



THE INTERNATIONAL JOURNAL OF PSYCHOSOCIAL AND CULTURAL GENOMICS

CONSCIOUSNESS & HEALTH RESEARCH

A Qualitative Study Exploring the Application of Clinical Hypnosis to Decondition Cue Reactivity in Smokers

One-session therapy: fast new stance using the slo-mo three-minute trance

Mind-Body Transformations Therapy (MBT-T)
A single case study of trauma and rehabilitation. The psychosocial and cultural epigenomic theory, research and practice of the new neuroscience of psychotherapy and translational Medicine

The Use of Hypnosis in the Treatment of Pain
A story of technique and collaboration

Editorial

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*Mauro Cozzolino
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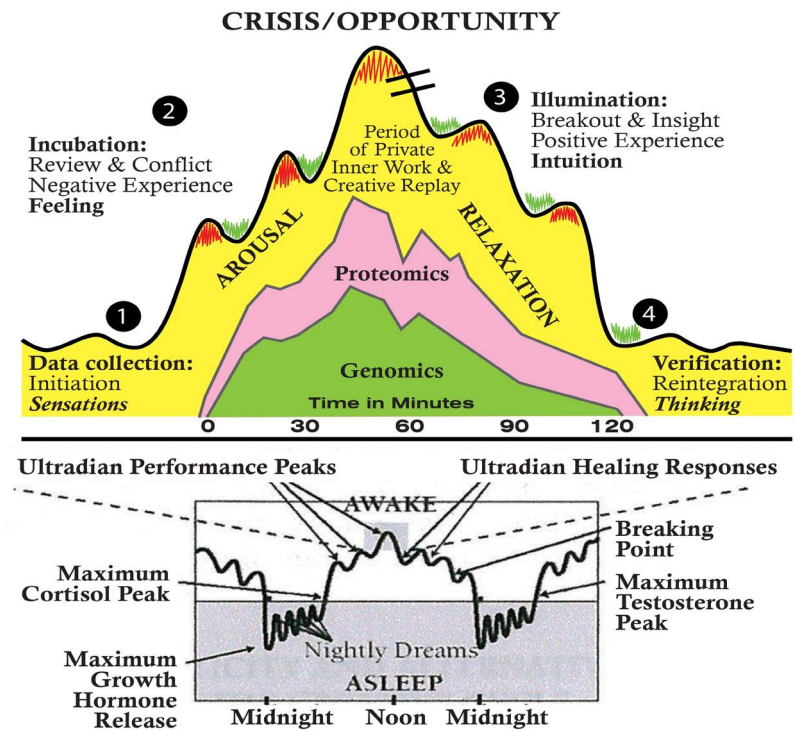
MAURO COZZOLINO AND GIOVANNA CELIA

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top performance in work and play. They explore how to use the novelty-numinosum-neurogenesis-effect and the self-observer for optimizing memory, learning and integrating the mind. They review new research that documents how during sleep there is 60% more clearing of the brain of toxic metabolites by cerebral spinal fluid. They propose that such of clearing the mind during sleep also occurs during the healing/rest phase of the 90-120 minute basic rest-activity cycle in normal everyday life. They believe that psychosocial genomic research is now urgently needed to identify precisely what implicit processing heuristics can turn on the most efficacious molecular-genomic pathways for optimizing the 4-Stage Creative Cycle of RNA/DNA Transcription/Translation dynamics of brain plasticity and new consciousness for optimizing the human condition. Science and psychotherapy are always growing in new and unexpected ways. Just as we were ready to go to press with this issue we stumbled upon some amazing new experimental research (Morath, et al., 2014) that established how psychotherapy not only relieved the classical psychological symptoms of post-traumatic stress disorder (PTSD), but also the underlying DNA damage caused by the original stress and trauma! They demonstrated changes at the molecular level (the integrity of DNA) in response to psychotherapeutic interventions on the mental level. They showed how mind-body communication and healing is really possible! This is the essence of Milton H. Erickson's living legacy of mind-body therapy that this volume documents.

Best of all they identify a number of new student and professional research projects for optimizing the human condition with their novel psychosocial genomic star maps. We eagerly look forward to publishing new submissions on the theory, research and practice of these innovative concepts by beginners as well as advanced scientific laboratory workers in all areas to celebrate their accomplishments.



Mauro Cozzolino and Giovanna Celia

OPTIMIZING THE HUMAN CONDITION WITH PSYCHOSOCIAL GENOMIC STAR MAPS. IMPLICIT PROCESSING HEURISTICS IN THE 4-STAGE CREATIVE CYCLE

ERNEST ROSSI & KATHRYN ROSSI

Abstract

This review surveys 40 years of the theory, research and practice of utilizing implicit processing heuristics for facilitating the psychosocial genomics of consciousness and health research. We introduce a new set of psychosocial genomic concepts on all levels from mind to experience-dependent gene expression and brain plasticity. We illustrate how to map the 4-Stage creative cycle onto the 90-120 minute basic rest-activity cycle to reduce stress and facilitate top performance. We explore how to use the novelty-numinosum-neurogenesis-effect and the self-observer for optimizing memory, new learning and integrating the mind. We identify a number of student and professional research projects for optimizing the human condition with novel psychosocial genomic star maps that point the way to rehabilitation from addictions, depression, stress and psychosomatic issues. Key words: Addictions, brain plasticity, consciousness, creativity, hypnosis, novelty-numinosum-neurogenesis, psychosocial genomics, rehabilitation, sleep, stress.

Introduction

We explore emerging psychosocial genomic perspectives that are evolving from ancient cultural, spiritual and meditative practices into the modern neuroscience of facilitating the 4-Stage creative cycle for optimizing the human condition. We begin by making a clear distinction between the phenomenology of consciousness studies in historical Classical Dissociative Hypnosis and current research in the Creative Psychosocial Genomics of Healing. Classical dissociative hypnosis as first formulated by James Braid in 1856 was concerned with understanding a number of seemingly strange experiences of sleep-like consciousness. Later research on the development of the academic scales of hypnotic susceptibility such as the Stanford and Harvard scales attempted to define modern hypnosis within a number of classical statistical parameters such as those listed in Table one (Weitzenhoffer & Hilgard, 1959).

Classical Dissociative Hypnosis (5 to 7 %) Creative Psychosocial Genomic Healing (100%)	
DISSOCIATIVE HYPNOSIS	PSYCHOSOCIAL GENOMICS
Agnosia (not knowing)	4-Stage Creative Process
Amnesia	Consciousness Creation
Time Distortion	Mental Absorption
(+) & (-) Hallucinations	Ideo-Dynamic Experiencing
Dreams: Age Regression	Dreams: Future Adaptation
Loss of Self Control	Self-Empowerment

Table 1: The Contrast between Classical Dissociative Hypnosis and Naturalistic Therapeutic Hypnosis and the Creative Psychosocial Genomic Healing Experience. Classical Dissociative Hypnosis is based on relatively fixed trait genetic research (Lichtenberg et al., 2000, 2004; Weitzenhoffer & Hilgard, 1959). Psychosocial Genomics is based on epigenomic research in circadian and basic rest-activity cycles (Cozzolino et al., 2014; Lloyd & Rossi, 1992, 2008).

Research in the construction of these academic scales for objective research established that from a statistical point of view only 5 to 7 % of the general public could experience the deep hypnotic phenomena of classical dissociative hypnosis defined as manifestations of altered states of consciousness. Lichtenberg et al. (2000, 2004) documented how the catechol-O-methyltransferase (COMT) gene is associated with classical dissociative hypnotizability in Table one. This research now requires replication with more detailed current genomic investigation. While Milton H. Erickson MD explored classical dissociative hypnosis early in his career, he believed there was something more involved in therapeutic hypnosis (Rossi, Erickson-Klein & Rossi, 2008-2014). Erickson's understanding of the nature, origins and applications of therapeutic hypnosis was clearly expressed on page one of *Hypnotic Realities* (Rossi, 1976/2010) as follows:

It will be seen on the following pages that clinical hypnosis and therapeutic trance (using these terms synonymously) are carefully planned extensions of some everyday processes of everyday living. Without quite realizing it, we all experience the "common everyday trance" wherein we are absorbed in moments of inner

reverie or preoccupation. During such periods we go about our daily routine somewhat automatically; much of our attention is actually focused inward as we experience ourselves a bit more deeply and possibly gain a fresh perspective or even solve problems. Similarly, in a clinical utilization of trance we can be more receptive to our own inner experience and unrealized potentialities in ways that are most surprising. With the help of a therapist's suggestion, these potentials may be explored and further developed.

Erickson's original words for the common everyday trance were "the segmentalized trance," to emphasize how such trance was only a small segment in the normal flow of conscious experience in everyday life. The housewife taking a brief pause in her daily routine by sipping a cup of coffee with far away looking eyes is experiencing the common everyday trance. A passenger in a bus or train station might be sitting very still apparently reading a newspaper for 5, 10 or even 20 minutes then quietly blink, shrug, ruffle the paper, look at the time and seemingly come awake. *We proposed that Erickson's genius was in recognizing how this so-called "segmentalized trance" that occurred in normal everyday life when people were bored or tired could be utilized during the more conscious ongoing flow of the psychotherapeutic process* (Rossi, 2002). The final chapter of *Hypnotic Realities* is a summary of the essence of the empirical observations and therapeutic interventions Erickson developed for recognizing and utilizing the common everyday trance by reframing it into his naturalistic approach to therapeutic hypnosis.

This is the little known secret of understanding Erickson's success in resolving human problems and psychosomatic issues with the so-called 'indirect approaches' to hypnotic suggestion during the common everyday trance. Today we prefer to call Erickson's indirect approaches "creative implicit processing heuristics" to emphasize how they function as hints or stimuli for facilitating the emergence of new consciousness out of the person's nascent unconscious dynamics of activity and experience-dependent gene expression and brain plasticity. We review the simple questions and statements that can function as implicit processing heuristics for optimizing each stage of the 4-stage creative cycle of mind-body healing and problem solving with psychosocial genomics.

Mind-Body Healing, Basic Rest-Activity Cycle and Psychosocial Genomics

Our daily experience of Erickson's "common everyday trance" really is so ordinary, however, that most people do not recognize its significance on a deep psychobiological level. It required four more decades of international research (Lloyd & Rossi, 1992, 2008) and clinical practice (Rossi, 1993, 2002) to document how the common everyday trance is actually a manifestation of the low phase of the 90-120

minutes basic rest-activity cycle in normal everyday life (Rossi, 2007, 2012; Rossi & Rossi, 2013). This led to the formulation of "The Mind-Body Healing Experience (The MHE Protocol)," also called "The Creative Psychosocial Genomic Healing Experience," to emphasize how it integrates the psychological level with the molecular-genomic level on the right hand side of Table one (Rossi, Erickson-Klein & Rossi, (2014). A comparison of the altered state qualia of Classical Dissociative Hypnosis with those of the Creative Psychosocial Genomic Healing Experience illustrates the constructive and therapeutically focused orientation of the latter. The next section reviews recent research on the nature of sleep and its relationship to psychosocial genomics for optimizing a wide range of existential states of consciousness, creativity, problem solving and general health.

Why Do We Sleep?

Truly revolutionary neuroscience research on why we sleep by Xie et al. (2013) was described by Underwood (2013) in this way.

Every night since humans first evolved, we have made what might be considered a baffling, dangerous mistake. Despite the once-prevalent threat of being eaten by predators, and the loss of valuable time for gathering food, accumulating wealth, or having sex, we go to sleep. Scientists have long speculated and argued about why we devote roughly a third of our lives to sleep, but with little concrete data to support any particular theory. Now, new evidence has refreshed a long-held hypothesis: During sleep, the brain cleans itself. Most physiologists agree that sleep has come to serve many different purposes, ranging from memory consolidation to the regulation of metabolism and the immune system. While the "core" purposes of biological functions such as breathing and eating are easy to understand, however, scientists have never agreed on any such original purpose for sleeping. The new study, by Maiken Nedergaard and colleagues at the University of Rochester in New York, provides what Charles Czeisler, a sleep researcher at Harvard Medical School in Boston, calls the "first direct experimental evidence at the molecular level" for what could be sleep's basic purpose: It clears the brain of toxic metabolic byproducts.

The new work, reported by Xie et al. (2013) "fits with a long-standing view that sleep is for recovery—that something is paid back or cleaned out," says David Dinges, a sleep researcher at the University of Pennsylvania. It builds on Nedergaard's recent discovery, described last summer in *Science Translational Medicine*, of a network of microscopic, fluid-filled channels that clears toxins from the brain, much as the lymphatic system clears out metabolic waste products from the rest of the

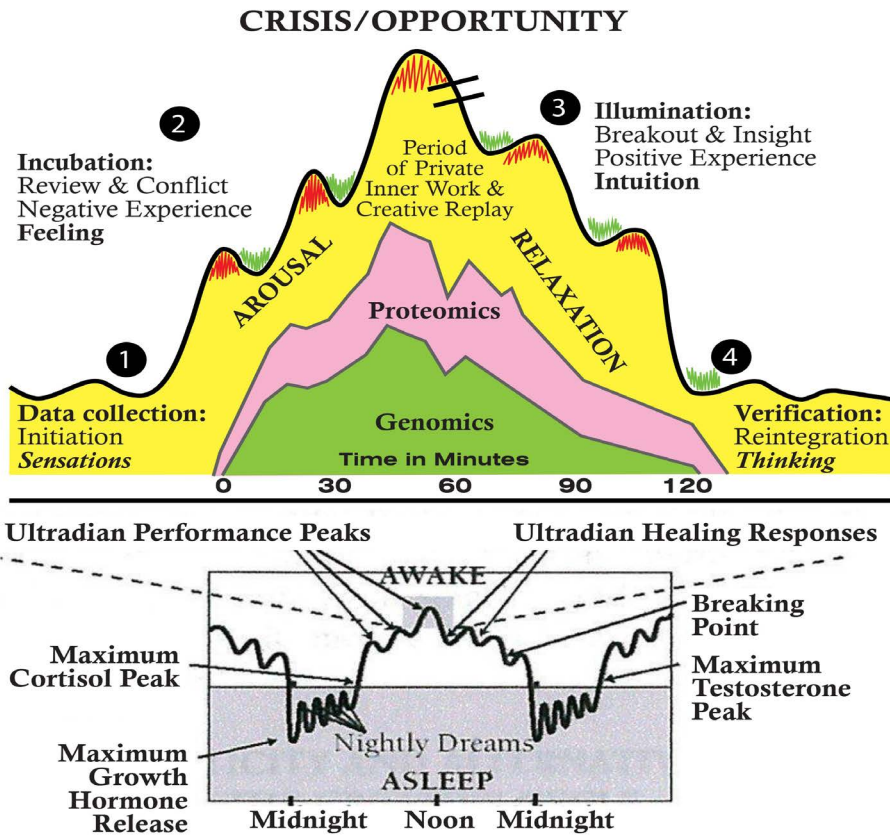


Figure 1. Psychosocial Genomics outlined as a profile of the 4-Stage creative process mapped onto the normal 90-120 minute 4-Stage basic rest-activity cycle (BRAC) is illustrated in yellow in the upper curve. The proteomics (protein) pink profile in middle curve depicts the energy landscape for protein folding within neurons of the brain into the correct structures needed for adaptive brain plasticity (adapted and redrawn from Cheung et al., 2004). This proteomic profile arises from the functional concordance of co-expressed genes illustrated by the green genomics profile below it (Levsky et al., 2002). This psychosocial genomics curve represents the actual gene expression profiles of the immediate-early gene *c-fos* and 10 other genes (alleles) over the typical Basic Rest-Activity Cycle of 90-120 minutes. The lower diagram illustrates how the qualia of consciousness cognition and behavior are typically experienced within the normal circadian cycle of waking as well as during REM dreams while sleeping (Rossi, 2002, 2004; Rossi & Nimmons, 1991).

