AN EXPLORATION OF NEUROPSYCHOTHERAPY AND SOLUTION-FOCUSED THERAPY IN A CLINICAL CASE STUDY

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Samantha is a 32 years old, single Australian woman. She works as an IT analyst in Brisbane. She has come to you on recommendation by her General Practitioner. Samantha has mixed feelings about seeking professional help, as she finds it hard to communicate her feelings.

Samantha’s major problem seems to be anxiety. She has an ongoing feeling of dread and an exaggerated fear of being exposed to, or being judged by, others resulting in her being withdrawn, anxious and depressed. She is uncomfortable interacting with others and prefers to stay home. She restructured her work and works mostly from home, avoiding office meetings and functions. This has resulted in work related difficulties and she is contemplating quitting her job. Samantha realises that quitting will lead to financial hardship which increases her anxiety and her feelings of being trapped. She has limited support networks. She enjoys jogging as an outlet for her stress. Her mother passed away when she was four years of age - she was raised by her dad as a single parent for 3 years. He re-married and she never had a close relationship with her step-mother. She had a close relationship with her older brother. He moved to the UK a few years ago resulting in her feeling isolated. Her time management is poor and her eating and sleeping patterns are irregular. Samantha has no history of drug abuse and is not taking medication at this stage. She is very sceptical about drugs in general. Her General Practitioner considered anti-depression therapy but decided to refer her for psychotherapy.
Introduction

Psychotherapy and counselling has evolved over time and the history and development of the discipline is controversial. Different approaches have been developed, emphasising diverse ways to approach a client, focusing on cognition, behaviour or psychoanalytic themes. Research on the effectiveness of psychotherapy has shown an effect size of 0.80 which indicates that the average client receiving a treatment improves, compared to 79% of the untreated clients (Wampold, 2010). So psychotherapy does make a change for the client, but why does it work is the question to be answered. It seems like the application of neuroscience to psychotherapy will lead research one step closer to this answer. Freud already tried to make the impossible possible, by understanding the human mind through his scientific psychology project, published in 1895. Freud explored the ramifications of unconscious mental processes for behaviour and therefore tried to adopt a neural model of behaviour in an attempt to develop a scientific psychology (Kandel, 1998). The intention of identifying psychological syndromes was to uncover the underlying anatomical representation between the elements of the brain (Mizen, 2005). Because of the limitations of neuroscience and neuroimaging techniques at the time, Freud abandoned his biological model in favour of developing psychoanalysis (Kandel, 1998; Mizen, 2005). Nearly 100 years later it seems as if Neuropsychotherapy is realising his attempt to understand the human mind through explaining the underlying biology.

In this essay an analysis of Neuropsychotherapy and Solution-Focused Brief Therapy is conducted. Similarities and contrasts will be outlined and an integrated personal approach will be provided.

Neuropsychotherapy

Neuropsychotherapy attempts to connect the basic assumptions of neuroscience and psychotherapy (Walter, Berger & Schnell, 2009) - it “emphasizes the neuroscientific foundations of psychotherapy” (Grawe, 2007). In Neuropsychotherapy an enriched environment is created for a client to enhance the growth of neurons and the integration of neural networks, individually modified to respond to the symptoms and basic needs of each client (Cozolino, 2010). The focus of Neuropsychotherapy is to establish effective neural pathways to form new brain functions with lasting outcomes (Rossouw, 2011a). A brain based explanation is conceptualised to understand the neural underpinnings of the client’s psychopathology. Psychoeducation is employed to “depathologise”, engage the client in the process of therapy and value their presenting symptoms (Cozolino, 2006). In Samantha’s case it addresses her mixed feelings about seeking professional help, responding to her individual pathology, and gaining better insight.

Samantha presents with an enlarged amygdala, resulting from its repeated hyperactivation caused by ongoing feelings of dread and fear (Grawe, 2007; Linford & Arden, 2009). As a result her left prefrontal cortex (PFC) is underactive (as negative emotions, inhibitory and avoidance behaviour demonstrates), which is linked to the overactivation of her hypothalamic-pituitary axis (HPA) (Grawe, 2007; Davidson, 2002; Linford & Arden, 2009).

