unity of emotion and cognition as they are experienced inseparably in the moment” (Rogers, 1959, p198).</p> |

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| <p>Cognitions have 3 levels</p> <p>Levels of cognition (Wright, 2006)</p> <p>1) Consciousness is defined as a state in which rational decisions are made in full awareness (p174)</p> <p>2) automatic thoughts flow rapidly and may not be assessed for accuracy or relevance – everyone has them but in depression riddled with errors in logic (p174)</p> <p>3) Schema's or core beliefs deepest level – rules or templates for information processing shaped by developmental events or life experiences (p174)</p> | <p>“The value of a cognition lies in its experiential effect. In therapy we pursue the differences in experience a thought produces. Otherwise we might miss the change and be left with just the thought. (Gendlin, 1996).</p> <p>Consciousness a small but very important part. (Rogers, 1979, p5)</p> <p>Awareness: Awareness / symbolisation / consciousness seen as the symbolic representation (not necessarily in verbal symbols) (1959) (Rogers states perception and awareness synonymous in his theory) p198.</p> <p>What part does awareness play in formative function – “the ability to focus conscious attention seems to be one of the latest developments of our species – a tiny peak of awareness, of symbolising capacity topping a vast pyramid of nonconscious organismic functioning”. (Rogers 1979, p5).</p> <p>Accurate symbolisation in awareness rests on the ability to test hypothesis – failure to test leads to incongruence. (Rogers, 1959, p199)</p> <p>“physical and biological processes are more intricate and more capable of novel configurations than cognitive systems. Elaborations of them increase their intricacy.”(Gendlin, 1996, p246)</p> |
| <p>“Normally a matching process would occur so that a schema evoked by a particular stimulus is congruent with it. In psychopathology though this is upset by the intrusion of the hyperactive idiosyncratic schema” (Beck, 1964, p565)</p> <p>“Instead of a schema being selected to fit the external details, the details are selectively abstracted to fit the schema. The result is inevitably distortion of reality.</p> | <p>Events that reinforce the <i>self-concept</i> symbolised –those that don't experienced as a threat and denied or distorted until forced to be considered. (Rogers, 1959, p226)</p> |

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| <p>“ (p565).</p> <p>Developmental model identified early childhood trauma experiences and the formation of dysfunctional beliefs as predisposing events and congruent stressors in later life as precipitating factors.(Beck, 2008, p969 /70)</p> <p>Morley & Moran, 2011 suggest links between cognitive vulnerability and attachment theory Otherwise theory silent on relational aspects over genetic aspects of development.</p> | <p>With the development of the awareness of self comes the need for positive regard (Standal cited by Rogers, 1959, p223). When a person perceives that some of their self-experiences are less worthy of positive regard than others they develop ‘conditions of worth’ and only positively regard themselves when meeting the approval of others to achieve positive regard. (Rogers, 1959, p224).</p> |
| <p>“Early adverse events foster negative attitudes and biases about the self, which are integrated into the cognitive formation in the form of schema’s”(Beck 2008, p970) – this causes Cognitive Vulnerability</p> <p>Concept of two forms of processing can be traced back to Freud – primary and secondary processes. (Beck, (2008, p971). Beevers suggests two factor processing in depression. Proposes that cognitive vulnerability happens when negatively biased associative processing (bottom up) is uncorrected by reflective processing (top down). (p971)</p> <p>Positive and negative schemas possible – focus on negative in theory as treatment options focussed on this.</p> <p>“In conceptualizing a particular life situation, composed of a kaleidoscopic array of stimuli, an individual has a number of alternatives as to which aspects of the situation he extracts and how he combines these into a coherent pattern. Stereotyped or repetitive patterns are regarded as manifestations of cognitive</p> | <p>IF CONDITIONS OF WORTH are imposed in order to receive positive regard then <i>experiences are distorted, subceived or denied to awareness</i> (Rogers, 1959, p224)</p> <p>“Some changes in clients’ cognitive categories take place in all forms of therapy, but it is well known that cognitive change <i>alone</i> produces little real change in people. It can therefore seem that cognitive change as such has no role in therapy. This is a wrong conclusion.”. (Gendlin, 1996, p238).</p> <p>Introjects / distortions / denial to awareness/ subception due to the need for POSITIVE REGARD lead to incongruence / vulnerability and prevent the development of the <i>ideal-self</i> . The difference between the ideal-self (what the person would most like to be based on their own experience) versus introjected self-concept causes vulnerability or incongruence (‘what is commonly called neurotic behaviour’ Rogers, 1959, p200) incongruence between self and experience gives potential for psychological disorganisation.</p> <p>Schemas could equate to configurations of self..</p> |

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| organisations or structures “ (Schemas).(Beck, 1964, p 562). | |
| Continuum principle – most helpful to see mental health issues as extreme versions of normal processes (Westbrook, 2011, p5) | Move away from the integration of infancy not a conscious choice but a natural and tragic development in infancy. (Rogers, 1959, p226) |
| Cognitive reactivity –“ fluctuations in negative attitudes about self in response to daily events”. (Beck, 2008, p971) | The Self-Concept has denied certain experiences in order to fit in with the perceived desired self-concept (in order to receive positive regard). External Locus of evaluation evident. |
| Activated (<i>Activating Event</i>) by daily life events schemas produce attentional bias, negatively based interpretations and mild depressive symptoms(p 971)(<i>Cognitive reactivity</i>) (<i>Behaviour</i>) | ‘If a significant new experience demonstrates the discrepancy so clearly that it must be perceived’ the person will feel threatened (Rogers, 1959, p229 |
| (<i>Consequences</i>) Repeated activation of the negative schemas become organized into a depressive <i>mode</i> – a network of cognitive, affective, motivational schemas (Beck 2008, p972) | Configurations of Self (Mearns and Thorne (2007, p ---)match different modes. |
| Accumulated negative events or severe adverse event impacts on the mode and makes it hypersalient (overly prominent) (Beck 2008, p972) | Concept of self-disorganized by contradictory experience and difficulty assimilating it causes threat as disorganised / incongruent ‘what is commonly called neurotic behaviour’(Rogers, 1959, p203) (Neurosis defined by oxford dictionary as ‘a relatively mild mental illness that is not caused by organic disease, involving symptoms of stress (depression, anxiety, obsessive behaviour, hypochondria) but not a radical loss of touch with reality. |
| The hypersalient mode takes over information processing resulting in increased negative appraisals and rumination Beck, 2008, p972) | Inner critic, negative self-configuration |
| The cognitive control of emotionally significant appraisals is reduced in capability thus reappraisal of negative views is limited. (Beck, 2008, p972) | If unaware of the incongruence person may see them self as adjusted (1959, p204) |
| Result is depression | Result incongruence / neurosis / depression |