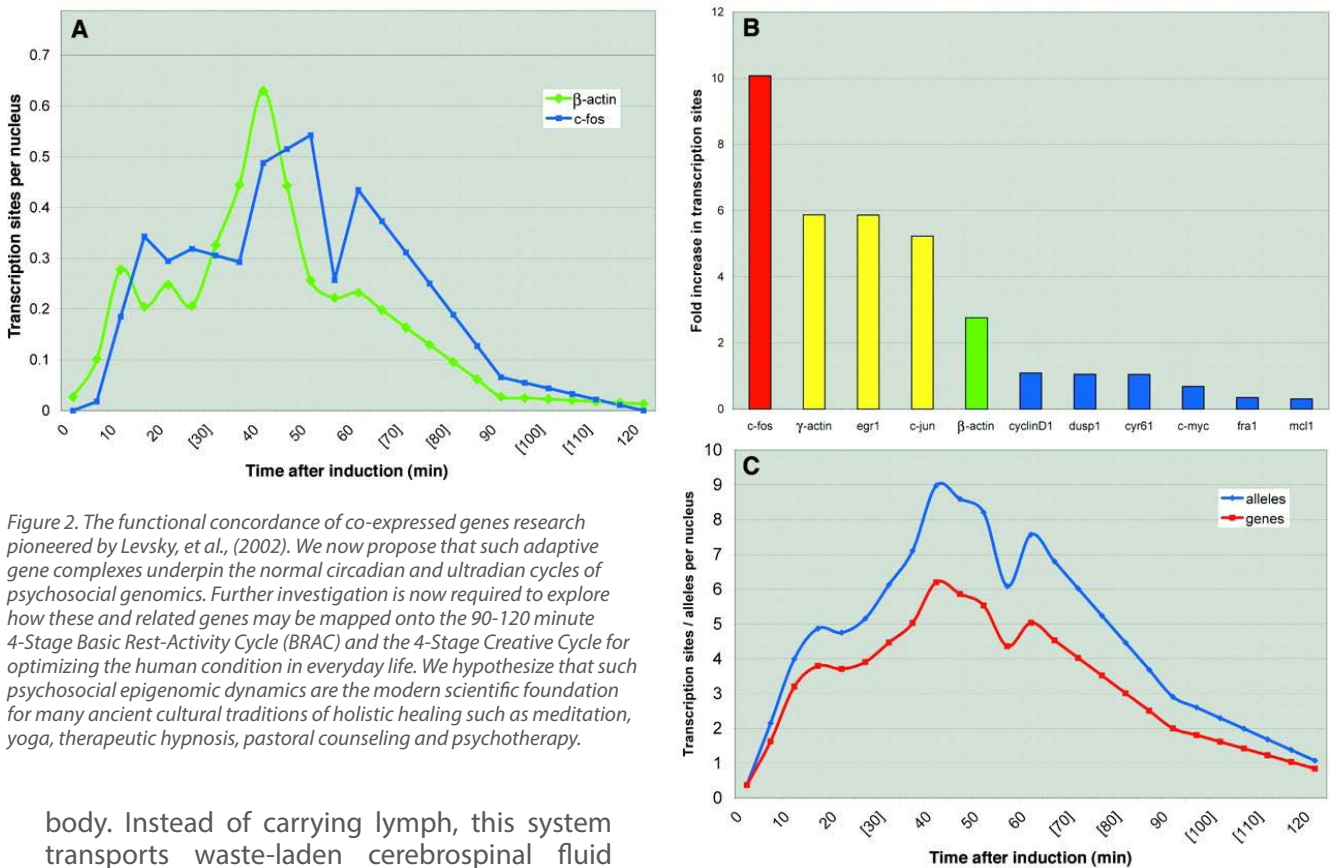


Figure 2. The functional concordance of co-expressed genes research pioneered by Levsky, et al., (2002). We now propose that such adaptive gene complexes underpin the normal circadian and ultradian cycles of psychosocial genomics. Further investigation is now required to explore how these and related genes may be mapped onto the 90-120 minute 4-Stage Basic Rest-Activity Cycle (BRAC) and the 4-Stage Creative Cycle for optimizing the human condition in everyday life. We hypothesize that such psychosocial epigenomic dynamics are the modern scientific foundation for many ancient cultural traditions of holistic healing such as meditation, yoga, therapeutic hypnosis, pastoral counseling and psychotherapy.

body. Instead of carrying lymph, this system transports waste-laden cerebrospinal fluid (CSF). Before the discovery of this "glymphatic system," as Nedergaard has dubbed it, is the brain's only known method for disposing of cellular trash was to break down and recycle it within individual cells, she says. (Italics added here, Underwood, 2013, p.301)

This new research on Why We Sleep (Xie et al. 2013; Herculano-Houzel, 2013) documents how during sleep there is 60% more clearing of the brain of toxic metabolites by cerebral spinal fluid. We now propose that this process of clearing

the brain during sleep also occurs during the healing/rest phase of the 90-120 minute Basic Rest-Activity Cycle (BRAC) in the creative psychosocial genomic healing experience illustrated in Figure one.

Recent research has documented how the overall domain of therapeutic hypnosis is actually a combination of high and low hypnosis (Rossi, 2002) that is illustrated in Figure three.

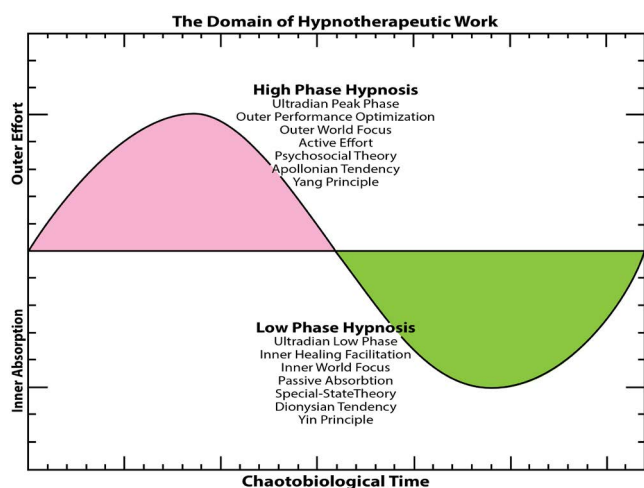


Figure 3. We propose how the qualia of subjective experiencing during the high and low phases of therapeutic hypnosis can be conceptualized as manifestations of the 4-Stage Creative Cycle mapped onto the 90-120 minute Basic Rest-Activity Cycle (BRAC) and many other psychobiological rhythms about 12 times a day in normal everyday life (Lloyd & Rossi, 1992, 2008; Rossi, 2002).

Each BRAC represents one transcription/translation cycle on the molecular/genomic level, which generates the proteins (neuro-hormones, neuro-transmitters, etc.) and brain plasticity that form the neural networks that are experienced as new consciousness. An introduction to the mathematical details of how this BRAC model of the 4-Stage creative cycle are subjectively experienced as alternating rhythms of consciousness when we are awake and during REM dreaming while asleep has been presented (Rossi & Rossi, 2014a,b, 2015 in press). An overview of how we can conceptualize the 90-120 minute BRAC and entire 24 hour circadian cycle of peak performance and healing response while awake during the day and during REM dreaming while asleep in Figure four illustrates how the rest/healing phases in green color during sleep also occur for about 20 minutes during the ultradian healing responses during the day. Likewise, notice how the alternating periods of top performance are illustrated with the red color throughout the day and in our dreams during the rainbow of REM sleep. We hypothesize that each color of the rainbow of dreams could represent a different psychogenomic perspective of the observer function of dreams. We propose that this subtle symmetry between the apparent

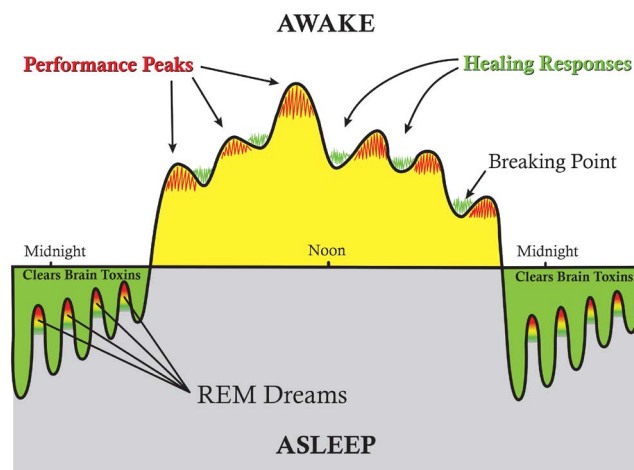


Figure 4. An overview of the alternating circadian cycles of peak performance and healing rest while awake and during REM dreaming for optimizing the human condition. The Breaking Point is when there is a profoundly important shift in circadian gene expression from those that support consciously oriented day time outer world activities to genes that facilitate sleep, nurture, healing, memory and clearing the brain of toxic metabolites (Jensen et al. 2012; Rossi, 2002; Xie et al. 2013).

inversions (or opposites) of being awake and being asleep could account for many ancient holistic traditions of healing as well as the “healing placebo” that can take place naturally as a dialogue between consciousness, cognition and experience-dependent genes to catalyze the novelty-numinosum-neurogenesis effect (NNNE) during the ultradian healing response (Rossi, 2002).

The choice people can make to select either the Ultradian Stress Response or the Ultradian Healing Response every 90-120 minutes during the day as is outlined in Table two. Most people are not entirely aware of how they can arrange their lives to select how they would like to experience the low phase of the BRAC for about 5 to 10 or 20 minutes when they take a brief restorative snooze. A snooze could be a very light sleep when fantasies, REM dreaming, altered states of consciousness, epiphanies or meditative states of wisdom and well-being characteristic of the 4-stage creative cycle may be experienced. We proposed how such transformative states of consciousness, cognition and creativity are psychosocial epigenomic expressions of the RNA/DNA transcription/translation cycle of creating new consciousness (Rossi, Mortimer & Rossi, 2015 in press; Rossi & Rossi, 2011, 2013, 2014a & b, 2015 in press).

These healing states are fragile, however. Many and perhaps most such transitional/transcendent states of consciousness are either immediately forgotten when the person comes fully awake or derisively dismissed as mere fantasies or foolish daydreams. In the pathological extreme this attitude toward nature’s creative symbolic inner work of self-transformation could harden into common

THE ULTRADIAN HEALING RESPONSE	THE ULTRADIAN STRESS SYNDROME
<p>1. Recognition Signals: An acceptance of nature's call for your need to rest and recover your strength and well-being leads you into an experience of comfort and thankfulness.</p>	<p>1. Take-a-Break Signals: A rejection of nature's call for your need to rest and recover your strength and well-being leads you into an experience of stress and fatigue.</p>
<p>2. Accessing the Deeper Breath: A Spontaneous deeper breath comes all by itself after a few moments of rest as a signal that you are slipping into a deeper state of relaxation and healing. Explore the deepening feeling of comfort that comes spontaneously. Wonder about the possibilities of mind/gene communication and healing with an attitude of "dispassionate compassion."</p>	<p>2. High on your Hormones: Continuing effort in the face of fatigue leads to the release of stress hormones that short-circuits the need for ultradian rest. Performance goes up briefly at the expense of hidden wear and tear so that you fall into further stress and a need for artificial stimulants (caffeine, nicotine, alcohol, cocaine, etc.).</p>
<p>3. Mind-Body Healing: Spontaneous fantasy, memory, feeling-toned complexes, active imagination, and numinous states of being are orchestrated for healing and life reframing.</p>	<p>3. Malfunction Junction: Many mistakes creep into your performance, memory, and learning; emotional problems become manifest. You may become depressed or irritable and abusive to yourself and others.</p>
<p>4. Rejuvenation and Awakening: A natural awakening with feelings of serenity, clarity, and healing together with a sense of how you will enhance your performance and well-being in the world.</p>	<p>4. The Rebellious Body: Classical psychosomatic symptoms now intrude so that you finally have to stop and rest. You are left with a nagging sense of failure, depression and illness.</p>

Table 2. Most people are unaware of the choices they have between the BRAC experienced as either the Ultradian Healing Response or the Ultradian Stress Response every 90-120 minutes throughout the day (Rossi & Nimmons, 1991).

everyday cynicism and resistance to the novelty-numinosum-neurogenesis-effect. We previously proposed a mathematical model of how these alternating dynamics of the BRAC and the 4-Stage creative cycle are mediated by the dynamics of the RNA/DNA theory of mind-body communication and healing (Rossi & Rossi, 2014 a, b). The classical/quantum dynamics from mind to gene transcription and translation are illustrated in greater detail in Part four and Part five of volume 15 of the Collected Works of Milton H. Erickson (Rossi, Erickson-Klein & Rossi, 2014). Figure five summarizes how ongoing psychosocial genomic research documents the top-down role of consciousness and implicit processing heuristics in optimizing experience-dependent gene expression, brain plasticity and the creation of new consciousness (Rossi, 2002; Rossi & Rossi, 2013, 2014 a & b, 2015 in press). These are the essential dynamics of the reconstruction of fear, stress, and post-traumatic problems that can be resolved via the 4-stage creative cycle during the BRAC via the common everyday trance.

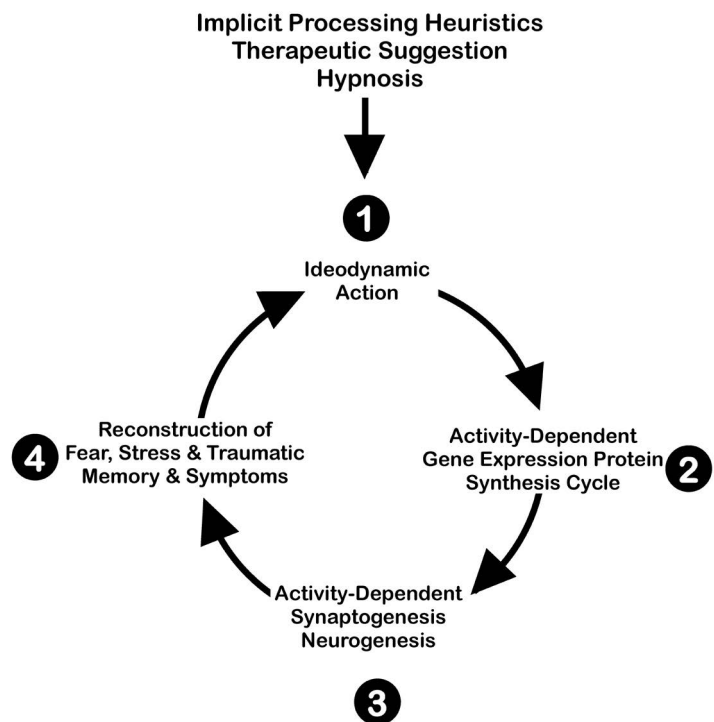


Figure 5. An illustration of how to map 4-Stage creative cycle onto the 90-120 minute basic rest-activity cycle (BRAC) of normal everyday life for facilitating the resolution of life transition crisis/opportunity situations that motivate most people to seek professional help.

OPTIMIZING THE HUMAN CONDITION WITH THE FOUR-STAGE CREATIVE OF RNA/DNA TRANSCRIPTION/TRANSLATION CYCLE

Stage One. Optimizing the Four-Stage Creative Cycle in the Initial Interview

The molecular-genomic RNA/DNA transcription/translation cycle of creating new consciousness begins with the typical history taking at the beginning of psychotherapy. The typical tears and distress of an initial interview indicate how the person is already accessing state dependent memory and emotional arousal to signal they are already embarking on a potentially therapeutic adventure of experience-dependent gene expression, brain plasticity and life transformation. Here are a few examples of implicit processing heuristics for priming this first stage of the creative therapeutic process.

Implicit Processing Heuristics Initiating Inner Search and Creative Play

- When you are ready to focus inward on that problem (issue, symptom), what will you actually experience as you review its sources and history?
- Can you let yourself continue experiencing that for another moment or two in a private manner... only long enough to experience what it leads you to next...?
- Good, can you replay that privately again to learn what it is all about...?
- Will it be okay to allow yourself to continue replaying that privately for a while, difficult though it may be, so you can learn what you need to do for a possible solution...?