Chorpita and Barlow (1998) argued that a particular process leads from anxiety to depression. A threat is experienced as uncontrollable, and therefore uncontrollable incongruence is maintained. According to Grawe (2007) uncontrollable incongruence is elicited when a person experiences the activation of the HPA axis, resulting in a shift of cortical blood flow from the PFC areas towards overactive limbic structures, releasing glucocorticoids. A prolonged uncontrollable stress situation, activating the HPA axis, eventually leads to a destabilisation of previously formed neural connections. In comparison, controllable incongruence is elicited when demands or challenges are experienced as controllable stress by an individual (Huether, 1998), activating the noradrenergic system and releasing adrenaline which influences and permeates almost all the brain regions, and leading to a number of reaction chains positively effecting the brain (Grawe, 2007). Additionally the sympathetic nervous system is activated. This resonates with research showing that anxiety is a precursor of depression (Grawe, 2007). Samantha is contemplating quitting her job, but thinking about the consequences of financial hardship results in increased anxiety and feelings of being trapped. This can be understood as a challenging incongruence situation where Samantha does not find the contingencies to reduce her incongruence, via her own activity, which leads to a state of increased anxiety. Eventually the HPA system is activated (Grawe, 2007).

Imaging procedures have shown how cortical blood flow changes as a result of anxiety and mood dysfunction (Rossouw, 2011a). Samantha’s up-regulation of the stress response through the HPA axis, increases the blood flow to certain cortical regions,
and decreases the blood flow to other brain regions. Chronic stress, as experienced by Samantha, has detrimental consequences, as decreased cortical blood flow to the left prefrontal cortex results in reduced cognitive ability (Rossouw, 2011a). The high cortisol level, released during enduring periods of stress, damages the hippocampus, as its volume shrinks measurably. This is further exacerbated by Samantha’s irregular eating and sleep patterns (Grawe, 2007; Rossouw, 2012).

Her withdrawal from social interactions functions as an avoidance motivational schema to protect herself from painful experiences. The roots of Samantha’s anxiety and depression need to be explored, as her attachment style (referring to her ability to regulate her emotions, her avoidance reactions and her reactions to stress) results out of her insecure attachment style, formed in her first years of life (Grawe, 2007). Experiencing the loss of an attachment figure on a regular basis (her mother through death, her father through remarriage and her brother through his move to the UK) needs to be addressed by the therapist, as there will be consequences of these attachment need violations (Grawe, 2007).

The role of the counsellor is to create a safe and enriched environment, providing a non-threatening therapeutic relationship for Samantha, resulting in the down regulation of her hypothalamus-pituitary-adrenal system (HPA axis), facilitating neural change and proliferation, and activating cognition and neural integration by maintaining a moderate state of arousal (Allison & Rossouw, 2013; Cozolino, 2006; 2010; Rossouw, 2013a). The therapeutic relationship assists in addressing neurobiological attachment needs, which aids the release of positive chemicals, and activates new neural pathways (Rossouw, 2011a). Interpersonal Neurobiology emphasises that meaningful relationships, such as that between the therapist and client, can reactivate neuroplastic processes and therefore change the structure of the brain (Cozolino, 2006). The structure of the human neural architecture demonstrates the need for connection to other people in order to experience well-being and maintain balance (Siegel, 2006). Samantha’s lack of social support networks, and the unsatisfied/violated need for attachment and control, leads to her atrophied mental health functioning (Allison & Rossouw, 2013). The mirror neuron system is an example of empathy on a cellular level (Linford & Arden, 2009) - the brain's ability to construct an internal state able to resonate with the experience of the inner life of the client, thus retaining objectivity (Siegel, 2006; Cozolino, 2006).

The goal of therapy is to encourage an “approach” orientation towards positive goals and an increase in positive emotions. (Grawe, 2007) The approach system is frequently activated, satisfying basic needs and ensuring the client’s subjective experience of well-being. Neuropsychotherapy strives for the consistency of mental processes and aims to achieve congruence between experiences and motivational goals (Grawe, 2007). Grawe (2007) outlined three perspectives associated with establishing therapy goals: (1) the disorder perspective (Samantha’s anxiety and depression cause irregular sleep and eating patterns); (2) the inconsistency perspective; and (3) the perspective of the client’s treatment goals, intrinsically motivated and attainable by the client/Samantha.

Neuropsychotherapeutic interventions need to persist for some time to enable the wiring of new neural patterns. If this process is discontinued too rapidly, then the newly formed patterns of neural activation will not be well enough established, and may result in a relapse to the previous default neural patterns (Rossouw, 2013a).

The effectiveness of Neuropsychotherapy is supported by recent advances in neuroimaging, which demonstrate the functional and structural changes happening in the brain throughout the therapy (Rossouw, 2011a; Karlsson, 2011). Neuroimaging provides psychotherapy with reliable information, and indicators of causal factors of mental disorders, and therefore clinical parameters can be extracted which may be used for diagnosis, prognosis or prediction of change during Neuropsychotherapy (Walter, Berger & Schnell, 2009).