Appendix 1, Table 5. Mapping common themes in CT and PCT theories of therapy.

| <i>CT Theory of Therapy</i> | <i>PCT Theory of Therapy</i> |
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| <p>Key Principles</p> <p>Collaborative project between client and therapist taking a mentoring rather than instructional role in an adult to adult relationship. (Westbrook, Kennerley and Kirk, 2011, p42)</p> | <p>Key Principles</p> <p>“The same conditions are regarded as sufficient for therapy, regardless of the particular characteristics of the client” (Rogers, 1959,p213) a footnote states that this paragraph may hve to be re-written ‘if a recent study of Kirtner is confirmed’. This study was partially confirmed by Kirtner and Cartwright but refuted by Perry.</p> <p>Therapist explains to client how PCT supposed to work and therapy relying on the conditions commences.</p> <p>“Therapy as usually practiced does not teach the patient how to do therapy. We thought by not doing anything therapeutic, we thought a patient could learn to do something therapeutic.” “No matter how much time is spent with the motor off, that doesn’t turn it on”. (Gendlin, 1969, p13)</p> <p>“Welcoming a felt sense is a deliberate cognitive response that must usually be learned”(Gendlin, 1996, 242).</p> |
| <p>“In examining the validity of the cognition the patient learns to make a distinction between “thinking” and “believing”.”. (Beck, 1964, p569)</p> | <p>If certain conditions exist then a process will occur which includes certain characterisitic elements. If this process occurs then certain personality and behavioural changes will occur. (Rogers, 1959). “These seem to be the necessary conditions of therapy, though othere elements are often, or usually present...and hypothesises that it never commences without these conditions being met” (Rogers, 1959, p213).</p> <p>Relationship / Therapy containing the 6 necessary conditions.</p> |
| <p>Continuum principle – processes are</p> | <p>Life is seen as the processof</p> |

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| <p>exaggerated versions of normal processes so applicable to everyone (Westbrook et al, p5)</p> | <p>becoming – moving towards becoming a fully functioning person, although no one can really achieve this.</p> |
| <p>The Relationship</p> <p>Collaborative project between client and therapist “therapist knowledge about effective ways to solve problems and client expertise in his own experience of his problems”. (Westbrook et al, p23)</p> <p>“Greater activity by the therapist, operationalizing the specific procedures, setting goals for each session as well as for the long term, assigning homework, and especially measuring mediated variables and outcomes”. (Beck, 2005, p955)</p> <p>Problem formulation (interacting systems principle) cognition, affect, behaviour and physiology interact with each other in complex feedback processes. Padesky & Mooney (1990) hot cross bun model. Not mechanistic, very specific to each client and based on an understanding of what is maintaining the clients problem. (Westbrook et al, p32) (in this case each pair is different so no more manualised than other therapies).</p> | <p>The Relationship</p> <p>Two people are in <i>psychological contact</i> (Rogers, 1959, p213).</p> <p>Focus wherever the client chooses in classic therapy. In more experiential forms may work to set agreed goals. “physical and biological processes are more intricate and more capable of novel configurations than cognitive systems. Elaborations of them increase their intricacy.” Gendlin, 1996,</p> <p><u>This is the KEY difference – directiveness</u> In PCT the relationship conditions effectively teach this experientially through modelling the processes of reflection, and allowing reflection in a safe, unthreatening environment. To some degree leaves out what Rogers discovered about teaching and learning – and from his original theory that cognition and affect are both necessary.</p> |
| <p>Therapist qualities that are valued in other therapies are equally important within CBT. Westbrook et al (p 31) They are specific that they mean in the Beckian model they are describing.</p> <p>CBT sees the relationship not as the fundamental tool, but as the foundation for effective therapy “necessary but not sufficient for good treatment result” (Westbrook et al, p39)</p> | <p>Empathy and UPR (Rogers, 1959, p213)</p> |

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| <p>'therapy is rarely fruitful if it is a purely intellectual discussion of abstract thoughts. If a client is experiencing no emotion during the process, it is very unlikely that he will achieve a shift in emotion of behaviour (Safran, 1998). Cited by Westbrook et al (p35)</p> | <p>Congruence (p213)</p> <p>It can be useful for therapists to offer alternative ways of thinking. In this they may be adopting some ideas from cognitive therapy for a while- but in ways that don't push the client into a passive role. Can be done as an expression of the therapists own convictions – being real and present (good description of congruence without calling it such). (Gendlin, 1996,p240)</p> <p>Thinking is an important human ability – helping us construct and understand our world. Can't be considered evolutionary irrelevant. Has got a bad name in therapy because it is so easily misused. "Thinking separated from other kinds of experience is called "intellectualizing" and brings little psychological change". Gendlin, 1996,p240</p> |
| <p>Client perception of therapist characteristics rather than behaviour of the therapist that indicate outcome (Wright & Davis, 1994 in Westbrook et al, p40) in beneficial effect of CBT over and above the therapeutic relationship.</p> | <p>Perception (p213)</p> |
| <p>Outcome</p> | <p>Outcome</p> |
| <p>Effective Coping Responses:</p> <p>Challenging negative assumptions Building new schemas through practice Relief from depression</p> <p>"On the basis of the matrix of schema's the individual is able to orient himself in relation to time and space and to categorize his experiences in a meaningful way". (Beck, 1964, p562)</p> | <p>Movement toward becoming a fully functioning person</p> <p>Process of defense reversed – usually threatening experiences accurately symbolised in awareness and assimilated into the self-structure. (can be seen as a cognitive process).</p> <p>Reduction in conditions of worth Increase in unconditional self-regard p216 (compassion)</p> <p>Extentionality vs Intensionality (Rogers, 1959, p206) "aware of space-time anchorage of facts, dominated by facts not concepts, evaluate in multiple ways, be aware of different levels of abstraction, test</p> |