Facilitating memory, inner review and dramas of creative replaying important transitional life changes focuses the person's attention on emergent experiences of implicit processing while reducing the so-called "resistance." Privacy greatly enhances the person's ability to access sensitive emotional issues without being concerned about how to verbalize them for the therapist. This allows subjective material to remain closer to its original implicate unconscious/preconscious states allowing nascent sensations, emotions, imagery, intuitions and new perspectives to emerge in personally meaningful ways. People are empowered to discover the qualia and style of their unique creative experiences during the 90-120 minute natural

basic rest-activity cycle of activity-dependent gene expression and brain plasticity.

Stage Two: Incubation. The Dark Night of the Soul.

This is the valley of shadow and doubt, or "The Storm before the Light" so characteristic of the human condition that is portrayed in the dramas of poetry, myth, song and spiritual rituals in many cultures. The creative paths outlined here facilitate precognitive implicate processing and information transduction so that the person's inner nature can signal when autonomous inner processes of mind-body communication & problem solving are taking place. The therapist's main job during this second stage is (1) to offer open-ended implicit processing heuristics to access state dependent memory encoding symptoms and (2) to support the person through the sometimes painful arousal that makes them abort their natural ultradian cycle of creativity, problem solving and healing in everyday life. Less is often more at this stage of respectful listening rather than the therapist offering premature analysis, counseling, programming or advice giving.

The therapist's main task during Stage 2 is to encourage the person to creatively replay past problems, stress, and traumas within the safety of the therapeutic situation. This prepares the person to move on to the third stage of the creative process: the moment of illumination wherein people may experience a new insight about their experience. This shift between Stage 2 and 3 of the creative cycle is often mediated by a particularly focused period of inner concentration wherein the person seems to suddenly become quiet after a stressful period of arousal and conflict. This is usually a period of private creative inner work where it is usually important for the therapist to remain silent lest the person's concentration is broken.

When the person begins to manifest the inevitable emotions of distress or asks for help, the therapist can immediately provide it with another appropriate implicit processing heuristic. How does the therapist come up with an appropriate implicit processing heuristic? What can any therapist really know about what is going on in the person on so many levels simultaneously from imagery, emotion and cognition all the way to gene expression and brain plasticity? Who is the therapist who feels wise enough to take control, direct, and program the person on these molecular/genomic levels? This is an impossible task and a major source of stress for the therapist hapless enough to believe that is their task. At best the therapist can manifest at least some aspects of wisdom by responding to the person's confusion, disruptive emotions and requests for help by focusing the person's inner work with non-directive but encouraging and safe time-binding implicit processing heuristics delivered in 3 or 4 steps somewhat as follows

Implicit Processing Heuristics for Facilitating Stage Two of the Creative Cycle

- (1) Yes, I really want to help you... [pause]
 - (2) Allow yourself to experience those feelings just for another moment or so... [pause]
 - (3) Until you find yourself expressing a sentence or two... [pause]
 - (4) About what I need to hear to help you further?
- Another Example:
- (1) Yes, continue for just another moment ... [pause]
 - (2) Letting yourself carefully consider what kind of help you want... [pause]
 - (3) And sharing it with me with a sentence or two if you need to... [pause]
 - (4) So I can help you in every way I can.

Notice how much is being accomplished with these seemingly simple implicit processing heuristics. First, the therapist is responding positively and supportively to the persons creative distress and request for help by immediately saying, "Yes." Second, the therapist is facilitating the person's ongoing creative experience with a safe time-binding limitation: "Just for another moment or so." Third, there is a mild therapeutic dissociation implied in the words "allow yourself continue with those feelings." When you "allow yourself," implies there is another more adequate part of the person's consciousness, their inner observer that is allowing their dependent, hurt, and needy side to express itself. Since you are "letting yourself," it means that the people are no longer lost in emotional chaos and despondency over which they have no control. People are encouraged to maintain an internal locus of control by allowing the emotional experience to take place within their own self-directed therapeutic process. Fourth, the therapist is, by implication, permissively asking the person to do a major piece of therapeutic work with words such as: "Find yourself sharing a sentence or two." This permissive attitude implies that people are able to self-reflect on their inner experience and co-create an adequate report about it. The therapist responds to whatever the person says by feeding it back to the person to facilitate accessing their inner resources for problem-solving. Suppose the person says something like: "I feel blocked just like I have all my life when I feel hopeless about my feeling. Can't you help me break through this block?"

What therapist does not feel some creative uncertainty about how to help a person break through a lifetime block within the limits of a typical therapeutic session? Since emotions are usually high in Stage 2, the therapist could respond to such direct but daunting requests for help by creating a 4-step implicit processing heuristics that utilizes the affect

bridge to access the state-dependent dynamics of the source of problems that may contain the seed of their own resolution (Watkins, 1978).

Implicit Processing Heuristics Utilizing the Affect Bridge

- (1) Yes, I want to help you break through that block... [pause]
- (2) Can you allow yourself to experience another time in your life... [pause]
- (3) When you found yourself with these kinds of feelings... [pause]
- (4) And share just a sentence or two so I can understand how to help?

A typical but easily misunderstood emotion that frequently surfaces during Stage 2 is anger. Anger can have unfortunate consequences when it is misunderstood by blaming and hating others, which invariably leads to conflict and war – or blaming one's self, which leads ultimately to depression. Anger seems to be a "lose-lose" tragedy of the human condition until it is understood as nature's way of generating energy (the initial stage of so-called "stress hormones" like adrenaline and cortisol). People need to learn how to use the energy release of anger to break down the walls of ignorance within themselves as well as others. It often requires some help from the a calm but ingenious, experienced and well trained therapist to inspire the novelty-numinosum-neurogenesis effect within the angry person to evoke memories of the past when he/she experienced righteous anger but somehow learned to express and resolve it appropriately in metaphorical dragon fights. Such metaphorical battles are the essence of the "period of private inner work and creative replay" illustrated in Figure one, which is so characteristic of the successful transition between Stage 2 and 3 of difficult transformations of consciousness and life.

Recent research has documented how this sometimes difficult stage 2 of the creative cycle is important for therapeutic change (Crane, 2014). Kappes & Oettingen (2011), for example, express their reservations about the current overemphasis on positive psychology with its avoidance of the reality of anger and acknowledgment difficult conflicts in this way.

Positive fantasies allow people to mentally indulge in a desired future. Whereas previous research found that spontaneously generated positive fantasies about the future predict poor achievement. We examined the effect of experimentally induced positive fantasies about the future. The present four experiments identify low energy, measured by physiological and behavioral indicators, as a mechanism by which positive fantasies translate into poor

achievement. Induced positive fantasies resulted in less energy than fantasies that questioned the desired future (Study 1), negative fantasies (Study 2), or neutral fantasies (Study 3). Additionally, positive fantasies yielded a larger decrease in energy when they pertained to a more rather than a less pressing need (Study 4). Results indicate that one reason positive fantasies predict poor achievement is because they do not generate energy to pursue the desired future...

Generally speaking, energy facilitates the accomplishment of difficult tasks. The present four studies indicate that positive fantasies about an idealized future diminish energy, which should hamper achievement on such tasks. Although it is tempting to believe that simple positive visions can engender actual success, this belief is not always justified. Instead of promoting achievement, positive fantasies will sap job-seekers of the energy to pound the pavement, and drain the lovelorn of the energy to approach the one they like. Fantasies that are less positive – that question whether an ideal future can be achieved, and that depict obstacles, problems, and setbacks – should be more beneficial for mustering the energy needed to attain actual success. (pp. 719–729)

These concerns are reflected in our Figures 1, 2, 3 and 4 where we focus on the difficulties of facilitating a successful transition between Stage 2 and 3 of the creative cycle. During Stage 2 people must engage themselves in the real work of resolving their real life problems. It is precisely here that psychosocial genomic research is now urgently needed to identify precisely what implicit processing heuristics can turn on the most efficacious molecular-genomic pathways for optimizing the Four-Stage Creative Cycle of RNA/DNA Transcription/ Translation dynamics of brain plasticity and new consciousness for problem solving (Shelke & Piccirilli, 2014).

The therapist's main task during Stage 2 is to encourage the person to creatively replay memories of past problems, stress, and traumas within the safety of the therapeutic situation. This shift between Stage 2 and 3 of the creative cycle is often mediated by a particularly focused period of inner concentration wherein the person seems to suddenly become quiet after a stressful period of arousal and conflict. This is usually a period of private creative inner work where it is important for the therapist to remain silent lest the person's concentration is broken. This prepares the client to move on to the third stage of the creative process: the aha moment of insight wherein people experience a new understanding about their difficulties in the light of their best observer self.

Step Three: Aha! Illumination. Creative Insight, Problem Solving & Healing.

This the famous "Aha" or "Eureka" experience celebrated in ancient and modern literature when the creative process is described in the arts and sciences. Some people have problems because are usually surprised when they receive a creative thought and tend to automatically dismiss their own originality as worthless since it has never been reinforced in their early life experience. The therapist's main job at this stage is to help the person recognize and appreciate the value of the "new" that usually emerges spontaneously and unheralded. Often the person may have already thought of the options that come up for problem solving at this stage but dismissed them since their inner self observer was never validated. Here are a few simple words that function as implicit processing heuristics that can help people recognize, value, and continue to explore their positive creative insights at this stage.

Implicit Processing Heuristics Facilitating and Stabilizing Stage Three Insights and Creative Reframes

Interesting...?
Curious isn't it...?
A little surprise...?
Umm - rather unexpected somehow...?
Yes, are you experiencing something a little different now...?
My goodness, is something really changing now...?
Experiencing the wonder of that...?
Mmm - really appreciating what continues all by itself...?
Okay to let yourself carefully observe and really appreciate that...?
Yes, you are learning how to simply mirror your inner observer...

The profoundly significant shift from the emotional crisis and catharsis of Stage 2 to the moments of insight, tension release and positive feeling in Stage 3 is often accompanied by a sense of relief, surprise and laughter. People often experience a dramatic transition/transformation from what Maslow (1962/1998) called the shift from "deprivation motivation" to "being motivation." People may softly whisper, "It's wild, really strange, weird, odd!" The usage of such words signifies that they are experiencing something novel in becoming acquainted with their inner objective observer that functions as a psychosocial genomic self that enhances the novelty-numinosum-neurogenesis-effect (Rossi, 2002). They may even mention, "Something really new, something I was never aware of before suddenly popped into my mind." In the

classical descriptions of the 4-Stage creative cycle a sense of lightness, illumination, colors or fascinating and meaningful visual imagery are frequently mentioned. Ingenious psychosocial genomic research is now required to document how these creative moments are precisely the point at which activity-dependent gene expression is replayed for neurogenesis and solution focused problem-solving. We need to further document how the new proteins and synaptic connections synthesized at the cellular-genetic level make their effects known on a conscious level as an original psychological experience. People replay such creative moments with a wide range of experiences ranging from silent wonder, joy and awe to spiritual gratitude. Some people are full of questions about these moments of creative experiencing and need the therapist's continuing assurance that they can make a difference in their lives. The continuing mystery at this stage is how to select and safely try out in the real world what appears to be of value in these deeply experienced moments of beauty and being motivation.

Step Four: Verification and Follow Up.

The therapist's job here is to (1) facilitate a follow-up discussion to validate the value of the psychotherapeutic process and (2) reframe symptoms into signals and psychological problems into inner resources. The symptom scaling of the person's state of being before and after the psychotherapy is a measure of progress, problem solving and healing that is used to validate the value of the therapeutic experience and what may need to be done in future sessions. Here are a few implicit processing heuristics to facilitate the therapeutic process and bring it to an appropriate sense of completion toward the end of the session.

Implicit Processing Heuristics to Facilitate Continuing Creative Work

1. When... *[pause]*
2. A part of you knows it can continue this creative work entirely on its own at appropriate times throughout the day ... *[pause]*
3. And when your conscious mind knows it can simply cooperate in helping you recognize when it is the right time to tune in... *[pause]*
4. Will you receive a mind-body signal – a sensation or feeling that it's time for you to stretch, open your eyes, and come fully alert so you can discuss whatever is necessary for this creative work to continue?

Mentioning "appropriate times throughout the day" and "the right time to tune in" are ultradian cues that may utilize the entirely natural psychobiological Basic Rest Activity Cycle that takes place every 90–120 minutes throughout the day. Such phrases

are implicit processing heuristics that may help people access the state-dependent encoding of behavioral state-related gene expression, brain plasticity, and problem solving that can take place most easily at "appropriate times." Stage 4 is a period of returning to normal where therapist's can indulge in their traditional role of suggesting behavioral prescriptions that are an important vehicle of change in talk therapy. Some therapists may prefer to maintain a wise attitude of restraint even here, however, and continue to encourage people to maintain the locus of choice and control within so that they can reframe, re-synthesize and co-create their own worldview, identity, and personality in their own way. Here are some implicit processing heuristics that may facilitate the person's ability to co-create, that is, have creative dialogues wherein their explicit conscious experiences (words, feelings, motivations, and images) interact with their own more implicit, unconscious processing.

Implicit Processing Heuristics to Facilitate Co-Creation

- Something you would like to share about that...?
- Yes, can you say more about it...?
- How much of this is new to you...?
- What is most significant about this for you...?
- Have you ever understood this before...?
- What does this lead you to now...?
- How will this experience help you to make changes in your life...?
- What will you actually do in your life that is different this week...?

Verification of Positive Experiences in Stage Four: People invariably feel good in Stage 4 with a sense of relief, happiness, and well-being. When symptom scaling was introduced in Stage 1, it can be re-evaluated in Stage 4 as a subjective experiential check on the process of change. Particularly when dealing with symptoms, Stage 4 is an important time to ask people to re-scale their symptom once more. The fact that their symptom is now usually less intense validates their therapeutic experience. If the symptom has disappeared completely, this is the time to plan how the person can learn to do this type of naturalistic problem solving at appropriate ultradian periods in everyday life. It is well to remind people that it is precisely when they are in their ultradian rest periods, when they are most likely to feel tired or discouraged, that they may have best access to this type of inner creative work (Rossi & Nimmons, 1991). In this way, symptoms can be reframed as signals that the mind-body needs a quiet period of inner problem solving and healing. We speculate that it is in the ultradian rest phase of the Basic Rest Activity Cycle that behavior state and

activity-dependent gene expression, neurogenesis and healing may be taking place. This is the area in which we most urgently need the technologies of DNA microarrays and brain imaging to validate the value of our therapeutic work at the levels of the gene expression/protein synthesis cycle and brain plasticity.

If the symptom scaling has dropped only a few points by Stage 4, it can be taken as an indication of partial success that needs to be developed further in future sessions. To prepare for further improvement the person is encouraged to explore the ultradian healing response in everyday life and keep a written record of their experiences that can provide hints of the next step that is needed to facilitate further creative phase transitions in problem-solving. We like to remind people of how many natural ultradian cycles of creative inner work and healing on an implicit or unconscious level they will experience between sessions. If a person is coming in for therapy once a week, for example, we can mention the somewhat startling fact that they will go through at least 84 natural ultradian cycles between now and when they return for their next session. (7 days times approximately 12 two hour ultradian rhythms a day yields 84 inner work sessions) The only thing they have to do is tune into them selves in a sensitive and sympathetic manner half a dozen times a day or so and simply take note of anything new that presents itself about their issues since the last time they tuned in. Nature is doing creative inner work of problem solving all the time. All people really need to do is to tune in now and then to notice if something numinous and new has come up that they need to recognize and facilitate.