Neuropsychotherapy operates from a bottom-up approach, initially focussing on the more primitive brain areas, through establishing a good therapeutic alliance (safety), and physiological symptoms, to down-regulate unhelpful neurotransmitter firing and therefore up-regulate serotonin flow, dopamine release and activation of the parasympathetic nervous system, as well as calming down the overactivity in the amygdala (Rossouw, 2011b; Blackford et al., 2010). The bottom-up approach establishes a sense of safety and control for the client and builds the basis for future top-down interventions.

Controllable and uncontrollable incongruence incorporate the client’s challenge to change. Therefore the process of therapy is facilitated by controllable incongruence, which drives the development of neural structures (Grawe, 2007).
Solution-focused brief therapy (SFBT)

Solution-focused brief therapy (SFBT) is an approach to therapy focusing on the present and the future. The therapist focusses on possible change, rather than exploring the underlying problem, paying little attention to diagnosis, therefore taking a non-pathological stance. In Samantha’s case, the solution-focused therapist holds the optimistic assumption that Samantha is healthy, competent and possesses the ability to construct solutions that will enhance her life (Corey, 2013).

Inner emotional states, such as anxiety, are in the SFBT approach conceived as the cause of outward behaviour (De Shazer et al., 2007). Samantha’s anxieties led to feelings of depression and fear, and her decision to withdraw herself from interactions with significant others. Feeling uncomfortable in interactions with others caused her “outward” behaviour isolating herself and staying at home, instead of going to her work place. Scaling questions are used by the therapist, in SFBT, to explore the client’s inner state, that is the contextual part of any changes in feelings is described by the client (De Shazer et al., 2007). The therapist draws from the client’s memory, when he/she felt different to the current emotional state, to construct and reinforce solutions. The client pays attention to the context in which emotions arise, placing the emotions in their real world experiences, rather than searching for the intrinsic cause of an emotional behaviour. Resources of the client’s everyday life are activated, to reinforce change which the client can participate in naturally (De Shazer et al., 2007). “Solution” descriptions for the pathological problem are utilised to inhibit the labeling of “anxiety” in the client’s language and self description (De Shazer et al., 2007).

Language is the primary tool used in therapy (De Shazer et al., 2007), as solutions evolve out of conversations and change begins in using this language to express one’s solutions. The SFB therapist mirrors Samantha’s language, representing her reality of experiencing the world (Prochaska & Norcross, 2014). Questions are utilised as primary means of communication, based on the present and the future (De Shazer et al., 2007).

The solution-focused therapist looks for exceptions, times in client’s lives when the problem they identify has not been problematic (De Shazer et al., 2007; Corey, 2013). In Samantha’s case, going jogging could be identified as such an exception, as she enjoys this activity.

The role of the counsellor is to pick up on these exceptions, to expand the client’s options for the future. The attitude of the therapist is positive, respectful and hopeful, assuming clients have the strength, wisdom and experience to effect change. The focus is drawn towards the client’s expectations of his/her life and how it should be - towards a solution of the problem. The therapist deploys compliments to acknowledge Samantha’s difficult situation and her presenting problem, validating her pursuit of change (De Shazer et al., 2007). Emphasising Samantha’s strength to deal with her emotional state of anxiety, the therapist attentively listens to Samantha describing her problem, identifying examples of previous exceptions and previous solutions, showing care in attempting to maintain solution-talk (De Shazer et al., 2007). In SFBT the therapist is seen as the expert on the process and structure of therapy, applying techniques, internalising a “not knowing” stance, therefore offering the client the ability to be the expert on his/her life (Prochaska & Norcross, 2014).

The therapeutic relationship in SFBT is collegial and cooperative, creating empowering therapeutic conditions to find a unique solution, for the client (O’Connell, 2005; Corey, 2013). The client has the control, responsibility and competency to precipitate positive change. “What will you (Samantha) do, when change happens?” The emphasis here is on the term “you”, as the client has the ability to change his/her reality. Using the client’s language in therapy is closely connected with the satisfaction of the need for control and attachment (Prochaska & Norcross, 2014).