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| <p>Encourage new experiences which will help form new more positive associations.</p> <p>“In examining the validity of the cognition the patient learns to make a distinction between “thinking” and “believing”.”. (Beck, 1964, p569)</p> <p>“to shift the patient’s mode of judging himself and his world from an exclusively deductive to a more inductive process; i.e. to form his judgements more in terms of objective evidence and less on the basis of biased assumptions and misconceptions”. (Beck, 1964, p571).</p> | <p>his inferences and abstractions against reality.”</p> <p>Psychological adjustmet: all experiencess are, or may be assimilated on a symbolic level - synonomous with congruence of self and experience, or complete openness to experience (p206).</p> <p>Maturity (psychological). P207 Percieves realistically, not defensive, accepts responsabilty for being different from others, accepts responsibility for own behaviour, evaluates experience on the basis of evidence from own senses, changes evaluation of experience only on the basis of new evidence, accepts others as unique individuals different from self, prizes himself, and prizes others.</p> |
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Appendix 2: Database Search Records

Database search Record Form: web of BioMed central 14th July 2011

| Search Terms wildcards and truncation used | Meets initial Criteria | If rejected criteria failed | Details of studies to be retrieved | Date found & downloaded |
|--|------------------------|--|--|-------------------------------|
| Neuroscience psychotherapy depression | Keep – neural basis | | Joining the dots: neurobiological links in a functional analysis of depression Sharpley CF, Bitsika V <i>Behavioral and Brain Functions</i> 2010, 6:73 (11 December 2010) [Abstract] [Full Text] [PDF] [PubMed] [Related articles] | Downloaded & printed 26/07/11 |
| | | Reject on abstract – focus on medication | Should We Treat Depression with drugs or psychological interventions? A Reply to Ioannidis Davis JM, Giakas WJ, Qu J, Prasad P, Leucht S <i>Philosophy, Ethics, and Humanities in Medicine</i> 2011, 6:8 (10 May 2011) [Abstract] [Full Text] [PDF] [PubMed] [Related articles] | Rejected |
| | | Reject – drug focussed | Study protocol Depression in Primary care: Interpersonal Counseling vs Selective serotonin reuptake inhibitors. The DEPICS Study. A multicenter randomized controlled trial. Rationale and design Menchetti M, Bortolotti B, Rucci P, Scocco P, Bombi A, Berardi D, DEPICS Study Group <i>BMC Psychiatry</i> 2010, 10:97 (25 November 2010) [Abstract] [Full text] [PDF] [PubMed] [Related articles] | Rejected |
| | | Reject – interesting background but not relevant to question and study aims | On the ontological assumptions of the medical model of psychiatry: philosophical considerations and pragmatic tasks Patil T, Giordano J <i>Philosophy, Ethics, and Humanities in Medicine</i> 2010, 5:3 (28 January 2010) | Downloaded & printed 26/07/11 |
| | | | On the neural networks of empathy: A principal component analysis of an fMRI study Nomi JS, Scherfeld D, Friederichs S, Schäfer R, Franz M, Wittsack HJ, Azari NP, Missimer J, Seitz RJ <i>Behavioral and Brain Functions</i> 2008, 4:41 (17 September 2008) [Abstract] [Full Text] [PDF] [PubMed] [Related articles] [Cited on | Downloaded & printed 26/07/11 |

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|---|--|--|--|--------------------------------|
| Neuroscience psychotherapy | | | BioMed Central] | |
| Cognitive behaviour therapy fmri depression | | | Psychological treatment of depression: A meta-analytic database of randomized studies Cuijpers P, van Straten A, Warmerdam L, Andersson G <i>BMC Psychiatry</i> 2008, 8:36 (16 May 2008) [Abstract] [Full text] [PDF] [PubMed] [Related articles] | Downloaded and printed 26/7/11 |
| Non directive therapy fmri depression | | | no criteria matches (1 removed after abstract review) | |
| Counselling neuroscience | | | No unique results | |
| Person centred psychopathology | | | No results | |
| Client incongruence person centred | | | No criteria matches (2 removed after abstract review). | |
| | | | No criteria matches | |
| | | | No results | |

Database search Record Form: Campbell collaboration 13th July 2011

| Search Terms wildcards and truncation used | Meets initial Criteria | If rejected criteria failed | Details of studies to be retrieved | Date found & downloaded |
|--|------------------------|-----------------------------|---|----------------------------|
| <p>Browse search – social and human sciences using:</p> <ul style="list-style-type: none"> - Psychology - Psychology - Clinical Psychology - Psychotherapy <p>Advanced search using:</p> <ul style="list-style-type: none"> - Counselling - Psychotherapy - Neuroscience in Depression - Cognitive behav* <p>(in all text)</p> | | | <p>No appropriate studies matching CBT and depression / person centred and depression</p> <p>Returned no appropriate papers</p> | 13 th July 2011 |

Database search Record Form: Standard Google search for literature review 20th June 2011

| Search terms wildcards and truncation used | Meets initial criteria | If rejected criteria failed | Details of studies to be retrieved | Date found & downloaded |
|--|------------------------|-----------------------------|--|--|
| Cognitive behaviour therapy core concepts | | CT Theory | <p>Cognitive Behavior Therapy: Basic Principles and Recent Advances. Focus 4:173-178, Spring 2006 © 2006 American Psychiatric Association Jesse H. Wright, M.D., Ph.D.</p> <p>Cited are Beck's original papers</p> <ol style="list-style-type: none"> 1. Beck AT: Thinking and depression. Arch Gen Psychiatry 1963; 9:324–333[Abstract/Free Full Text] 2. Beck AT: Thinking and depression, II: theory and therapy. Arch Gen Psychiatry 1964; 10:561–571[Abstract/Free Full Text] 3. Beck AT: The current state of cognitive therapy: a 40-year retrospective. Arch Gen Psychiatry 2005; 62:953–959[Abstract/Free Full Text] | All downloaded and saved and printed. (20 th June 2011) |