Psychosocial Genomic Star Maps for Consciousness and Health Research

Possibilities for facilitating the psychosocial genomic evolution of the human condition were well illustrated by the Cozzolino et al., (2014) exploratory research that unexpectedly found how a standardized administration of the Creative Psychosocial Genomic Healing Experience down-regulated the SNCA gene in human white blood cells. Dysfunctions of the SNCA gene are implicated in autism, schizophrenia, Parkinson's, Alzheimer's, alcoholism and a variety of age related stress disorders. On the positive side the closely related SNCB gene is associated with optimal brain plasticity, memory, learning and consciousness. Figure six illustrates how the SNCA gene (Pearl Color) and the SNCB gene (Blue Color) are close together in the center of a psychosocial genomic evolutionary complex adaptive system that now requires replication to document its validity and reliability for psychotherapy and translational medicine. Such beautiful 'genomic star maps' are freely available on the String 9.1 data base (<http://string-db.org>) to students and professional clinicians with a computer and the imagination to study the molecular/genomic relationships between activity

and experience-dependent gene expression, consciousness, cognition, creativity and health. The colored lines that connect adaptive network of genes that are related by research relationships illustrated in the global perspective of Figure six. The STRINGdb package provides a user-friendly interface to the STRING protein-protein interactions database (Franceschini et al. 2013) <http://www.string-db.org>. The problem with such purely biologically oriented molecular/ genomic data bases, however, is that they usually do not contain psychological data. To create truly psychosocial genomic star maps of the human condition we must integrate genomic (<http://www.genecards.org>), epigenomic (<http://www.ncbi.nlm.nih.gov/epigenomics>) and protein data bases (such as <http://www.bioconductor.org>) with psychological databases such as those found in (http://en.wikipedia.org/wiki/Databases_for_psychologists) and the Lloyd & Rossi (1992, 2008) volumes on the circadian and ultradian 90-120 Basic Rest-Activity Cycle (BRAC) mind-body rhythms. We propose that the hundreds of mind-body rhythms illustrated in these two Lloyd and Rossi volumes will have their own psychosocial genomic star maps. Students and professionals can explore the meaning and implications of psychological experience at the molecular/genomic levels for a lifetime of psychosocial genomic research – surely some of them will receive a Noble Prize for their profoundly significant research in understanding the human condition.

A delightful map of Contursi Terme—the village in Italy where a mutation in the α -synuclein gene led to a family history of Parkinson's disease, for example, can be found at <http://en.wikipedia.org/wiki/Alpha-synuclein> by simply inserting the term 'SNCA gene' in Google. Contursi Terme is a village in the province of Salerno in the Campania region of south-western Italy where the Cozzolino team of exploratory research was conducted. Replications of this pilot study by Cozzolino et al., (2014) with larger populations and more adequate controls outside the Salerno area in Italy are now required to confirm how The Creative Psychosocial Genomic Healing Experience (also called The MHE Protocol, Rossi, Erickson-Klein, & Rossi, 2014, Part 4) could supplement the traditional pill-popping of translational medicine and the cognitive-behavioral dynamics of meditation, psychotherapy and naturalistic therapeutic hypnosis for ameliorating stress-related problems of ageing and other brain/ behavioural dysfunctions. The implications of this research for updating the classical Cartesian philosophical issues of integrating mind and matter as well as the Chalmers hard problem of understanding the role of consciousness in mind-body communication and healing are profound for our currently emerging psychosocial genomic theory, research and practice of optimizing the human condition.

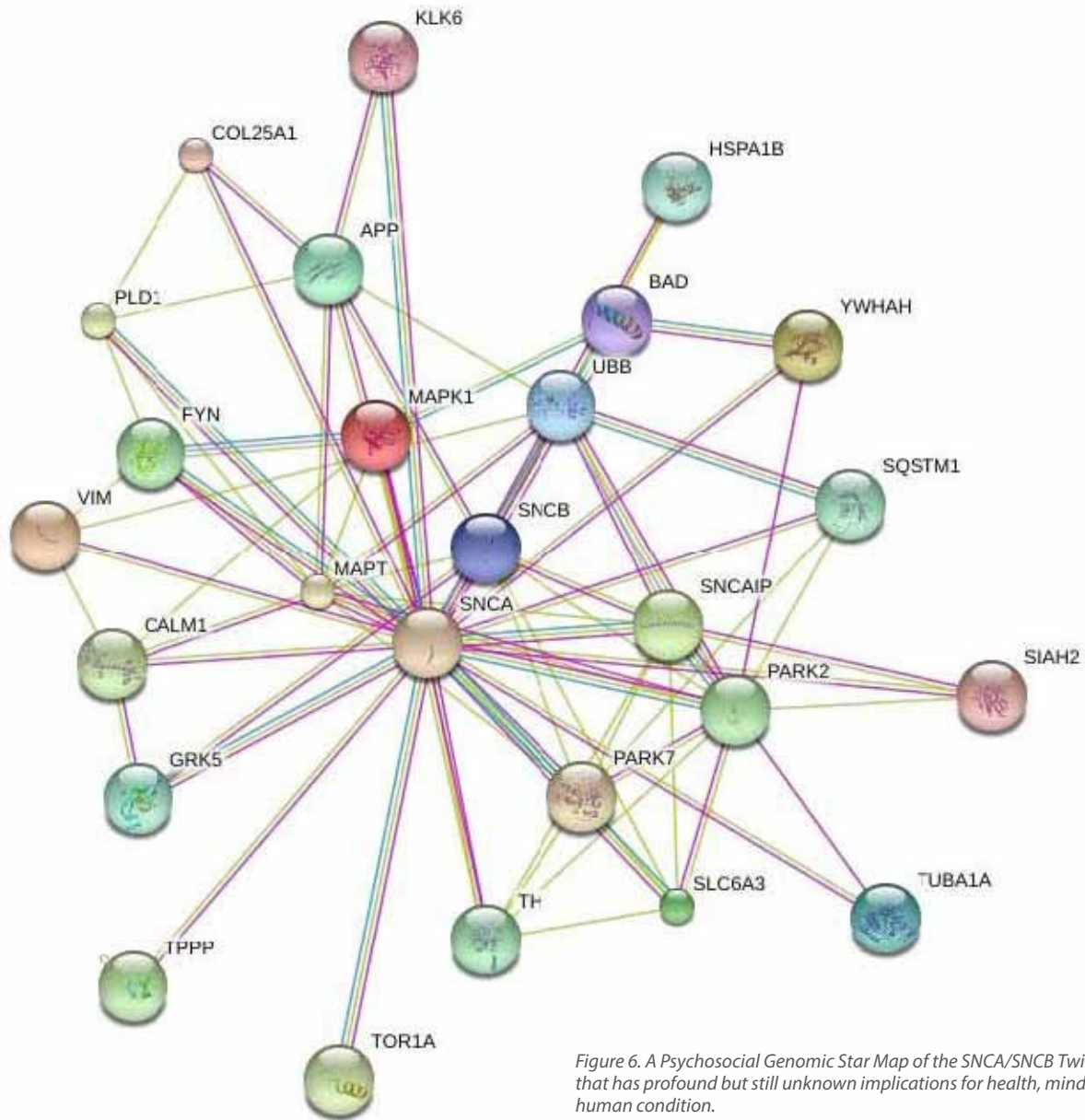


Figure 6. A Psychosocial Genomic Star Map of the SNCA/SNCB Twin Gene that has profound but still unknown implications for health, mind and the human condition.

Summary: Recommendations and Student Research Projects

This review emphasized how the evolution of the theory, research and practice of psychosocial genomics was generated out of Milton H. Erickson's naturalist therapeutic trance and 40 years of research in the normal 90-120 minute basic rest-activity cycle of stress and healing in everyday life. We introduced a new set of psychosocial genomic concepts at all levels from mind to experience-dependent gene expression, brain plasticity and the creation of new consciousness. We illustrated how to map the 4-Stage creative cycle onto the 90-120 minute basic rest-activity cycle to reduce stress and facilitate top performance. We illustrated how to utilize implicit processing heuristics as positive suggestions for facilitating consciousness and health in ordinary everyday life as well as meditation and psychotherapy. We now recommend these student

and professional research projects in psychosocial genomics.

1. Update the contrast between Classical Dissociative Hypnosis and the Creative Psychosocial Genomic Healing Experience and identify the unique therapeutic genomic star maps of each.
2. Explore psychosocial genomics with free data bases such as Gene Pattern, GeneCards and Wikipedia for the associations between the Levisky research on the functional concordance of co-expressed genes that underpin the 4-Stage Creative Process and Cozzolino's research on the SNCA gene that may have profound implications for optimizing consciousness and brain health.
3. Document how each of the 4 Stages of the creative cycle has its own characteristic psychosocial genomic star map.

4. Demonstrate how the implicit processes heuristics used to facilitate each phase of the 4-Stage creative cycle can optimize the RNA/DNA transcription/translation cycle of generating new proteins and brain plasticity that underpin the emergence of new consciousness.
5. Identify psychosocial genomic star maps of the critical transition between Stage 2 and Stage 3 of the creative cycle when people must learn more effective personal strategies for engaging themselves in the real work of resolving their own real life problems.
6. Assess research on gene expression at the late afternoon Circadian Breaking Point to test the

hypothesis that this is the vulnerable period of consciousness transition when people are fatigued and most prone to drug addictions in a futile effort to recover from the Ultradian Stress Response (see figures 1 & 4).

We believe that such psychosocial genomic research is now urgently needed to identify precisely what implicit processing heuristics can turn on the most efficacious molecular-genomic pathways for optimizing the 4-Stage Creative Cycle of RNA/DNA Transcription/Translation dynamics of brain plasticity and new consciousness for optimizing the human condition.

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A QUALITATIVE STUDY EXPLORING THE APPLICATION OF CLINICAL HYPNOSIS TO DECONDITION CUE REACTIVITY IN SMOKERS

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PART ONE

Background

The World Health Organisation estimates there are 1.3 billion smokers worldwide and that smoking causes around 5 million deaths globally and is the cause of 1 in 3 cancer deaths (WHO, 2011). These facts, along with their projections that the number of deaths is set to rise by a further 3 million a year, tobacco smoking can be seen in pandemic proportions. Education on public health along with smoking bans coming into force in some U.S and European areas has resulted in a decline in smoking in wealthier countries but is increasing globally, especially in developing countries (Hoorn, 2005). Smoking related disease treatment costs the UK National Health Service (NHS) approximately £2.7 billion a year (Callum, 2010), whilst one study puts the total cost to society as high as £13.74 billion (Allender, 2009). Revenue from tobacco tax earned the UK Government £12.3 billion in the 2012-13 financial year, while expenditure on direct smoking cessation treatment was £87.4m, down by 0.5 million on the previous year's figure of 88.2 million (ASH, 2014). The cost of each individual cessation treatment in the same year was £235, although this figure does not include pharmacotherapy expenditure (HSCIC, 2013). Of those using NHS smoking cessation services, 56% quit without any pharmacotherapy intervention. (HSCIC, 2013). Most smokers report that they want to stop and engage in several quit attempts (CDC, 2011) but abstinence rates are only 20–33% six months after quitting (Fiore et al., 2008), with relapses sometimes happening years after the cessation attempt (Turner et al., 2013).

Current Interventions

Smoking cessation treatment in the UK targets nicotine addiction as the main cause of smoking and as such is based on pharmacotherapy interventions (NHS, 2012). Medications such as Zyban (Bupropion) and Champix (Varenicline) are said to double the quit rate compared to no treatment although the former has been linked to seizures and suicidal thoughts while the latter has shown side effects

of hallucinations and heart attacks (NHS, 2012). The primary focus of NHS treatment is Nicotine Replacement Therapy (NRT) (NHS, 2012) and although there is strong empirical support of NRT in smoking cessation (Silagy et al., 2004), the question would have to be asked as to the impartiality of studies that lend their weight to this support. In a meta analysis of the impact of pharmaceutical company funding of NRT Randomised Controlled Trials (RCT), results showed that over half of the trials published were supported in some way by NRT manufacturers (Etter et al., 2007) and also found that in RCTs supported by the NRT industry, significantly more positive results were likely to occur. There are currently no NHS treatments that solely target the psychological component of smoking behaviour (NHS, 2012) yet compelling arguments such as Piper et al., (2004) research make the point for targeting effective behavioral and psychological mechanisms in developing new smoking cessation treatments. In their research into brain reactivity to smoking cues Janes et al., (2010) argue that constructing a better comprehension of the neurobiological mechanisms that underlie smoking cue reactivity could lead to more effective new treatments. Researchers in Israel argue that nicotine is not addictive in the physical sense in the way that drugs such as heroin are, which causes true biological based withdrawal symptoms (AFTAU, 2010)

Aims

Research shows that smokers are sensitized to smoking related cues and that this influences relapse rates (Engelmann, 2012). Functional magnetic resonance imaging (fMRI) research into cue reactivity in smokers has found blood oxygen level increases in response to smoking cues in brain regions that are associated with emotional and salient stimuli (McClernon et al., 2009). These findings suggest that smoking-related cues sensitise the smokers' attention. Research by Shiffman (2009), suggests that the effects of NRT interventions in combating these environmental cues are mixed. As Kroger, (1977) comments that conditioning is more rapid in hypnosis, the point could be made that in

trance, deconditioning could be equally as rapid. This point along with Shiffman's (2002) research that suggests external environmental cues increase the likelihood of smoking led to the hypothesis that clinical hypnosis can decondition these cues and that hypnosis is ideally placed to treat cue reactivity in smokers. The aim of the research was to design a mechanism to examine whether personal, individual smoking cues could be deconditioned to extinction with clinical hypnosis. One restriction of the study was that a small sample number of 4 (2 males and 2 females) was used which does not lend itself to statistical validity. However, a qualitative approach with Thematic Analysis (TA) was used to analyse the data which explored the deeper psychological components that impact smoking behaviour and cessation outcomes that would not have been possible with a quantitative approach.

Hypnosis

The medical use of hypnosis was approved by the British Medical Association in 1892 (BMA, 1892) and reinforced again in 1955 (BMA, 1955). The American Medical Association followed with its approval in 1958 (AMA, 1958). The efficacy of hypnosis in the treatment of various issues such as irritable bowel syndrome (Whitehead, 2006), temporomandibular disorders (Simon, 2000) and migraines (Hammond, 2007), is well documented. Despite this, the evidence for the efficacy of hypnosis in the application of smoking cessation is currently weak (Johnson, 2011).

A Cochrane review in 1998 showed extreme variations of success in treating smoking with hypnosis, with some results very low and some very high (Abbot et al., 1998). A meta analysis of smoking cessation and hypnosis in 1992 found what at first appeared to be impressive results in that hypnosis showed a 36% higher success rate than other interventions such as NRT (Viswesvaran & Shmidt, 1992). However, on closer examination there was a large variation in the techniques used in the studies ranging from relaxation, simple suggestions and complex imagery with some of the reports failing to describe the techniques used in detail at all. A further Meta analysis in 2000 found that within the 59 studies examined, many failed to include control groups and the analysis concluded that hypnosis was comparable to treatments that did not use hypnotic interventions (Green & Lynn, 2000). With this wide variance of techniques and research methods used, it becomes clear that standardisation of any approach must be key if hypnosis studies are to stand up to rigorous scrutiny. This study therefore, will attempt to allow reproducibility of the techniques used with the aim of future research should the outcomes be positive. However, it must be noted that due to the nature of hypnosis, no one experiment will ever be 100% reproducible. The individualistic aspect of hypnosis it could be said is its strength, but when it applies to research that

can be replicated, it is its inherent weakness as well. The personal style of each individual hypnotist plays a large part in therapy, with the tone, inflection of the voice and delivery of suggestions all varying between therapist regardless of standardisation of script or technique.

Conclusion

Despite extensive research no studies could be found where hypnosis had been used to treat the cue reactivity/smoking relationship, so as far as can be ascertained, this is the first research project in the world to explore this area. This research paper will proceed chronologically, beginning with a review of the literature relevant to the question including research studies, journals and relevant theories. The research design and methods used will be introduced and justified using the philosophy and research that underpins them. The results of the TA stemming from the interviews and subsequent data will be displayed but with only brief comment. The discussion will critically analyse and appraise these findings, comparing outcomes with the theories grounded in the literature review. Any criticisms or failings of the research design that may become apparent will be addressed here. A summary will review and compare the original intentions and aims of the research question to the results and findings.

PART TWO

Introduction

Research evidence is increasing that cues contribute to smoking and that attenuating these cues could help in the cessation of smoking (Santa Ana et al., 2009) although knowledge of the factors that modulate cue reactivity is incomplete (Jasinska, et al., 2013). Studies into cue exposure and smoking show that cues can not only induce craving but demonstrate how smokers react in different ways when responding to the cues showing the complex and individualistic nature of smoking (Ferguson & Shiffman, 2009). There is a wealth of clinical reports on the use of hypnosis in the treatment of smoking, but there is almost no good evidence from research studies that point to the efficacy in this field (Johnson, 2011). Furthermore, no research could be found where hypnosis has been used to treat cue reactivity in smokers. Hypnosis is an approach that is widely used as a smoking cessation therapy, and as Lyn (2010) comments, the evaluation of clinical findings in this area is of vital importance. The reviewed literature identifies a gap where hypnosis could play an important role in deconditioning the cue reactivity that maintains smoking behaviour.