The therapist elicits small, attainable goals, as SFBT assumes that only small goals are necessary in order to achieve change (De Shazer, 1985). Therefore the process of change is broken down into small manageable steps, allowing the client to achieve a set goal and perceive a positive experience (O’Connell, 2005). The clients are encouraged to frame their goals as solutions, using their perception and language of reality. Asking the miracle question leads to the formulation of solution-focused goals by the client. Scaling questions are utilised by the therapist to evaluate the client’s current state regarding the presenting problem and the attainment of goals. Thus, the scaling question is used as a solution-focused assessment device, measuring the ongoing progress of therapy, and as an intervention in itself, allowing the therapist to focus on past exceptions and solutions (De Shazer et al., 2007). The question “How will the goal be achieved?” focuses on present goals which will determine a better fu-
Neuropsychotherapy and SFBT differ in the theory underlying the therapeutic approaches, as Neuropsychotherapy is rooted in Neuroscience, explaining psychopathology on a biological basis, whereas SFBT is rooted in social constructivism, holding a stance oriented towards the solutions of a presenting problem, rather than focusing on the psychopathology. Further, SFBT is a brief intervention, encompassing an average number of three to five sessions, whereby the therapist facilitates every therapy session as if it was the last session (Prochaska & Norcross, 2014). SFBT views the therapist as a collaborator and consultant, being knowledgeable in the process and techniques of therapy, but attributing the client the role of expertise about his/her own life. The approach in Neuropsychotherapy is similar, as the therapist knows the neurobiological underpinnings of the client’s present state, nevertheless he is not imposing this knowledge involuntarily onto the client. Assumptions can be made by the therapist about what has influenced the symptom formation, but there is no linear causality between symptoms and past experiences.

**Similarities**

Neuropsychotherapy and SFBT show other similarities in their approaches to therapy. The therapists of both approaches create a “safe” environment for the client, approaching the client positively, respectfully, and with the assumption that change is possible for the client. This basic assumption relates to the concept of neuroplasticity in Neuropsychotherapy (Grawe, 2007; Siegel, 2006) and is regarded as inevitable in SFBT (De Shazer, 1985). Therefore, therapeutic change is seen as interpersonal process, where the engagement and quality of the therapeutic relationship is of the utmost importance for the outcome of therapy (Corey, 2013; De Shaver, 1985). In both therapies the emphasis is on the client setting his/her own goals, and focussing on small achievable goals. In Neuropsychotherapy, this allows the client to gain positive experiences and fulfil his/her basic need for control. High motivational salience is important for learning to be effective and the activation of the dopamine system (Grawe, 2007). SFBT is based on the same neuroscientific foundation, but the therapist explores the client’s motivation for change through conversation. Whatever the client imagines might be different in the future, is understood as a positive evaluation of change and helps to build expectations and goals for the future (De Shazer, 1985).

**Integrated personal approach**

An integrated approach offers “solution” talk, as postulated by SFBT, to reinforce positive emotions and therefore strengthens or enhances positive
neural pathways, which then down-regulates the fear system and up-regulates neural proliferation to frontal cortical regions, resulting in the client regaining a sense of control and finding solutions to his/her presenting problems. This results in the explicit activation of important positive motivational goals (Grawe, 2007; De Shazer et al., 2007). The solution coming from within the client, and the achievement of small goals set in SFBT, not only increases or satisfies the basic need for control, but increases the client’s consciousness that a number of options are available, which results in increased empowerment by the client (Grawe, 2007). Asking the miracle question, as a way to explore the client’s intrinsically motivated goals, allows the client to express solutions and exceptions in his/her own personal language (De Shazer et al., 2007). The collaborative and cooperative therapeutic relationship postulated by the solution-focused approach can be combined with a knowledge of neurobiology emphasising that our brains are profoundly social and humans need connections to significant others in order to feel in balance and to develop or maintain mental functioning (Grawe, 2007; Siegel, 2006; Linford & Arden, 2009). The neuroscientific concept of neuroplasticity underlines the SFBT assumption that clients have the capacity to change and human brains are accommodated to change in response to an attuned therapist (Corey, 2013; Linford & Arden, 2009). New patterns of neural activation will be enabled through the integrated therapeutic approach, by providing an enriched environment for the client, which is facilitated by effective activation of the mirror neuron systems, improving cortical blood flow to enable outcomes to be solution focused (Rossouw, 2013b).

To conclude, the essence of both of the presented approaches to therapy is to enhance the basic need for attachment and control, which down-regulates the fear system and up-regulates neural proliferation to frontal cortical regions (Allison & Rossouw, 2013). In the therapy session, the therapist can gain a better understanding of Samantha’s situation, allowing her to master her anxiety in a better way or to find effective and successful coping mechanisms, which then elicits a positive experience for Samantha (Grawe, 2007). This will result in Samantha enjoying life more and experiencing a sense of control regarding her current life situation.

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