Database search Record Form: Cochrane library 14th July 2011

| Search terms wildcards and truncation used | Meets initial criteria | If rejected criteria failed | Details of studies to be retrieved | Date found & downloaded |
|---|------------------------|-----------------------------|--|--------------------------------------|
| <p>Psychotherapy depression</p> <p>Neuroscience psychotherapy</p> <p>Counselling depression</p> | | | <p>Interpersonal, cognitive analytic and other integrative therapies versus treatment as usual for depression Rachel Churchill, Philippa Davies, Deborah Caldwell, Theresa HM Moore, Hannah Jones, Glyn Lewis, Vivien Hunot September 2010</p> <p>Mindfulness-based 'third wave' cognitive and behavioural therapies versus other psychological therapies for depression Vivien Hunot, Theresa HM Moore, Deborah Caldwell, Philippa Davies, Hannah Jones, Glyn Lewis, Rachel Churchill September 2010</p> <p>No results</p> <p>Effectiveness and cost effectiveness of counselling in primary care Peter J Bower, Nancy Rowland January 2009</p> | Retrieved 14 th July 2011 |

| Search terms wildcards and truncation used | Meets initial criteria | If rejected criteria failed | Year | Details of studies to be retrieved | Date found & downloaded |
|--|------------------------|-----------------------------|------|--|---|
| Non directive therapy fmri depression | | | | <p>A critique of the theoretical contributions of non-directive therapy. Full Text Available Ellis, Albert; Journal of Clinical Psychology, 4, 1948. pp. 248-255. [Journal Article] Database: PsycINFO</p> <p>Honouring the Body in Psychotherapy: Using Neuroscience to Strengthen Gendlin's Directive. Detail Only Available Ozier, Douglas P.; James, Susan; Constructivism in the Human Sciences, Vol 9(1), 2004. pp. 19-30. [Journal Article] Subjects: Neurosciences; Psychotherapy; Responses Database: PsycINFO</p> <p>No suitable papers</p> | <p>Downloaded and printed 11th July 2011</p> <p>Needs to be downloaded - good on somatic (feeling)</p> |
| "Counselling neuroscience depression" | | | | <p>Individualized and clinically derived stimuli activate limbic structures in depression: An fMRI study. Detail Only Available Kessler, Henrik; Taubner, Svenja; Buchheim, Anna; Münte, Thomas F.; Stasch, Michael; Kächele, Horst; Roth, Gerhard; Heinecke, Armin; Erhard, Peter; Cierpka, Manfred; Wiswede, Daniel; PLoS ONE, Vol 6(1), Jan 25, 2011. <i>ArtID</i> e15712. [Journal Article]</p> <p>Neuropsychotherapy: conceptual, empirical and neuroethical issues. Full Text Available By: Walter, Henrik; Berger, Mathias; Schnell, Knut. European Archives of Psychiatry & Clinical Neuroscience, Nov2009 Supplement 2, Vol. 259, p173-182, 10p, 2 Diagrams, 1 Chart; DOI: 10.1007/s00406-009-0058-5</p> <p>Commentary on: 'Functional neuroimaging--Can it contribute to our understanding of processes of change?' Detail Only Available Scharf, Robert D.; Neuro-Psychoanalysis, Vol 10(1), 2008. pp. 36-40. [Comment/Reply] Subjects: Brain; Neuroimaging; Psychoanalysis; Psychotherapy;</p> | <p>Download - neuro of depression evidence</p> <p>Download</p> <p>Download</p> |
| "Psychotherapy fmri depression" | | | | | |

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|--|--|--------------------------------------|--|--|--|
| | | | | <p>Treatment Outcomes</p> <p>Functional brain basis of cognition in major depression. Detail Only Available Okamoto, Yasumasa; Kinoshita, Akiko; Onoda, Keiichi; Yoshimura, Shinpei; Matsunaga, Miki; Takami, Hiroshi; Yamashita, Hidehisa; Ueda, Kazutaka; Suzuki, Shinichi; Yamawaki, Shigeto; Japanese Journal of Psychonomic Science, Vol 25(2), Mar, 2006. pp. 237-243. [Journal Article]</p> <p>Do psychotherapies produce neurobiological effects? Detail Only Available Kumari, Veena; Acta Neuropsychiatrica, Vol 18(2), Apr, 2006. pp. 61-70. [Journal Article]</p> <p>Subjects: Brain; Neural Pathways; Neurobiology; Neuroimaging; Psychotherapy</p> <p>Incongruence effects in crossmodal emotional integration. Detail Only Available (eng; includes abstract) By Müller VI, Habel U, Derntl B, Schneider F, Zilles K, Turetsky BI, Eickhoff SB, Neuroimage [Neuroimage], ISSN: 1095-9572, 2011 Feb 1; Vol. 54 (3), pp. 2257-66; PMID: 20974266</p> <p>Investigating the neurobiological basis of cognitive rehabilitation therapy with fMRI. Full Text Available Laatsch, L. K.; Thulborn, K. R.; Krisky, C. M.; Shobat, D. M.; Sweeney, J. A.; Brain Injury, Vol 18(10), Oct, 2004. pp. 957-974. [Journal Article]</p> <p>Why Does Depression Hurt? Ancestral Primary-Process Separation-Distress (PANIC/GRIEF) and Diminished Brain Reward (SEEKING) Processes in the Genesis of Depressive Affect. Full Text Available By: Panksepp, Jaak; Watt, Douglas. Psychiatry: Interpersonal & Biological Processes, Spring2011, Vol. 74 Issue 1, p5-13, 9p, 1 Color Photograph; DOI: 10.1521/psyc.2011.74.1.5</p> <p>The Value of Neuroscience Strategies to Accelerate Progress in Psychological Treatment Research. Full Text Available (cover story) By: Moras, Karla. Canadian Journal of Psychiatry, Nov2006, Vol. 51</p> | <p>Download alleges support for Beck - poss reject on non individual therapy</p> <p>Download</p> <p>Reject</p> <p>Reject</p> <p>Download – affective neuro theory</p> <p>Download neuro theory on cognitive and affective NS</p> |
| | | Not related to depression or therapy | | | |
| | | Wrong therapy type | | | |