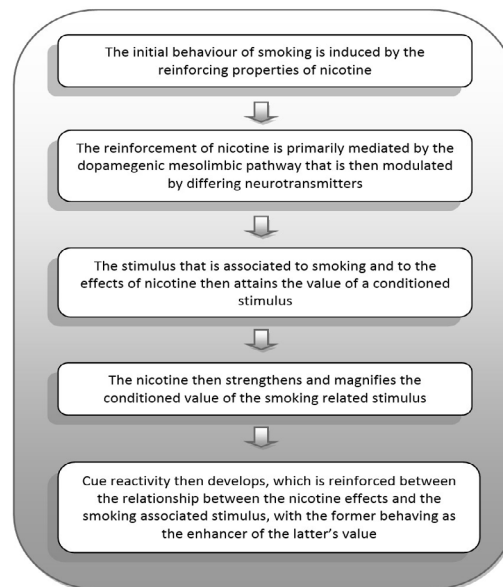
Measurement of Craving

Research by Carpenter et al., (2009) makes the point that the definition of cue reactivity in smokers is an important conceptual issue and asks whether

it should be measured in isolation to a specific cue alone, relative to an independent neutral control cue, or relative to a baseline control, for example a pre/post assessment. This is a valid point and defining how it should be measured can create a more scientific, measurable framework for future research into cue reactivity in smokers and could move towards a more standardised ideal. This argument is strengthened further if their findings answer the question of whether craving due to cues can predict smoking behaviour with a qualified 'yes', but with the caveat being exactly how the cravings are measured. Their research also showed that the level of dependency on nicotine may moderate the inter-relationship that exists between the cue and the smoking behaviour, so that the relationship is not as strong among high dependency smokers as among those with low nicotine dependency. Although other research studies concur with these findings, (Rehme et al., 2009, Vollstädt-Klein et al., 2011), Smolka et al., (2006) found the opposite to be the case where smokers with high dependency were found to be more reactive to cues.

It is uncertain why the above differences appear and show conflicting results between the studies although there are considerable variations in the methods used in the various examples, ranging from self reporting in Carpenter's (2009) research to psychophysiological assessments such as blood flow level in Vollstädt-Klein's work. Commenting on these discrepancies further Cui et al., (2012) point to other sampling characteristics such as race and sex along with the duration of smoking deprivation that may have impacted the relationship of cue reactivity and dependency and made it more complicated. These points could suggest that cue reactivity may not reflect how much an individual smokes, but rather a marker of stimulus control, the amount to which craving is triggered by environmental cues.

Most research studying craving amongst smokers tends to concentrate on background craving, that is to say the craving that is relatively steady after quitting lasting for hours to days, rising and falling at a slow rate. Research by Ferguson et al., (2006) show that the intensity of background craving can actually predict relapse in smokers. In conjunction with background craving is episodic craving. These sporadic moments of high intensity craving are triggered by cigarette related stimuli (Ferguson & Shiffman, 2009). Research by Carter & Tiffany (1999) shows that smoking stimuli produces more intense episodic craving than those addicted to alcohol or opiates and that just as background craving can predict relapse, so too can episodic craving with individuals who demonstrate high cue reactivity to smoking stimuli being less likely to make a successful quit attempt. The incentive salience system model of cue related craving developed by Robinson & Berridge (1993) suggests that motivational value from perceptual representations are attached to the dopaminergic reward system.



2.3 Fig.1 The multiple action model of cue reactivity

This results in items that are smoking related obtaining high motivational value compared to neutral items. The development of the smoker's relationship with nicotine and cue reactivity (Chiamulera, 2004) is shown below.

If this model is viable, then when NRT is used as a singular approach to smoking cessation, a vital component (cue reactivity) of the smoking problem is being missed, thus strengthening the argument that treating the cues could yield more positive cessation and abstinence rates.

A study in Tel Aviv argues that cigarette craving has more to do with the psychosocial element of smoking than the physiologically addictive properties of nicotine alone (Dar, 2010). The research, across 2 studies, examined the smoking behaviour of male and female flight attendants on both long and short haul flights, varying in duration between 3 and 13 hours. Craving levels were measured using a questionnaire. The results showed that the length of the flight had no impact on the level of craving but craving was significantly higher at the end of flights suggesting that craving increased in anticipation of the aircraft landing. This is indeed borne out by research conducted by Mahler and De Wit (2010) that shows there is evidence of smokers susceptible to craving after periods of abstinence elicited by stimuli but not by cigarette withdrawal alone. There is also evidence that the above mentioned anti-smoking posters can often work in the reverse manner intended. In a report on cue exposure in smokers it was found that one anti smoking advertisement showing just a burning cigarette with no human figures presented was found to elicit smoking urges (Sayette and Hufford, 1994). Dar (2010), makes the point that the craving is cue reactivity as opposed to nicotine and its physiological effects. In his earlier research Dar (2010), interviewed religious Jews regarding their craving when prohibited to smoke on Sabbath days.

The subsequent findings showed that craving levels were low in the mornings and were high towards the end of the day as anticipation grew as the end of the Sabbath grew near. Craving on days when smoking was not forbidden was the same level as the Sabbath, suggesting that nicotine deprivation plays a very small role in craving. On the results of these 2 studies Dar (2010) comments: "These findings might not be popular with advocates of the nicotine addiction theory, because they undermine the physiological role of nicotine and emphasise mind over matter when it comes to smoking," He concludes that future treatment will be enhanced if smokers understand their behaviour as a habit and not an addiction. The above research strengthens the argument that cue reactivity is a strong component of the smoking problem.

Cue reactivity and the Brain

There is research that shows brain reactivity to images associated with smoking is higher in individuals who relapse after a short period of abstinence after quitting with NRT (Janes et al., 2010). Using functional magnetic resonance imaging (fMRI), the research involved 21 women (who met the DSM IV criteria for nicotine dependence) undergoing neuroimaging before taking part in a smoking cessation trial. Results suggests that these relapsed individuals may be less able to regulate emotional responding to smoking cues and have more attentional bias to words associated with smoking. The study used a neuroanatomic model to examine the effects of smoking cue reactivity on certain regions of the brain. The insula area of the brain was focused upon as it is responsive to cue reactivity (Naqvi & Bechara, 2009), and could attenuate craving induced by cue reactivity (Gray & Critchley, 2007). It is also thought to be critical in the maintenance of nicotine dependence (Naqvi et al., 2010) and is the site of interoceptive awareness, being active during subjective feeling states (Craig, 2009). This last point furthers the argument for applying clinical hypnosis to smoking cue reactivity as hypnosis intensifies the perceptual and cognitive factors in feeling states, to bring about behavioural changes (Kroger et al., 1976). The researchers concluded that fMRI can predict outcomes in short term smoking cessation, which could lead to targeting those that could benefit from a more personalised approach that attempts to change insula reactivity to smoking cues. It could be argued that the research was limited by the fact that only women were selected for the trial and so cannot generalise to men. No control was used for the menstrual cycle to measure any influence these factors may have had on the results.

In contrast to the above research, another fMRI study into cue reactivity in smokers focused on the ventral striatum area of the brain (David, et al., 2005). In this study, believed to be the first of its kind to explore activation of the ventral striatum due

to smoking cues, 26 participants were presented with smoking related and neutral images while undergoing fMRI. The results demonstrated that the smoking participants, but not the non smoking control, showed activation in the ventral striatum to smoking related images as opposed to the neutral images. The research puts forward the idea that the activation of the ventral striatum could be as a result of neuroplasticity within the mesoaccumbens dopamine system in long term smokers. This, they argue may be mediating smoking cue reactivity and as such, ventral striatum activation could indicate dopaminergic dysfunction. These last two points it must be said, are only speculative as the researchers did not have positron emission tomography data to examine dopamine receptor D2 binding in the participants.

The argument for tailoring smoking cessation programs to an individual's genetics is made in one fMRI study where the relationship between the CYP2A6 genotype (which mediates nicotine metabolism) and smoking cue reactivity was explored (Tang et al., 2012). The study involved 169 smokers who were screened for the CYP2A6 genotype and their rate of nicotine metabolism. 31 smokers were then selected with the slowest and fastest rates of metabolism for fMRI. The results showed that the fast nicotine metabolisers by genotype or phenotype demonstrated far greater responses to smoking cues than those in the group that metabolized nicotine at a slower rate. The results showed this reactivity taking place in not only the insula and the ventral striatum as in the above two studies but also across the insular cortex, the hippocampus and the amygdala. One research study showed that these fast nicotine metabolisers have lower cessation rates than fast metabolisers (Schnoll et al., 2009). 568 participants took part in the research that used counselling and a 21mg transdermal nicotine patch for 8 weeks with controls in place for nicotine dependence, age, race and sex. One criticism that could be made of the study is that no placebo was used. After 8 weeks, the fast metabolisers were 50% less successful at quitting than the slow metabolisers. The study was not exploring cue reactivity in smokers, but differing pharmacological interventions tailored to the rate of metabolism in individuals. The point could be made though, that as the previous study shows that fast metabolisers are more sensitised to smoking cues, and that focusing purely on nicotine and neglecting to treat the cue reactivity could be omitting an important component that maintains smoking behaviour.

Research by Bloom et al., (2013) concurs with targeting smoking cessation treatment towards the personality of the individual. They comment that a better understanding of the personality, neural and cognitive elements that maintain nicotine dependence, could contribute to better interventions, such as improved targeting of

treatments that match the personal characteristics of individual smokers.

A meta analysis of fMRI research into smoking cue reactivity carried out by Engleman et al., (2012) came to some surprising findings not least being the discovery of cue reactivity in the precuneus, which is not normally associated with areas of the brain that maintain addiction. The research sought to address the issue of why studies suggest numerous regions of the brain are being activated in cue reactivity by using likelihood estimation meta analysis from different fMRI studies. Statistical maps were then created to identify the brain regions that are consistently cue reactive, with the definition of reactivity being the difference between responses of neutral and cigarette related cues. Clusters of cue reactivity to smoking/non smoking stimuli under fMRI were extracted using the likelihood estimation analysis and were found to involve 44 regions of the brain being activated. Most of these clusters were found in the extended visual system, suggesting that a smoker's attention becomes biased towards visual smoking related cues by increasing activation in the extended visual system. The researchers make the point that future smoking cue reactivity research and treatment should place importance on the role that the extended visual system plays in maintaining smoking behaviour. Hypnotherapy may have a role to play in future application to practice as Kroger (1977) points out that hypnosis greatly facilitates imagery and so it could be said is ideally placed in changing the mechanisms that activate the extended visual system and attention bias of smokers. Limitations to the above meta analysis are that in the literature selection, 25 of the 36 studies were eventually excluded as not being suitable. It could be said that other areas of the brain are activated during cue reactivity but due to the small sample size the results may not have reflected this.

Gender Differences

As the research involves two males and two females, any differences in the data between the genders will be examined and the role that the menstrual cycle (MC) plays, if any, in cessation outcomes and if it impacts cue reactivity. Smoking produces the same physiological effects for both genders, such as skin temperature decrease, blood pressure increase, and heart rate increase but studies suggest that males experience stronger positive reinforcement from the effects of nicotine than females (Cepeda-Benito et al., 2004).

The subjective effects of smoking, such as the social situations in which they associate with smoking appear to affect females to a greater degree than males (Xu et al., 2009). These findings may point to why females find it harder to quit than males (Perkins & Scott, 2008), and NRT has more successful cessation outcomes amongst males than females (Xu et al., 2009).

Evidence is in increasing that points to the MC

affecting craving and that timing the quit date with specific phases of the MC may impact the success rates of cessation attempts. One study involved 34 women between the ages of 18-40 who were given 2 counselling sessions and a transdermal nicotine patch (Carpenter et al., 2008). The participants were in two groups, 19 were in the luteal phase (premenstrual) and 25 in the follicular (preovulatory) of the MC. Two weeks post treatment, 32% of the follicular phase group were abstinent as opposed to 19% in the luteal phase group.

Research by Franklin et al., (2009) concurs with the above study in suggesting that treatment should be scheduled with the follicular phase to achieve better cessation outcomes. Their study examined 31 women over an 8 week treatment plan incorporating NRT and behavioural interventions with participants split into follicular and luteal groups. Post treatment, 71% of the follicular group were not smoking compared to 29% of the luteal group.

Contrary to the above studies, research by Allen et al., (2009) suggests the opposite in that attempting to stop in the follicular phase produces worse cessation outcomes compared to stopping in the luteal phase. It is unclear as to why the opposite outcomes were found in the previous two studies, however the fact that the latter research was far longer with participants being followed up regularly throughout 26 weeks may have been a factor. In the initial two weeks post treatment the results showed that the follicular group had higher abstinence rates than in the luteal group. The argument could be made for standardising post treatment analysis in future studies.

As cue reactivity and smoking is the primary focus of this study it is important to note that research suggests the MC influences this relationship. A study carried out by Franklin et al., (2004) among 17 follicular and 24 luteal phase females found that the follicular group showed significantly less craving when presented with smoking related stimuli.

Contrasting results were found in research by Gray et al., (2009) where results suggest more craving when exposed to in vivo smoking cues in the follicular phase as opposed to the luteal phase. The point could be made that the MC does affect smoking cessation rates and cue reactivity, and although research is scarce and knowledge of the relationship poor, it only serves to reinforce the argument for personalising cessation treatments, especially for females who may have made several quit attempts but failed.

Treatment of Cue Reactivity

Relatively few studies could be found that have concentrated on treating the cues that induce craving and smoking behaviour. Because the cue reactivity/smoking relationship is believed to be as a result of classical conditioning, Behavioural Therapy and Cue Exposure Therapy (CET) would appear to be

the most obvious choice of therapy in extinguishing the conditioned response but despite this, only a small body of research has systematically evaluated exposure therapy relationship in regards to the addiction of nicotine. Exploring the treatment of cue-induced cravings in cigarette smoking Ferguson & Shiffman (2009), question the efficacy of CET in the application of cigarette smoking. However, questions could be asked of this assumption as their main findings were based only based on one controlled study by Niaura et al., (1999). The research involved 129 smoking participants being assigned to 4 different treatment groups comprising of 1 treatment session of either; 1. Cognitive behavioural therapy, 2. Nicotine chewing gum combined with cognitive behavioural therapy, 3. CET and cognitive behavioural therapy, 4. CET, nicotine chewing gum and cognitive behavioural therapy. The results showed no significant differences between the groups in the point-prevalence abstinence rates at the 1, 3, 6 and 12 monthly follow up post treatment. They concluded that the findings called into question the efficacy of CET in preventing smoking relapse. The point could be made here that if no significant difference was found between the groups then the efficacy of the cognitive behavioural therapy and nicotine chewing gum could also be called into question. Ferguson & Shiffman, (2009) conclude their analysis of cue reactivity treatment with the comments that they found no evidence that CET attenuates craving or is an effective approach in tobacco addiction.

In contrast to their comments, research by Unrod et al., (2013) took a different approach in employing a 6 session CET approach amongst 159 smoking participants and came to a more positive conclusion. Highly personalised cues were used by asking the participants to take photographs of stimuli associated with their smoking habits which were then played back on a computer screen without pairing the image with a cigarette. These personal cues, it could be said, are far more powerful than using stock images such as an ashtray or a burning cigarette which whilst could induce craving, would not have the same impact as a personal cue. Across the sessions, their findings showed a progressive decline in cue reactivity until extinction was achieved. The researchers concluded that CET can indeed cause cue reactive cigarette craving to become extinct under laboratory conditions. Their research goes some way to strengthening the point made earlier that staging the therapy over several sessions (in this case 6) could prove to be more powerful than a single session. Two criticisms of the approach could be levelled at the above research. The first being the fairly high rate of attrition as only 100 of the 159 participants completed the therapy due to the staging of the sessions. The second is that using such laboratory conditions to measure cue reactivity could, as Field & Duka, (2001) argue, influence the measurements by any

bias the participants may have due to the perceived demands of the research study.

The past decade has seen increasing research into, and the application of mindfulness in the treatment of various psychological issues, including a recent growth in the area of addiction disorders along with several pilot studies into the use of mindfulness for smoking cessation (Bowen & Enkema, 2013). There is evidence that there could be 2 possible neural pathways that connect mindful attention to attenuated craving. One comprises of down-regulation of areas such as the amygdala and the other being up regulation of prefrontal areas such as dorsolateral region (Heatherton & Wagner, 2011). Research by Bowen & Marlatt (2013) into the application of mindfulness and cue induced craving assigned participants to 2 groups, one who received mindfulness training and one where no training was given. Seven days post treatment, the mindfulness group reported significant decreases in smoking behaviour compared to the non mindfulness group. Westbrook et al., (2013) studied 47 participants who had been given mindfulness training and were given instructions that smoking cues were to be viewed using either mindfulness or with passive attention. The former produced results that showed a reduction in the self reporting of craving due to cues. The participants were also studied under fMRI. This showed that when mindfulness was practiced, not only was an area related to craving in the subgenual anterior cingulate cortex reduced, but also showed a reduced connectivity between that and other areas of the brain associated with craving. This suggests a type of 'decoupling' takes place between neurocircuitry when viewing cue related images with mindful attention as opposed to viewing with passive attention. This, the researchers argue may describe a bottom up attention to how a present moment is experienced and may help in subjective and neural cue reactivity in smokers. Research by Rogojanski et al., (2011) found that some interesting benefits arose as result of their study into mindfulness and smoking cessation. The 61 participants were assigned into 2 groups, one where coping skills were taught to suppress craving and another where mindfulness was taught. One week post treatment, not only was nicotine dependence reported to be reduced, but reductions in Negative Affect (NA) symptoms such as anger, anxiety and sadness were also reported. This side effect of the mindfulness training not only has benefits for the individual's mental wellbeing but could actually assist in a smoking cessation attempts as NA can be an important component in smoking behaviour. Studies point to NA not only playing a role in the conversion from experimenting with cigarettes to nicotine dependence but also playing a part in maintaining smoking as the NA individual smokes in an attempt to reduce or avoid the symptoms associated with NA (Carmody et al., 2007).

One study examining the role of NA on smoking cessation using the smoking cue reactivity paradigm involved a massed extinction method (Collins et al., 2011). The results pointed to both men and women with low NA demonstrating significant decreases in reactivity over time, whereas those with high NA demonstrated resistance or delay in reduction of reactivity. In pointing to the limitations to their own research, Collins (2011), comments that the extinction studies were carried out over one long session and suggests that future research may be better with multiple spaced trials.

If mindfulness can help cue reactivity in smokers then this could strengthen the argument for the application of clinical hypnosis in this area, for despite the lack of good research in hypnosis and smoking cue reactivity, Holyroyd, (2003) writing in the American Journal of Clinical Hypnosis draws parallels between mindfulness and hypnosis. He makes the point that in both mindfulness and hypnosis that the concentrated focus leads to similar changes in the mental state as cortical inhibition, as shown by very slow EEG theta waves. This inhibition it is argued, explains the lack of emotions, unwanted thoughts and lack of body awareness that can occur in both mindfulness and hypnosis. The internal focus of attention that results from the attentional resources and processes are common to both hypnosis and mindfulness. Lynn et al., (2014) argue that during both practices the individual becomes non judgmental and receptive to either the practitioners voice in hypnosis, or to their own internal feelings and emotions in an accepting way in mindfulness. They go on to make the point that both mindfulness and hypnosis are portable in that they can each be activated in everyday situations to stop unwanted habits or behaviour. This last point could prove to be powerful in attenuating any cue reactive craving in smokers that may arise post treatment.

Conclusion

The wealth of literature that explores the cue reactivity/smoking relationship would appear to suggest that it is indeed a powerful component in maintaining smoking behaviour but remains poorly understood. The fMRI scans show many different areas of the brain being activated during reactivity and even include some that were not previously associated with reactivity or addiction. Cue reactivity also appears to have a highly complex relationship with, and is influenced by, peripheral issues such as the menstrual cycle and negative affect. Opinion on the type of treatment that should be administered for smokers is polarised. Treatments ranging from NRT in the belief that nicotine is the main component, through to behavioural therapies believing it to be habitual, and mindfulness which shows a decoupling between brain areas that maintain cue reactivity. All would appear to have their strengths and weakness.

One strong theme that runs through the literature is that smoking is a highly personalised behaviour that varies between gender, age and emotional and environmental factors. With this in mind, the point could be made that future therapies should take this into account and begin to look at the individual as a whole before prescribing one approach or the other. Indeed some individuals may benefit from a multi disciplined approach such as combining NRT with mindfulness or behaviour therapy. The gap in the literature is the lack of empirical studies on hypnosis in treating smoking even though it is widely used as a therapy for the problem. Hypnotherapy is a personalised approach and could be ideally placed to treat not only cue reactivity in smokers but also the satellite issues such as NA that have been shown to influence smoking behaviour. With strong evidence pointing to cues being an important component in smoking coupled with the lack of hypnosis research in this area, the logical step was to design a method that uses clinical hypnosis to decondition cue reactivity in smokers.

PART THREE

Introduction

To examine and test the question of whether hypnosis can decondition cue reactivity in smokers, a design using clinical hypnosis was employed incorporating an anchoring technique. A qualitative approach to the research was used with semi structured interviews (Appendix A4) being designed to elicit the participants' experiences pre and post treatment. TA was the method used to analyse and extract specific themes from the data.

The research design incorporated the recruitment of 4 participants from the researcher's private practice presenting for smoking cessation. All selected participants took part of their own free will and were given a patient information sheet (Appendix A3), a patient consent form (Appendix A2), and were free to ask any questions they may have had before, during and post treatment. They were also informed that they were free to withdraw at anytime without giving a reason. Confidentiality and anonymity were assured by changing names or altering any information that could identify the participant. Ethics clearance was granted by the University of West London (Appendix A1).

Participant Selection Criteria

To examine any differences that may exist between the genders in relation to cue reactivity and smoking, 2 males and 2 females were selected. The small number selected was purely down to time constraints to carry out the research, transcribe the interviews and analyse the subsequent data. Research has shown that females have more difficulty giving up than males (Perkins & Scott, 2008) and in addition to this, a wealth of research

suggests that various stages of the MC phase can influence the cue reactivity smoking relationship and that more intense cue induced cravings were often experienced. For the above reasons, women who were peri/post menopausal, pregnant or those within the 6 week postpartum period were excluded from the study. To minimise any variables that age differences may suggest, participants were selected between the ages of 33 and 38. Further exclusions of participants were those:

On any type of medication, to rule out any impact that it may have on cue reactivity.

Suffering from, or have had any history of epilepsy, which is contraindicated for hypnotherapy.

Suffering from or have had any history of any history of psychosis, which is contraindicated by hypnotherapy.

Suffering from, or have had any history of schizophrenia which is contraindicated by hypnotherapy.

Suffering from or have had any history of substance abuse disorder as the drug cue reactivity could influence cigarette cue reactivity.

Currently suffering from any form of depression so as to rule out any effect this may have on cue reactivity.

Suffering from any eye problems that may cause discomfort while focusing on an object for a period time as an eye gaze hypnotic induction was used.

Treatment

Each session was recorded on 2 independent audio recorders to guard against mechanical failure. The recordings for the treatment sessions were only partially transcribed. The rationale for this is that a large amount of the session was the researcher explaining hypnosis, hypnotherapy and cue reactivity along with explanations of how nicotine works. A full transcription would be very large with a very small amount of data being of any worth. Therefore a partial transcription was undertaken that detailed the participants' case histories, their reasons for smoking, their attitude to smoking and their smoking cues. Non verbal communication was observed to note any congruency which may add weight to certain phrases expressed or any incongruence which may be in conflict with what was said.

A thorough case history was taken to gain as much background information as possible from each participant. This was done in a flowing conversational style to put them at ease and so begin to build rapport and a meaningful interaction between therapist and participant and help to establish the idea that the relationship is, as Yapko (2003), puts it, one of mutual inter-dependence, each following the others leads.

An introduction to the cue reactivity/smoking relationship was presented to each participant in a personalised way using some of their specific cues as for example the morning coffee so as to help them

relate on an individual level to what some could find a highly complex subject. Each participant's cues were then elicited by asking them to describe their smoking behaviour throughout a working day, the weekend, during recreational activities and socialising.

An explanation of hypnosis was given by asking the participants what, if anything they understood about hypnosis. Any fears or miscomprehension about hypnosis were then addressed at this point and a thorough explanation given of what was to happen. This can help set the participant up with positive expectation which can, as Waxman (1989), points out, help to influence the success of the induction. An explanation was also given of what would not happen such as loss of will or surrender of control. This, it could be said, may help to negate any resistance that may be present on the part of the participant, and as Kroger (1977), comments, by mentioning that only suggestions compatible with the subject's wishes will be followed that rapport can be increased. Indeed, on this point there is evidence from research carried out at the Faculté de Médecine, in Switzerland that suggests a therapeutic alliance established early on can have a profound effect on the outcome of therapy by breaking down any defence mechanisms of a patient which may be present (Despland et al., 2001). Taking this into account and noting the point Vaillant (1992) makes when he says that intermediate-level defences, such as rationalisation, reaction-formation, and intellectualisation, may interfere with an individual's capacity to engage in self-exploration, the critical importance of rapport can be seen in deconstructing any of these defensive barriers that may exist before any attempt is made to start therapy. Empirical literature even goes so far as to suggest that strong therapeutic relationships with strong rapport existing accounts for more of the variability in psychotherapeutic outcomes than the therapy itself (Wampold, 2001, Norcross, 2002). Having said this however, one must be reminded of the caution that Ellis gave when he warned against being overly warm with clients which he thought could hinder the therapeutic process (Dryden 1985). Permission to touch the participant on the upper and lower arm was asked for and granted before hypnosis was induced as an anchoring technique was used in trance. This point raises important ethical issues and the decision to touch should be discussed beforehand and permission obtained (Brann et al., 2012). In certain cultures or religions, the touch of a member of the opposite of sex may be prohibited and in these cases the proposed technique would have to be considered contraindicated. The point could be made that rapport could also be impacted as personal space is invaded when an individual is touched. Furthermore, it could be said that this issue goes beyond a question of ethics as in some states of America it is actually illegal for a hypnotherapist to touch a client unless

they hold a massage licence (LeBay, 2003). In the application of this technique then, it is imperative that local laws are conformed with, the use of touch is explained and that permission is sought and granted.

The Stanford hypnotic technique of eye closure/gaze was used for the hypnotic induction. Kroger (1977), on the subject of induction argues that it is the means for initiating the grounds for successful therapy. Many therapists claim that induction is eye closure and once this has been achieved that the individual is in hypnosis and sufficient depth of trance has been reached for simple treatment (Waxman 1989). This led to the induction of the light trance state (evidenced by slower breathing, rapid eye movement, and relaxed facial features etc.) further deepening of the trance was achieved by deepening techniques. The Stanford progressive relaxation and count from 1-20 was used as a deepener to move the participants to a medium level of trance (noted by observing certain characteristics such as the body sinking into the chair, head sinking towards chest, jaw slackening). The anchoring technique used does not require a deep level of hypnosis (characterised by slumping deeply in the chair, being slow to respond to suggestions and the ability to walk and talk in trance). This is beneficial as 70-90% of the population are able to achieve a light to medium level of trance as opposed to the roughly 10% that can achieve deep trance (Waxman, 1989). The depth of hypnosis is often difficult to objectively measure (Kroger, 1977) and as Waxman (1989), comments, there is no absolute dividing line between the levels of hypnosis, although it could be said that the experienced hypnotist can make a close approximation by observing various hypnotic phenomena in the participant.

Assessing hypnotisability in research is an issue that involves controversy. Advocates for assessment such as Kessler et al., (2002) argue that clinical work is improved while those against argue that trance depth is not correlated to treatment outcomes (Jensen et al., 2005). Waxman (1989), believes that unless hypnoanalytical techniques or analgesia is aimed for then the light to medium levels of trance are perfectly sufficient for most clinical applications of hypnosis. The Stanford techniques chosen form part of the wider Stanford Hypnotic Susceptibility Scale (SHSS) developed by Weitzenhoffer & Hillgard (1959), to measure how susceptible a person is to hypnosis. Opinion on the validity of the SHSS is split amongst clinicians (Kroger, 1977) with some insisting that the testing is a valuable tool for conditioning an individual and deciding on a appropriate induction, and those who insist it is obsolete because an individual's response to arbitrary instructions will have little or no bearing on how they would respond to therapeutic suggestions in trance that are meaningful to them on a personal level. Interestingly, Weitzenhoffer himself who dedicated

most of his career to hypnotic susceptibility testing, conceded later in his life that the tests offer little to the experienced hypnotist that they could not find out by more practical means (Yapko, 2003). The rationale for deciding upon the Stanford induction and deepeners was for their relative reproducibility. The point could be made that as there is lack of good empirical research using hypnosis to treat smoking (Johnson, 2011) then if things are to move forward in this field, then the standardisation of inductions and deepeners that can be reproduced as much as possible could go some way to research studies being more accepted in the scientific field. A safe place technique was utilised and established in vitro. Shapiro (1995), first developed the safe/calm place exercise as part of the preparation phase of eye movement desensitisation and reprocessing (EMDR) and involves the participant experiencing a place, real or imagined, where they are safe and calm in case of an abreaction being experienced. An abreaction can be defined as the weakening or elimination of anxiety by the 'reliving' of the original tension-evoking experience. 'Reliving' can refer to an imaginal or emotional re-experience as well as to an actual one (Reber, 1995). Emotions expressed can include tears, laughter, shouting, contorted facial expressions or shaking. Psychophysiology of memory and emotional processes during traumatic recall induced by the abreactive process strongly suggest that successful therapeutic work with a dissociative state helps the individual both psychologically and physiologically and that measurable physiology is related to these changes induced by the psychotherapeutic process (Bob, 2007). It is hypothesised that smoking cues gain their conditioning value from Pavlovian conditioned pairing with the unconditioned effects of the drug, that is to say with its' reinforcing effects, be they positive and/or negative (Chiamulera, 2005). The goal of the deconditioning in hypnosis then, was to break the pairing of the cue with the resultant smoking behaviour. This was done using an anchoring technique. Lankton (1980), describes an anchor as "any stimulus that evokes a consistent response pattern from a person", whilst Brann (2012), suggests that anchors are based on the right hemisphere state linked memory and are best summarised in the equation:

Memory = Event + Emotion attached to it.