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|---|--|----------------------------------|--|--|
| "humanistic therapy fmri depression" | | Repeat find | <p>Issue 13, p810-822, 13p</p> <p>Functional brain basis of cognition in major depression.Detail Only Available Okamoto, Yasumasa; Kinoshita, Akiko; Onoda, Keiichi; Yoshimura, Shinpei; Matsunaga, Miki; Takami, Hiroshi; Yamashita, Hidehisa; Ueda, Kazutaka; Suzuki, Shinichi; Yamawaki, Shigeto; Japanese Journal of Psychonomic Science, Vol 25(2), Mar, 2006. pp. 237-243. [Journal Article]</p> <p>Psychotherapy and neuroscience: Towards closer integration.Full Text Available Peres, Julio; Nasello, Antonia Gladys; International Journal of Psychology, Vol 43(6), Dec, 2008. pp. 943-957. [Journal Article]</p> <p>Subjects: Mental Disorders; Neurosciences; Psychotherapy</p> | Reject |
| "psychotherapy neuroscience depression" | | Risk factors rather than therapy | <p>Alterations in neural structures as risk factors for depression.Detail Only Available Ramasubbu, Rajamannar; MacQueen, Glenda; <i>In: Risk factors in depression.</i> Dobson, Keith S. (Ed.); Dozois, David J. A. (Ed.); San Diego, CA, US: Elsevier Academic Press, 2008. pp. 37-61. [Chapter]</p> <p>Subjects: Brain; Major Depression; Neural Networks</p> <p>Depression: An evolutionarily conserved mechanism to terminate separation distress? A review of aminergic, peptidergic, and neural network perspectives.Detail Only Available Watt, Douglas F.; Panksepp, Jaak; Neuropsychoanalysis, Vol 11(1), 2009. pp. 7-51. [Journal Article]</p> <p>Subjects: Major Depression; Neuropeptides; Polymorphism; Separation Reactions; Biological Neural Networks</p> <p>The neuroscience of psychological therapies.Detail Only Available Folensbee, Rowland W.; New York, NY, US: Cambridge University Press, 2007. x, 223 pp.</p> <p>Subjects: Behavior; Brain; Neurosciences; Psychotherapy</p> | <p>Download – about contribution past and future of NS</p> <p>Reject</p> <p>Download</p> <p>Look up on google scholar - but cozolino similar</p> |

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|----------------------------------|--|-------------|--|--|
| "person centred psychopathology" | | Book review | <p>From categorical to dimensional diagnostics: Deficiency-oriented versus person-centred diagnostics.Full Text Available Musalek, Michael; Scheibenbogen, Oliver; European Archives of Psychiatry and Clinical Neuroscience, Vol 258(Suppl5), Nov, 2008. pp. 18-21. [Journal Article]</p> <p>Subjects: Diagnosis; Psychopathology; Severity (Disorders)</p> <p>The therapist, the client, and the theory: Fit or failure?Detail Only Available Ring, Marcia E.; Journal of Psychiatric and Mental Health Nursing, Vol 14(3), May, 2007. pp. 333-334. [Review-Book]</p> <p>Subjects: Psychotherapeutic Processes; Psychotherapy; Theoretical Interpretation; Therapeutic Alliance</p> <p>Person-centred psychopathology: A positive psychology of mental health.Full Text Available By: Crawford, Beryl. Healthcare Counselling & Psychotherapy Journal, Jul2006, Vol. 6 Issue 3, p39-39, 1/2p, 1 Color Photograph</p> <p>Warner and biermann ratjen book chapters only returned</p> | <p>Download - stigmatisation mentioned</p> <p>Reject</p> <p>Reject</p> <p>Reject</p> |
|----------------------------------|--|-------------|--|--|

- Database search Record Form: EbscoHost (CINAHL Plus with Full Text, PsycARTICLES, PsycBOOKS, Psychology and Behavioral Sciences Collection (1), PsycINFO (8), SocINDEX with Full Text, MEDLINE (1))

| Search Terms wildcards and truncation used | Meets initial Criteria | If rejected criteria failed | Details of studies to be retrieved | Date found & downloaded |
|---|---|-----------------------------|--|----------------------------|
| "cognitive behaviour therapy fmri depression" | Non medicated, CBT, depression, neural anatomy FMRI | | <p>All need reviewing to see if they need download</p> <p>Neural correlates of emotional processing in depression: Changes with cognitive behavioral therapy and predictors of treatment response. Detail Only Available Ritchey, Maureen; Dolcos, Florin; Eddington, Kari M.; Strauman, Timothy J.; Cabeza, Roberto; Journal of Psychiatric Research, Vol 45(5), May, 2011. pp. 577-587. [Journal Article]</p> <p>Neurobehavioral Therapies in the 21st Century: Summary of an Emerging Field and an Extended Example of Cognitive Control Training for Depression. Full Text Available By: Siegle, Greg J.; Ghinassi, Frank; Thase, Michael E.. Cognitive Therapy & Research, Apr 2007, Vol. 31 Issue 2, p235-262, 28p, 6 Graphs; DOI: 10.1007/s10608-006-9118-6</p> <p>Use of fMRI to predict recovery from unipolar depression with cognitive behavior therapy. Detail Only Available Siegle, Greg J.; Carter, Cameron S.; Thase, Michael E.; The American Journal of Psychiatry, Vol 163(4), Apr, 2006. pp. 735-738. [Journal Article]</p> <p>Functional brain basis of cognition in major depression. Detail Only Available Okamoto, Yasumasa; Kinoshita, Akiko; Onoda, Keiichi; Yoshimura, Shinpei; Matsunaga, Miki; Takami, Hiroshi; Yamashita, Hidehisa; Ueda, Kazutaka; Suzuki, Shinichi; Yamawaki, Shigeto; Japanese Journal of Psychonomic Science, Vol 25(2), Mar, 2006. pp. 237-243. [Journal Article]</p> <p>Do psychotherapies produce neurobiological effects? Detail Only Available Kumari, Veena; Acta Neuropsychiatrica, Vol 18(2), Apr, 2006. pp. 61-70. [Journal Article]</p> <p>Subjects: Brain; Neural Pathways; Neurobiology;</p> | 11 th July 2011 |