The rationale behind the use of anchoring was that if cues are responsible for maintaining the smoking behaviour then more powerful cues can be installed via the anchors, which will inhibit the smoking cues. Anchors were set by asking the participant to think of a positive time in their life where they were confident and happy. Individuals suffering from any form of depression were rejected for this study on the grounds that they may have difficulty accessing such memories. Indeed one research study

shows that depressed individuals demonstrated a worsening of their mood after the recall of such positive memories (Joormann, 2007). Verification that the participant had accessed such a memory was gained by the means of a head nod. These memories and all the associated feelings were then anchored on the inside of the lower right arm by touching the flexor carpi radialis muscle on the right arm and giving suggestions that anytime that the touch was felt that the positive feelings identified earlier would be experienced. The participant was then asked to access a negative experience and after verification this was then anchored on the right arm by touching the deltoid muscle on the right arm. Anchoring was reinforced by repeatedly touching the relevant muscles with suggestions that utilised all the senses associated with each memory. Observation of the participant verified that the anchors were indeed firing off the desired memories and emotions. The positive anchor when fired showed deeper breathing and facial muscles relaxing, with the negative anchor showing a breathing rate increase and tautening of the facial muscles. The importance of building a powerful image and the associated emotions are commented upon by Kroger (1977) who made the point that the stronger the image is in the participants mind, the more effective the technique is and the more they can generalise to reality. With the anchors in place, the participants' smoking cues were paired one by one with the positive anchor by firing the anchor and giving the direct suggestion "this is you, with your morning coffee (or other cue), calm, relaxed and with no desire to smoke". The negative anchor was then fired whilst giving direct suggestions that the negative feelings would be fired if they smoked in cue situations. It was suggested that they had a choice to make in which anchor they would like to apply to their life. Both anchors were then fired simultaneously but with more physical pressure on the positive one and the suggestion given that "I know, that you know, do you not, which one you want to choose". The rationale for the using the last suggestion which on the face of it can seem confusing, was to utilise the unconscious minds' inability to process the negative so that only positive suggestion remains (Battino and South 2005). Research shows that it is up 30% more difficult to comprehend a sentence with a linguistic negative in it than it is to understand a positive sentence and affirmation of something must happen before it can be negated, therefore a participant must accept a suggestion before they can negate it (Carpenter, 1999). After anchoring, post hypnotic suggestions were given for each cue that there was now "no desire to smoke and no cravings" when exposed to the cue. The suggestions given at this point were direct and authoritarian. The sessions moved between indirect/ permissive and direct/authoritarian in technique. Yapko (2003), comments that it is impossible

and indeed undesirable to conduct a hypnotic procedure in solely one style and advocates using an authoritarian approach sparingly unless good rapport exists as he feels it limits personal choice and does not show respect for the persons needs. It could be argued that use of an authoritarian technique where resistance exists in the form of defiance of authority, the technique could fail and any rapport being carefully built could be eroded. Indeed Waxman (1989), goes further and says that negative feelings could be directed to the therapist and any rapport could be destroyed completely. However, the point could be made that there are some who benefit from an authoritarian technique, want to be told what to do and so respond more readily than to it than a more ambiguous, permissive approach. Pseudo Orientation in Time (Erickson, 1992) was used to enable the participant to see themselves in cue situations with no cravings or desire to smoke thus further weakening the cue pairing. It could be said that Pseudo Orientation in Time could not only help the individual to view a positive outcome to the issue but there is research that suggests that it could actually go some way to deconstructing the presenting issue itself without using a formal technique that directly addresses the problem (Dreiker & Pollack 1954).

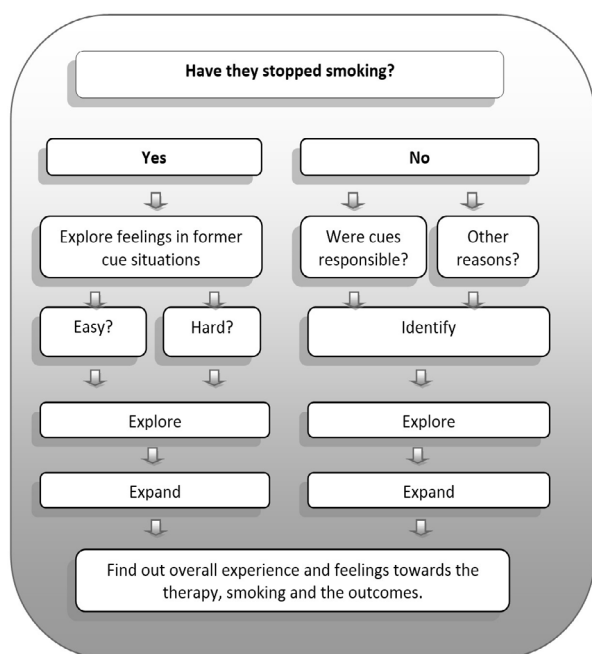
The participants were woken using the Stanford awakening script and suggestions given to remove any numbness or tiredness in limbs, and also given to reintegrate and reassociate should any dissociation have occurred. Dissociation or splitting of the mind lends itself to the dissociation theory of hypnosis first put forward by Janet (2010), and expanded upon later by Hilgard in his Neo Dissociation Theory which suggests that the multiple cognitive systems can function autonomously in hypnosis (Yapko, 2003). It could be said that a vital component of a hypnosis session is reintegration if Janet's (2010) comments of dissociation are taken into consideration where he describes as a process that is automatic and does not fit into a current cognitive scheme and without successful reintegration remains dissociated (Bob, 2007).

4 weeks post treatment the participant took part in audio recorded interviews. The equipment used was the the same as in the treatment session. The rationale for 4 weeks was that the NHS gathers its smoking statistics 4 weeks after the start of their cessation programs (NHS, 2012). A full verbatim transcription was undertaken of each interview.

Interviews

The decision to use a qualitative research design as opposed to a quantitative approach was rooted in the literature review where the underlying theme that came through repeatedly was the personalisation of smoking behaviour, be it from specific cues through to the impact of NA and the MC. A quantitative approach, it was felt, would not give the richness of detail and understanding of how the participants felt about:-

Their reasons for starting to smoke and continuing to smoke.
 How they felt smoking was benefitting them.
 Their underlying reasons and motivations for attempting to stop.
 How they felt in former cue situations if the therapy was successful.
 How they felt in cue situations if it was unsuccessful.
 This last point, that even if the therapy failed and the participant relapsed, the interviews would still provide rich information to explore exactly what caused the relapse be it cues or other reasons in a way that a quantitative approach for example, may not. As the main point underpinning the research was the cue reactivity/smoking relationship and the personalised nature of such, the research and thoughts of one of the founders of modern psychology William Wundt, who drew parallels between psychology and philosophy, could be taken into consideration here. Quantitative research he argued, did not sufficiently explain the emotions, beliefs and thoughts of the human mind as qualitative research was able to do (Wertz, 2011). However, the point could be made that the qualitative research is limiting this study as it cannot generalise to other smokers beyond this group of participants or generate any hard statistical data on smoking cues or cessation. Having said that, due to the small sample size, the worth and validity of any statistical data gathered in a quantitative approach would have to be questioned.



3.5 Fig.2 The multiple routes of the semi structured interviews.

The decision to use semi structured interviews was for their flexibility. King (2010), comments that this approach affords the researcher the ability to respond to issues that emerge in the course of the interview in order to see the perspective of the interviewee which would be impossible with the fixed, rigid, structured interview. Rapport is,

as Opie (2004), comments, a vital component in the semi structured interview and if lacking can lead to what Denscombe (2007), describes as the 'interviewer effect' where the participant can react negatively and fail to divulge information which may prove important. The fact that good rapport was established with all 4 participants before the therapy sessions adds further weight to the decision to use semi structured interviews.

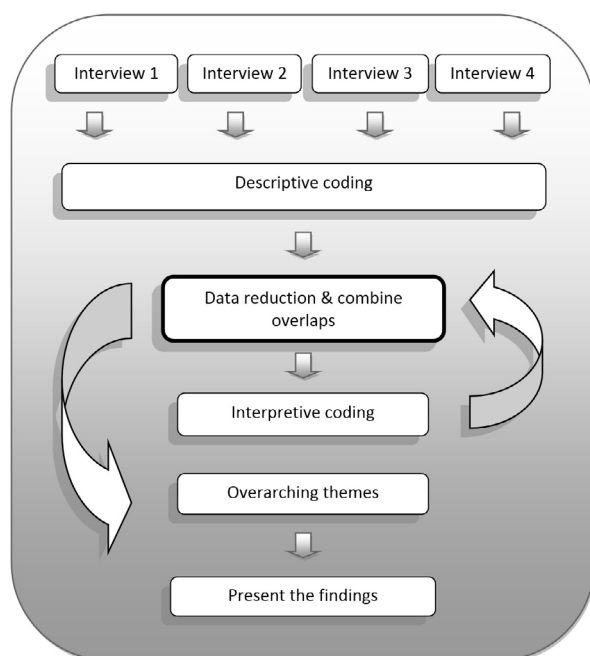
The diagram in fig.2 shows the multiple routes that the interviews could take given the responses by the participants being dependant on whether they have remained abstinent, whether they found it hard or easy or indeed if they have relapsed and if cues or other issues were responsible. These possible routes of enquiry further strengthened the decision to use the semi structured interview for its flexibility. The use of hypnotic suggestion in the initial therapy meant extra care was taken in formulating the questions to elicit the required information, for as Gratton (2013), comments, the participant develops faith in the ability of the therapist and is therefore conditioned to more readily accept future instructions. With this in mind, the questions were constructed so as not to suggest that any particular answer is expected. This was not simply avoiding any leading questions, but also omitting seemingly neutral questions that may have caused confusion at an unconscious level to a participant who is suggestible to the therapist's words. For example, "have you had any cravings since I last saw you" may appear neutral but if the participant had no cravings because directions were given in hypnosis and readily accepted, doubt and confusion could have arisen as to why this question was even being asked. Questions were formulated such as "could you describe your morning routine as you have your tea?". If the answers were short or somewhat vague, elaboration probes were used to encourage further expansion on the subject. A simple "could you expand on that a little please?", were all that was needed to glean the information required. Clarification probes were used to seek explanation if an answer was not understood or ambiguous, for example: "Could you explain to me what you mean by you felt something was missing please?" If a participant left an explanation unfinished where the researcher feels it could provide more information of value, completion probes were used, for example; "And after that happened, what were your feelings about that?". Non verbal communication was also noted for any congruence/incongruence with answers. Those observations were noted with the time so as to correlate with the recording and future transcriptions.

The interviews therefore, used the framework in fig.2 as a guide where the questions had the freedom to move with the answers given but within the structure to extract the required information which formed the basis of the data to be analysed.

Data Analysis

Thematic Analysis was decided upon for its flexibility and ability to be applied to a diverse range of research questions and epistemologies (Braun & Clarke, 2012). Interpretative Phenomenological Analysis (IPA) although similar to TA in many respects, was rejected as an approach because of its rather more structured framework. IPA, it was felt, may have hindered the flexibility of the analysis and subsequent themes given the wide range of the data, such as have the participants stopped smoking, did cues or the MC have a significant effect on the outcomes etc. Similarly, Discourse Analysis (DA) was not chosen as an approach, and again both DA and TA both are very similar in methods (Braun & Clarke, 2012), but it was not thought necessary to micro analyse the language patterns as used in DA for this study.

TA has been described as a process to be used within the framework of other analytic methods such as Grounded Theory (GA) rather than a standalone approach (Ryan & Bernard, 2000), although Braun & Clarke (2012) strongly argue that TA is indeed a method in its own right citing its flexibility as one of its strongest attributes. Within this theoretical freedom they argue, TA is able to provide a research tool which is both useful and flexible, which in turn can yield rich accounts of the data being studied. This flexibility of TA, Frith & Gleeson (2004), argue, makes it applicable to be used in both deductive and inductive approaches. Fig 3 shows the process of the TA process used.



3.7 Fig.3 The thematic analysis process

The process of analysis began by reading and re-reading through each of the partial transcripts from the therapy session and the full transcripts from the semi structured interviews. The goal at this stage was familiarisation with the data. Braun & Clarke (2012), argue that this immersion in the data at the early

stages of TA by re-reading the data is vital for good analysis. Their comments on bad analysis where researchers talk of themes emerging as if waiting to be discovered rather than actually analysing the data were noted and no attempt was made to look for themes but to simply make preliminary notes and comments for the coding. Bogdan & Biklen (2007), make the point that the data needs to be read at least twice so a deeper understanding of the text is gained by the researcher. Descriptive coding was started by reading back through the preliminary notes and highlighting words or phrases that related to the research question. These were then reduced down to keep the focus narrow and any overlapping ideas were combined into single codes.

The initial descriptive codes were then moved into interpretive coding by grouping the descriptive codes that appeared to share a common theme. No attempt was made to attach any theoretical concepts to the themes at this stage for as Landridge (2009), warns, this could lead to the researcher being blinkered by trying to make the data fit in with the theory and thus miss some themes which could prove important. Themes were established across the across both the full set of data, and within each participant's case. The point could be made that whatever form of thematic analysis is used, in-case and cross-case analysis need to be applied. Indeed King (2010), argues that if themes from the within-case data is neglected then the themes become in effect, abstract ideas and treated as variables in the positivist tradition, detached from personal experience. Having said that, if the cross-case data is neglected then a fragmented group of case studies may ensue which may fail to answer the research question being asked. A balance in establishing the themes between in-case and cross-case analysis was therefore the goal. The themes were then to be re-examined, refined, and any overlapping ideas were combined or deleted to keep the focus narrowed to the research question.

The third stage of analysis was to develop the previous interpretative themes into overarching themes that identify key concepts relating to the research question. Theoretical ideas on cue reactivity were used at this point to help formulate the themes, which were re-examined and refined once again before being prepared to report the findings.

Conclusion

The research methods used in the study were designed to decondition the cue reactivity/smoking relationship and to explore the participant's experiences and reactions to the treatment. Participant safety and ethical practice was paramount. Mechanisms were in place to guard against abreaction and all participants were reminded of their complete anonymity and their freedom to choose whether to continue at each stage of the research. An underlying goal throughout the methods used was reproducibility.

Given the lack of research into treating cue reactivity/smoking relationship with hypnosis, the hypnotic protocol, interviews, and analysis were all standardised as much as possible to aid in the expansion of future research in this area. The results of this study and the subsequent analysis of the data determined whether future research is needed.

4.2 Fig.4 The participants and their respective cues

	Participant 1	Participant 2	Participant 3	Participant 4
Gender	Female	Male	Female	Male
Age	33	38	35	33
Occupation	P.A.	Investment Banker	Producer	Personal Trainer
Reasons for Smoking	time out waste time time to think	company of others bonding time to relax de stress	time out of work distraction from stress	to relax de stress time out between clients
Reasons for Stopping	money health	wife health	health skin	money health work
Personal Cues	morning coffee walk to tube outside work breaks after meals journey home red wine pms in car socialising red wine on phone back door before bed	morning coffee driving to work outside work breaks after meals driving home meetings on phone playing golf socialising on the computer on the phone outside before bed	morning coffee being driven to work outside work on phone breaks after meals presentations screenings meetings socialising being driven home news at ten in kitchen before bed	protein shake web cast before client after client in car at airport meetings rows with wife watching television before training after training outside back door before bed

Introduction

The research design used to examine whether cue reactivity in smokers can be deconditioned with clinical hypnosis was completed as proposed. All 4 participants took part in the pre treatment talk, the hypnotic intervention to decondition the cues, and the 4 week post treatment interviews. At each stage of the research, each participant was again informed that they were free to withdraw at any time without having to give any reason. Adequate time was provided for any questions to be answered that they may have had and it was restated that complete confidentiality was assured. No money was offered to any participant to take part. No abreaactions were experienced by any participant. The transcribed semi structured interviews were analysed using thematic analysis, initially moving from descriptive coding, through to interpretative coding and finally leading to the development of 5 distinct overarching themes. It would appear that one of these themes seemingly has the potential to impact on the other 4 as a determining factor as to whether deconditioning takes place. The results and themes are presented here with only brief comment as they will be analysed and discussed at depth in the next chapter. The table below shows the participants and their personal cues.

Results

In the pre treatment interviews, the personal cues of each participant showed some remarkable similarities between the individuals. Regardless of the small variances, for example type of drink in the morning or mode of transport to work, the cues were similar across the four participants. All four had smoking cues associated with:

- The morning beverage
- Leaving to go to work
- Arriving at work
- Breaks from work
- After meals
- Journey home from work
- On the phone
- After stressful events
- Car journeys
- Before bed

The above information, demonstrated that although cue reactivity at first appears to be highly personalised at a macro level, it is now shown to be far more uniform on the larger scale than first considered at the literature review stage of this study. The reasons given for smoking also strengthen the argument that cue reactivity plays a powerful role in maintaining smoking behaviour as opposed to smoking itself given the lack of answers naming the inhalation of smoke as a motivating factor. Four weeks post treatment, Participants 1, 3 and 4 (P1, P3 and P4) had remained abstinent

and Participant 2 (P2) had relapsed after three days of abstinence on being exposed to the cue of a golf course. The development of the overarching themes expose a complex network of psychological processes that are not only impacting deconditioning but also playing a part in the maintenance of the very smoking behaviour itself. The development of these processes would not have been possible without the qualitative approach used in this study which gave the ability to extract a far deeper understanding of the psychology of smoking and of deconditioning. No meaningful data could be extracted on gender differences, the menstrual cycle or the impact that either may play in cue reactivity and smoking.

The Influence of the Locus of Control.