Database search Record Form: Google Scholar July 8th 2011 – searched 12 pages of results

| Search terms wildcards and truncation used | Meets initial criteria | If rejected criteria failed | Details of studies to be retrieved | Date found & downloaded |
|--|--------------------------------|---|--|--|
| Person Centred client incongruence | Person Centred psychopathology | Eventually all discounted as sufficient info in original theories | <p>Book – Person Centred Therapy a European Perspective. Chapter 10 incongruence and psychopathology. Biermann-Ratjen</p> <p>Developing Person Centred Counselling. Mearns, Chapter p103 the person centred perspective on psychopathology – the neurotic client (Lambers)</p> <p>Person centred therapy in focus – Wilkins. Chapter 8, p99 an absent psychopathology a therapy for the worried well</p> <p>Person Centred Therapy today. Cahper 8 , p 144 Margaret warner. Person Centred Therapy at the difficult edge a developmentally based model of fragile and dissociated process</p> <p>Back to the client: A phenomenological approach to the process of understanding and diagnosis PF Schmid - PERSON CENTERED AND EXPERIENTIAL ..., 2004 - utanet.at [PDF]</p> <p>The foundations of the person-centered approach CR Rogers - Education, 1979 - www.if-development.co.uk [PDF]</p> <p>Authenticity and alienation: Towards an understanding of the person beyond the categories of order and disorder [PDF] from kilu.de PF Schmid - Person-centred psychopathology, 2005 - pfs.kilu.de</p> <p>Client-centered and experiential psychotherapy in the nineties G Lietaer, J Rombauts... - 1990 - books.google.com Chapter Iberg J R page 173 Ms C's focussing and cognitive functions [BOOK]</p> <p>Psychopathology and the Person-Centred Approach: Building bridges between disciplines S JOSEPH... - Person-Centred Psychopathology: A ..., 2005 - pccs-books.co.uk [PDF]</p> | <p>Avail online-google books</p> <p>Online google books</p> <p>WNSC library book</p> <p>Downloaded 8th July 2011</p> <p>Downloaded July 8th 2011</p> <p>Downloaded July 8th 2011</p> <p>Avail online google books</p> <p>Downloaded 8th July 2011</p> <p>Downloaded 8th July 2011</p> |

| Search Terms wildcards and truncation used | Hits | Meets initial Criteria | If rejected criteria failed | Year | Details of studies to be retrieved |
|--|------|------------------------|-----------------------------|------|--|
| Fmri cognitive behaviourv therapy | 7 | 0 | | | |
| Fmri depression | 21 | 1 | | 2005 | The vulcanisation of the human brain. Neural perspectives of the interactions between cognition and emotion. Cohen, J.D. <i>The Journal of Economic Perspectives</i> , Vol. 19, No. 4 (Autumn, 2005), pp. 3-24 (PRINTED) |
| Psychotherapy, depression, fmri | 3 | 0 | | | |
| Non directive counselling | 125 | 0 | | | |
| Psychotherapy effectiveness fmri | 0 | 0 | | | |
| Fmri empathy | 14 | 0 | | | |
| Fmri Humanistic therapy | 0 | 0 | | | |
| Fmri supportive relationship | 0 | 0 | | | |

| Search terms wildcards and truncation used | Meets initial criteria | If rejected criteria failed | Details of studies to be retrieved | Date found & downloaded |
|--|------------------------|------------------------------|---|--|
| Cognitive behaviour therapy fmri depression ("cognitive therapy"[MeSH Terms] OR cognitive behavior therapy[Figure/Table Caption] OR cognitive behavior therapy[Section Title] OR cognitive behavior therapy[Body - All Words] OR cognitive behavior therapy[Title] OR cognitive behavior therapy[Abstract]) AND ("magnetic resonance imaging"[MeSH Terms] OR fmri[Acknowledgments] OR fmri[Figure/Table Caption] OR fmri[Section Title] OR fmri[Body - All Words] OR fmri[Title] OR fmri[Abstract]) AND ("depressive disorder"[MeSH Terms] OR "depression"[MeSH Terms] OR depression[Acknowledgments] OR depression[Figure/Table Caption] OR depression[Section Title] OR depression[Body - All Words] OR depression[Title] OR depression[Abstract]) | Neural basis | Did not add to other studies | <u>Prognostic and Diagnostic Potential of the Structural Neuroanatomy of Depression</u> Sergi G. Costafreda, Carlton Chu, John Ashburner, Cynthia H. Y. Fu PLoS One. 2009; 4(7): e6353. Published online 2009 July 27. doi: 10.1371/journal.pone.0006353, PMID: PMC2712086 AbstractFull TextPDF-344K <u>Cognitive therapy vs. medications for depression: Treatment outcomes and neural mechanisms</u> Robert J. DeRubeis, Greg J. Siegle, Steven D. Hollon Nat Rev Neurosci. Author manuscript; available in PMC 2009 October 1. Published in final edited form as: Nat Rev Neurosci. 2008 October; 9(10): 788-796. Published online 2008 September 11. doi: 10.1038/nrn2345 PMCID: PMC2748674 AbstractFull TextPDF-890K | Rejected 14 th July 2011 |

Database search Record Form: Pubmed / Medline. January 2011

| Search terms wildcards and truncation used | Meets initial criteria | If rejected criteria failed | Details of studies to be retrieved |
|---|------------------------|-----------------------------|---|
| Cognitive behaviour therapy and fmri and depression | 5 | | <p>1. <u>Neural correlates of emotional processing in depression: Changes with cognitive behavioral therapy and predictors of treatment response.</u> Ritchey M, Dolcos F, Eddington KM, Strauman TJ, Cabeza R. J Psychiatr Res. 2010 Oct 7. [Epub ahead of print]PMID: 20934190 [PubMed - as supplied by publisher]</p> <p>2. <u>Neural correlates of sad faces predict clinical remission to cognitive behavioural therapy in depression.</u> Costafreda SG, Khanna A, Mourao-Miranda J, Fu CH. Neuroreport. 2009 May 6;20(7):637-41.PMID: 19339907 [PubMed - indexed for MEDLINE]</p> <p>3. <u>Effect of mind on brain activity: evidence from neuroimaging studies of psychotherapy and placebo effect.</u> Beauregard M. Nord J Psychiatry. 2009;63(1):5-16. Review.PMID: 19023697 [PubMed - indexed for MEDLINE]Related citations</p> <p>4. <u>Neural responses to sad facial expressions in major depression following cognitive behavioral therapy.</u> Fu CH, Williams SC, Cleare AJ, Scott J, Mitterschiffthaler MT, Walsh ND, Donaldson C, Suckling J, Andrew C, Steiner H, Murray RM. Biol Psychiatry. 2008 Sep 15;64(6):505-12. Epub 2008 Jun 12.</p> <p>5. <u>Neuroimaging and the functional neuroanatomy of psychotherapy.</u> Roffman JL, Marci CD, Glick DM, Dougherty DD, Rauch SL. Psychol Med. 2005 Oct;35(10):1385-98. Review</p> |

Database search Record Form: Records found through suggestions on databases when retrieving other articles

| Original database search and date | Meets initial criteria | If rejected criteria failed | Details of studies to be retrieved |
|--|--|-----------------------------|--|
| Google scholar may 17 th 2011 | Neural basis Neural basis Neural basis | | <p>A meta-analytic study of changes in brain activation in depression. Fitzgerald et al. (2008) Human Brain Mapping 29:683-695 (printed) Annu Rev Neurosci. 2009;32:57-74.</p> <p>Neurocognitive mechanisms in depression: implications for treatment. <u>Clark L, Chamberlain SR, Sahakian BJ.</u> (pubmed – requires accessing and downloading) Nat Rev Neurosci. Author manuscript; available in PMC 2009 October 1. PMID: PMC2748674 Published in final edited form as: NIHMSID: NIHMS102348 <u>Nat Rev Neurosci. 2008 October; 9(10): 788–796.</u> Published online 2008 September 11. doi: 10.1038/nrn2345. Copyright notice and Disclaimer</p> <p>Cognitive therapy vs. medications for depression: Treatment outcomes and neural mechanisms Robert J. DeRubeis, Greg J. Siegle, and Steven D. Hollon Robert J. DeRubeis, University of Pennsylvania; Requires accessing downloading and printing</p> |

Database search Record Form: science direct central 14th July 2011

| Search terms wildcards and truncation used | Meets initial criteria | If rejected criteria failed | Year | Details of studies to be retrieved | Date found & downloaded |
|---|------------------------|-----------------------------|------|------------------------------------|-------------------------|
| Cognitive behaviour therapy fmri depression | | | | No criteria matches | |
| Person centred therapy depression | | | | No criteria matches | |

| Search terms wildcards and truncation used | Meets initial criteria | If rejected criteria failed | Details of studies to be retrieved | Date found & downloaded |
|--|------------------------|-----------------------------|---|-------------------------|
| Neuroscience psychotherapy (in title) | | | <p>Title: Interpersonal psychotherapy and neuroscience - Commentary Author(s): Holloway, HC Source: PSYCHIATRY-INTERPERSONAL AND BIOLOGICAL PROCESSES Volume: 66 Issue: 2 Pages: 99-103 Published: SUM 2003 Times Cited: 0</p> <p>What psychotherapists can begin to learn from neuroscience: Seven principles of a brain-based psychotherapy Author(s): Cappas, NM; Andres-Hyman, R; Davidson, L Source: PSYCHOTHERAPY Volume: 42 Issue: 3 Pages: 374-383 Published: FAL 2005</p> <p>Title: The Neuroscience of Psychotherapy: Healing the Social Brain, 2nd edition Author(s): Ravella, CD Source: JOURNAL OF SEX & MARITAL THERAPY Volume: 37 Issue: 3 Pages: 236-238 Published: 2011 Times Cited: 0</p> <p>Title: Rethinking psychotherapy from a cognitive neuroscience perspective Author(s): Ryan, L Source: CANADIAN JOURNAL OF EXPERIMENTAL PSYCHOLOGY-REVUE CANADIENNE DE PSYCHOLOGIE EXPERIMENTALE Volume: 64 Issue: 4 Pages: 294-294 Published: 2010 Times Cited: 0</p> <p>Title: Neuroscience and Psychotherapy - Two Apparent Antipods Approach One Another Author(s): Hohagen, F Source: FORTSCHRITTE DER NEUROLOGIE PSYCHIATRIE Volume: 78 Issue: 6 Pages: 317-318 Published: 2010 Times Cited: 0</p> <p>Title: Competing Visions of the Implications of Neuroscience for Psychotherapy Author(s): Toomey, B; Ecker, B Source: JOURNAL OF CONSTRUCTIVIST PSYCHOLOGY Volume: 22 Issue: 2 Pages: 95-140 Published: 2009 Times Cited: 1</p> <p>Title: LEARNING SCIENCE WHERE COGNITIVE NEUROSCIENCE MEETS PSYCHOTHERAPY Author(s): Ito, H; Kubo-Kawai, N; Fukushima, M, et al. Source: PSYCHOLOGIA Volume: 54 Issue: 4 Pages: 280-289 Published: 2008 Times Cited: 0</p> <p>Title: LEARNING SCIENCE WHERE COGNITIVE NEUROSCIENCE MEETS PSYCHOTHERAPY Author(s): Ito, H; Kubo-Kawai, N; Fukushima, M, et al. Source: PSYCHOLOGIA Volume: 51 Issue: 4 Pages: 280-289 Published: 2008 Times Cited: 6</p> | |

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|--|--|--------------|---|----------|
| <p>Cognitive behavior therapy AND fmri AND depression in title</p> <p>Client incongruence AND person centred</p> <p>Person centred AND psychopathology</p> <p>Neuroscience</p> | | Hypnotherapy | <p>Title: Psychotherapy and neuroscience: Towards closer integration. Author(s): Peres, J; Nasello, AG Source: INTERNATIONAL JOURNAL OF PSYCHOLOGY Volume: 43 Issue: 6 Pages: 943-957 Published: 2008 Times Cited: 1</p> <p>Title: What is a suggestion? The neuroscience of implicit processing heuristics in therapeutic hypnosis and psychotherapy. Author(s): Rossi, Ernest L; Rossi, Kathryn L Source: Am J Clin Hypn Volume: 49 Issue: 4 Pages: 267-81 Published: 2007 Apr</p> <p>Title: Editorial: The significance of psychotherapy in the age of neuroscience Author(s): Brenner, HD; Roder, V; Tschacher, W Source: SCHIZOPHRENIA BULLETIN Volume: 32 Pages: S10-S11 Supplement: 1 Published: OCT 2006 Times Cited: 4</p> <p>Title: The neuroscience of psychotherapy: Building and rebuilding the human brain. Author(s): Moras, K Source: PSYCHOTHERAPY RESEARCH Volume: 16 Issue: 4 Pages: 515-517 Published: AUG 2006 Times Cited: 2</p> <p>Title: Use of fMRI to predict recovery from unipolar depression with cognitive behavior therapy Author(s): Siegle, GJ; Carter, CS; Thase, ME Source: AMERICAN JOURNAL OF PSYCHIATRY Volume: 163 Issue: 4 Pages: 735-U1 Published: APR 2006 Times Cited: 103</p> <p>No records found</p> <p>No records found</p> <p>No records found</p> <p>No records found</p> | Rejected |
|--|--|--------------|---|----------|

Database search Record Form: web of Knowledge 14th July 2011

| | | | | |
|---|--|--|---|----------|
| AND counselling AND depression (in title) | | | | |
| Neuroscience AND psychotherapy AND depression | | Behaviour therapy and anxiety | Title: Does neuroscience hold promise for the further development of behavior therapy? The case of emotional change after exposure in anxiety and depression Author(s): De Raedt, R Source: SCANDINAVIAN JOURNAL OF PSYCHOLOGY Volume: 47 Issue: 3 Pages: 225-236 Published: JUN 2006 Times Cited: 12 | Rejected |
| Neuroscience AND therapy AND depression (in title) | | | No criteria matches | |
| Counselling AND Neuroscience | | | Title: Emotional regulation: Implications for the psychobiology of psychotherapy Author(s): Stein, DJ Source: CNS SPECTRUMS Volume: 13 Issue: 3 Pages: 195-198 Published: 2008 Times Cited: 8 | |
| Psychotherapy AND Psychobiology | | | Title: THE MARRIAGE OF PSYCHOBIOLOGY AND PSYCHOTHERAPY - A DISCUSSION ON THE PAPERS BY RODENHAUSER, AND ZASLAV AND KALB Author(s): FINK, PJ Source: INTERNATIONAL JOURNAL OF GROUP PSYCHOTHERAPY Volume: 39 Issue: 4 Pages: 469-474 Published: OCT 1989 Times Cited: 2 | |
| | | | | |

Database search Record Form: Wiley online library 13th July 2011

| Search terms wildcards and truncation used | Meets initial criteria | If rejected criteria failed | Details of studies to be retrieved | Date found & downloaded |
|---|------------------------|-----------------------------|--|-------------------------|
| "person centred counselling depression" | | | Humanistic Contributions to Pluralistic Practice Therapy and Beyond: Counselling Psychology Contributions to Therapeutic and Social Issues Martin Milton, Pages: 123-138, 2010 Published Online : 16 DEC 2010, DOI: 10.1002/9780470667279.ch8 | |
| "person centred incongruence" | | | Effectiveness and cost effectiveness of counselling in primary care. Intervention Review The Cochrane Library, Peter J Bower and Nancy Rowland Published Online : 21 JAN 2009, DOI: 10.1002/14651858.CD001025.pub2 | |
| "person centred psychopathology" | | | No criteria matches | |
| "cognitive behaviour therapy fmri depression" | | | No criteria matches | |
| "neuroscience therapy depression" | | | No criteria matches | |
| "counselling Neuroscience" | | | No criteria matches | |

| Search terms wildcards and truncation used | Meets initial criteria | If rejected criteria failed | Year | Details of studies to be retrieved | Date found & downloaded |
|---|------------------------|-----------------------------|------|--|---------------------------------------|
| "person centred counselling depression" | | | | No results | |
| "person centred incongruence" | | | | Incongruence and Social Cognition / Hoyer, J. The power of the person centered approach ; Pages: 3-22 | Download |
| | | | | The Differential Incongruence Model as a Basis of Specific and Integrative Options in Counseling and Psychotherapy / Speierer, G.-W. The power of the person centered approach ; Pages: 23-32 | Download |
| | | | | Stephen Joseph and Richard Worsley (Eds.): Person-Centred Psychopathology: A positive psychology of mental health. (translated from German by Elisabeth Zinschitz) / Binder, U. PERSON CENTERED AND EXPERIENTIAL PSYCHOTHERAPIES - 2006 ; VOL 5; NUMB 4 ; Pages: 293-297 | Download |
| "Person-Centred Psychopathology" | | | | Self-referential processing and the prefrontal cortex over the course of depression: A pilot study / Lemogne, C.; Mayberg, H.; Bergouignan, L.; Volle, E.; Delaveau, P.; Lehericy, S.; Allilaire, J. F.; Fossati, P. JOURNAL OF AFFECTIVE DISORDERS - 2010 ; VOL 124; NUMBER 1-2 ; Pages: 196-201 | Download |
| "cognitive behaviour therapy fmri depression" | | | | Use of fMRI to Predict Recovery From Unipolar Depression With Cognitive Behavior Therapy / Siegle, G. J.; Carter, C. S.; Thase, M. E. AMERICAN JOURNAL OF PSYCHIATRY - 2006 ; VOL 163; NUMB 4 ; Pages: 735-737 | Already located elsewhere Download |
| | | | | Towards a new theoretical framework for cognitive-behavioral | Download |
| "neuroscience therapy depression" | | | | therapy (CBT) / Varga, S. EUROPEAN PSYCHIATRY - 2010 ; VOL 25; SUPP/1 ; Pages: 1075 | Already located in another search |
| | | | | Cognitive theory and therapy of anxiety and depression: Convergence with neurobiological findings / Clark, D. A.; Beck, A. T. TRENDS IN COGNITIVE SCIENCES - 2010 ; VOL 14; NUMBER 9 ; Pages: 418-424 | Download |
| | | | | Cognitive therapy versus medication for depression: treatment outcomes and neural mechanisms / DeRubeis, R. J.; Siegle, G. J.; Hollon, S. D. NATURE REVIEWS NEUROSCIENCE - 2008 ; VOL 9; NUMBER 10 ; Pages: 788-796 | Download |
| | | | | Making sense of neuroscience: Interview with Professor Steven Rose THERAPY TODAY - 2007 ; VOL 18; NUMB 8 ; Pages: 37-39 | Download |
| "counselling neuroscience" | | | | Tread softly: Counselling psychology and neuroscience / Rizq, R. COUNSELLING PSYCHOLOGY REVIEW- BRITISH PSYCHOLOGICAL SOCIETY - 2007 ; VOL 22; NUMB 4 ; Pages: 5-19 | Download |
| | | | | Neuroscience the mind-brain relationship / Wilkinson, M. THERAPY TODAY - 2006 ; VOL 17; NUMB 2 ; Pages: 34-46 | Download |
| | | | | The nature of feelings and emotion-based learning within psychotherapy and counselling: neuroscience is putting the heart back into emotion / Carter, S. EUROPEAN JOURNAL OF PSYCHOTHERAPY COUNSELLING AND HEALTH - 2003 ; VOL 6; NUMB 3 ; Pages: 225-242 | Download |
| "Humanistic therapy fmri depression" | | | | No records | |