One aspect of the language within the abstinent group was the participants taking responsibility for their success as opposed to any role the therapist may have played. P1's comments that "I've done really really well" and "I'm so proud of myself" echoed P3's words of "how good am I?" and "I'm pleased with myself how well I've done". P4 similarly remarked "I'm pretty chuffed with myself" and "I feel proud of what I have achieved". This apparent responsibility for their abstinence, would appear to contrast markedly with the relapse of P2 where he comments "...it failed" in response to questions on the success of the therapy, along with observations that "every one of them has failed" when talking about other interventions in the past and ending the interview with "I'm sorry it didn't work for you". The abstinent group talked of "taking control" along with thoughts of positive changes that could be made as a consequence of stopping smoking. P2's words seemed to almost abdicate his power by declaring that "I cannot see myself making any future quit attempts" along with blaming his wife for making him attempt to stop and commenting "something has been taken away from me". These language patterns were coded, sorted into interpretive codes and then developed into the overarching theme of the "Influence of the Locus of Control". The locus of control (LOC) is the extent that an individual believes that they are in control of events that impact their lives (Rotter, 1966). An individual with an internal LOC will have a sense that much is under their influence where conversely an external LOC individual would view events as beyond their control. It would appear from the analysis of the transcripts that the abstinent group were holding an internal LOC whilst P2 was demonstrating an external LOC.

Empowerment Through Education

Early coding of the data across all 4 participants established language patterns where each participant referred to the information they had been given prior to treatment about cue reactivity vs. addiction. P1 one commented; "...as you

explained, it was just a conditioned response, and looking back I had just associated the situation with smoking", while P3 made the point; "I understand the mechanics of smoking and that it's not much of an addiction and is something under my control" Reflecting on his cessation, P4 said that "...the addiction part is so small, if I had have known that before, if somebody had of just explained it to me in the way you did, I think I would have found it far easier to stop in the past". P2, even though relapsed, makes reference to "The talk you gave me about cue reactivity and addiction was very interesting and that may in some way help me in the future." Developing the above using TA, an overarching theme of Empowerment through Education was developed. It is interesting to note that all of the participants touched upon this, regardless of whether they had remained abstinent or not. One could make the point here that the individual's LOC, whether internal or external, may play an important role in how they choose to use this educational information that they are provided with.

Generalised Personal Growth

While coding for the previous theme a large amount of data was reduced but certain strands of data which at first appeared to belong to the LOC theme were seen to be different and thus developed into its own separate, coherent theme. P1 commented; "I was thinking about changing jobs and that has only really come about since I stopped smoking and I had not really thought about that before but it seems now I can make changes that will make me happier". P3 makes similar points; "It has given me a bigger sense of self control over my destiny if you like, that probably sounds quite dramatic when all I have done is given up the fags (laughs) but it feels quite a major lifestyle choice for me what I have done, I didn't think it would impact me in quite this way". Along with; "It's my choice to do that; it's my mind I never felt that way before". P4 similarly makes the point on dealing with stress that; "I don't feel the need to use any sort of coping mechanism anymore". These comments show a change taking place post treatment. The data was developed into the overarching theme of Generalised Personal Growth P2's comments on his relapse with language that shows no such Generalised Personal Growth has taken place with comments such as "nothing seems to be able to help me so maybe I should just carry on". The LOC could have an impact in this theme in that its influence over cessation would determine whether a process of personal growth occurs or not.

Dissociation as a Coping Mechanism.

The 4th theme was once again developed from patterns within the data across all 4 participants. P1 commented that smoking "allowed me the time, gave me the time to get away from things, but I can do that now without cigarettes". P3 makes

a similar point with "I can see now how the fags were a bit of a prop for me really. As soon as I had a fag in my hand I was nobody's property, I could disappear just have time to daydream and think for a while." P4 comments along the same lines of "in between clients, the smoking used to give me the excuse to make time for myself, to just be, just to sit for five minutes." The relapsed P4 makes the point that "smoking just stops me for a while, stops me obsessing over things that may go wrong or have gone wrong."

The above comments along with the reasons all participants gave as to the reason for smoking such as gave them time to think, distracted them from work or gave them an excuse to leave certain situations suggests that there is a need to stop and step outside of the situation, to dissociate from the situation. The overarching theme that was developed here is Dissociation as a Coping Mechanism. The cigarettes are enabling this by giving the individual the excuse when they physically escape as they go outside and then psychologically as they dissociate. The LOC could as with the previous themes hold an influence here.

Residual Unconscious Behaviour

The 5th theme established was developed through the coding of language patterns that appeared across all 4 participants' data. In her comments on how she felt in certain former cue situations. P1 said that "I go to reach for cigarettes in my bag and then suddenly realised that I don't smoke, it's almost like an automatic response." P3 experienced similar responses: "when someone says let's have a break, I have found myself looking for a lighter for a split second on my desk and then I remember I don't smoke and it passes." P4 makes comments along the same lines: "I had finished the meal I automatically stood up as if to go for a cigarette it was quite weird really, there were no cravings no desire to smoke and I had been smoked free for around three weeks it was like a response that I pushed the chair up and thought I was going for a cigarette. I came to my senses, (laughs). I just sat down again but it was weird as I say how I automatically stood up and shows how I was programmed to smoke even though there would be no desire, cravings or withdrawal symptoms whatsoever I still stood up to up as if to smoke." P2 describes similar feelings but experiences them in a more profound way. "...I was smoke free for 3 days but I never felt as if it left me, it was always there. I was always looking for my cigarettes or lighter, I would go to walk into shops where I used to buy cigarettes." Analysing these words, themes and behaviour, an overarching theme of Residual Unconscious Behaviour was established. This theme appears to show behaviour that has almost become separate from the smoking in that there are no cravings yet the behavioural element in certain situations seems to still be in evidence. The LOC once again could impact on this theme.

Conclusion

The overarching themes developed from the post treatment interviews therefore are;
The Influence of the Locus of Control
Empowerment through Education
Dissociation as a Coping Mechanism
Generalised Personal Growth
Residual Unconscious Behaviour
The LOC would appear to be the most dominant of the 5 themes and for reasons discussed in the next chapter, its influence could determine the outcomes of any deconditioning attempts. The data derived from the interviews and subsequent qualitative analysis provided rich information which enabled the exploration of the thoughts, feelings, beliefs and behaviours of the participants at a far deeper level than that of a quantitative approach. The point could be made that even with a far larger number or participants where the latter design would be more applicable, without exploring and examining the emotions behind smoking behaviour, then a large part of equation is missing. The establishment of the apparent importance of the LOC and the relapse of P2 warrants further investigation and could influence the future of cue reactivity/smoking research. The results, themes and the corresponding theories will be discussed at length in the subsequent chapter.

PART FOUR

Introduction

In the early stages of coding, the data from the results at first appeared to suggest that more questions were being asked than answered which seemed to confuse the original research question surrounding hypnosis, smoking and deconditioning. However, the development of the overarching themes revealed an underlying set of mechanisms that were not anticipated, yet go some way to explaining the wide variance of quit rates amongst smokers and the complexity of the underlying psychology and resultant behaviour. In analysing the results from the data, the 5 overarching themes that were developed not only show 5 individual components of smoking behaviour but also the psychological aspects that underpin it. The themes also show the deep change that took place post treatment as a result of the hypnotic intervention and the position of the all 4 participants LOC. It is shown that LOC has the potential to influence the 4 remaining themes and whether deconditioning and the resulting abstinence takes place.

Deconditioning in Hypnosis

The 3 participants that remained abstinent experienced no cravings or withdrawal symptoms in their former cue related situations. It can be said with a reasonable degree of certainty then

that deconditioning has taken place and that hypnosis was integral to the change that led to the extinction of the conditioned responses. Taking the Pavlovian view that maladaptive behaviour and faulty conditioning are learned responses (Pavlov, 1921) and that behaviour modification utilises the principles of learning theory (Abraham, 1968), then the point can be made that as hypnosis enhances the operation of these principles (Kroger, 1977) it is ideally placed to decondition and modify unwanted behaviour. Having said that, Utlee et al., (2002) found that in vivo desensitisation is more successful than its in vitro counterpart. This does not weigh against the efficacy of hypnosis but rather find in its favour as Cautela's research (1966) shows that a stimulus presented in hypnosis can produce the same responses as one presented in reality. Indeed it could be said that an individual is in a state of virtual reality (or virtual in vivo) as hypnosis greatly facilitates imagery, and enhances the senses (Kroger 1977). A study carried out at University College London in (Walters, 2003) expands on this virtual reality concept. Interventions conducted in hypnosis included cue-controlled relaxation and covert desensitization in which the individual reframed her fears and transformed fear-related images into benign stimuli. These interventions were experienced by the client as having an 'as real' quality and were successful in reducing her long-standing fears to a normal level within three sessions.

A complex picture of processes working unconsciously and simultaneously that work to decondition, ties in with the research shown earlier which appears to show multiple areas of the brain at work as opposed to one in isolation responsible for the conditioning in the first place. If the participants smoking behaviour was indeed unconscious conditioning and hypnosis facilitated unconscious deconditioning, then Barber's (2006) comments, on hypnosis and learning theory are accurate where he says that: "The very capacity that lends itself to developing the problem is the same that lends itself to solving it." The data shows that the deconditioning that took place in the abstinent group did not take place in isolation but several factors were influencing the outcome. The theme with most influence is the LOC.

The Influence of the LOC

The data shows that the LOC is impacting the remaining four themes where it acts as a type of 'filter' which influences and may predict the abstinence or relapse rates. For example, in an individual with an internal LOC the cue reactivity information provided pre treatment (leading to the theme of Empowerment Through Education) could be viewed as something to be internalised, used and applied to their own lives. Contrastingly, an external individual may view the information as interesting, but remote and beyond their power to harness.

Deeper questioning pre treatment would establish whether an individual is predisposed to an excessive external locus of control using either the Health LOC Scale or the Multidimensional LOC Scale (Wallston, 1978). The latter takes the hypothetical view that an individual's health may be directly linked to whether they believe internal factors are responsible for their health, whether powerful others (such as health professionals) are responsible or whether it is purely down to luck. The last one being the most difficult individual to treat due to their fatalistic view of situations (Wallston et al., 1978). On this last point it can clearly be seen how this type of individual could find it difficult in a smoking cessation attempt. In an earlier paper, Wallston (1973), made the point that tailoring a smoking cessation program that takes into consideration the LOC beliefs of the individual could prove to be beneficial, whereas as research by Stuart, (1994) found that an internal LOC was positively related to the success of cessation attempts.

If an intervention pre treatment was to be used to shift the locus of control to a more internalised ideal then Hartland's (Waxman 1989) ego strengthening would prove beneficial in that this approach can have profound effects on an individual, especially if one takes into consideration that deep trance is not essential in its use (Waxman 1989). Indeed, Waxman gives an example of a patient who failed to respond to analytical techniques as sufficient depth of trance could not be reached but responded to ego strengthening alone over a number of sessions. However, despite the assertion that ego strengthening can be given to almost all patients (Waxman 1989), the technique is not without its critics. Heap (1985), questions the generality of suggestions and lack of image evoking suggestions. He argues that the patient is not given instructions as to exactly how they will "begin to think more clearly" for example. Having said that, the point could be argued that the unconscious mind merely needs to see the goal, the end result, and will then find the resources to fill in the gaps and achieve the aim.

There is evidence that suggests that those with an internal LOC demonstrate more health related information seeking than those with an external position (Wallston, et al 1981). If the former do indeed seek out more information on the health issues that concern them, this would show a direct link between the LOC influencing the Empowerment Through Education theme.

Empowerment Through Education

If the theme of Empowerment Through Education as evidenced above is indeed influenced by the LOC, then this discovery can help to explore the mechanisms that led to the relapse of one of the participants. If P2 was holding an external LOC position, then his choice of using the information provided would appear to be in contrast to the

abstinent group who talked of empowerment through the information. Funnell et al (1991), comment how the empowerment of patients can provide them with skills and the responsibility to effect their own change. It could be argued here that in an individual with external LOC, the notion of responsibility is lacking and the ability to affect change is therefore diminished. Studies show that providing information about a presenting issue impacts treatment or the patient's own involvement with their treatment. Research carried out at Guy's Hospital in London suggests that patients become very actively involved with their treatment when given relatively detailed information about procedures. The study provided clear evidence of patients' requests for more information and of the efficacy of written information for increasing their knowledge and adherence with treatment (Weinman, 1990).

If an individual chooses to use provided information for their own benefit then it is fair to say that they believe at some level that they are able to affect change in their own lives as opposed to relying on outside influences. This belief in the self and taking responsibility for one's own well-being is central in bringing about change and Yapko (2005), argues that encouraging an individual to become self-reliant should be the ultimate aim for all responsible therapy. This self-belief in affecting change is evidenced in the Generalised Personal Growth theme.

Generalised Personal Growth

It becomes clear by analysing the words of the abstinent group that a deep personal change has taken place occurring as a result of the treatment. P3's words of "...it has given me a bigger sense of self control over my destiny" and "It's my choice to do that; it's my mind, I never felt that way before", along with P1's comments of "...it seems now I can make changes that will make me happier", reveal a global shift in the belief of their own autonomy and the future choices they make.

Whether these changes have taken place at a cognitive level or whether a deeper fundamental change has taken place at an unconscious level is difficult to determine and worthy of further study. If the former is the case, it could be as a result of further empowerment (as witnessed by the previous theme), this time by their own achievement of stopping smoking. This argument is strengthened with the fact that P2's relapse has not resulted in the development of Generalised Personal Growth. P2's comments of "I'm not sure where I'll go from here in regards to quitting" and "my job is probably going to get more and more stressful in the future" are comments that evidence the fact that no such change has taken place. Contrasting the cognitive argument is the fact that hypnosis works with the unconscious and it is therefore entirely possible that the change has taken place at an unconscious

level. However, this would then pose the question of why P2 has not experienced the development of Generalised Personal Growth. The logical conclusion would have to be that the changes are as a result of the cessation regardless of whether they are at a conscious or unconscious level. The view could be taken that the unconscious and the conscious minds should not be seen as separate entities for although the conscious and unconscious have differing sets of functions, they also share numerous functions between them (Kihlstrom, 1990). Indeed Yapko (2003), believes that to more accurately reflect the dynamic nature of mental functioning one should speak more of unconscious and conscious processes. Given the fact that throughout this study numerous mechanisms are at work in cue reactivity and smoking behaviour, it naturally follows that several processes, conscious and unconscious, could be responsible for bringing about the generalised personal growth as a consequence of cessation. The question would have to be asked whether the abstinent group already held the same degree of belief in their own autonomy before the treatment, given that it has been established that they all held internal LOC positions. Analysing the language shows this not to be the case and that the generalised personal growth has developed post-treatment. For example P1, when talking of implementing changes says "... I had not really thought about that before" and P3 when talking of talking control of her destiny says: "... I didn't think it would impact me in quite this way" and "I never felt that way before" while P4 says "I've got so many things I want to do, so many plans going round in my head". These statements show surprise in the participants at their own change and clearly evidence the point that personal growth has taken place as a result of treatment and that they were not exhibiting this prior to treatment. This, coupled with the fact that P2 relapsed, would again suggest that the change is a process occurring as a result of cessation. The point can be made that if an individual undergoes generalised personal growth as a process after cessation then they become empowered and are less likely to be reliant on old behaviours such as using the theme of Dissociation as a Coping Mechanism.

Dissociation as a Coping Mechanism

The psychobiological mechanisms of dissociation are hard to define and there is much debate over whether the phenomenon is a defence, a process, or a symptom (Ellert et al., 2011). Regardless of this however, the participants in their Dissociation as a Coping Mechanism theme were displaying the fundamental behaviour that underlies smoking. When interviewed pre-treatment on their reasons for smoking all four gave similar answers in that they named almost "peripheral" motivations for smoking as opposed to directly naming the pleasure of smoking the cigarette itself as a driving factor.

For example, all four indicated (using differing language) that it gave them time to think, distracted them from work or gave them an excuse to leave certain situations. Cigarette smoking is unique in this aspect, for if a heroin or cocaine addict were asked their reasons for taking the respective drugs their answers would probably relate to the direct effects of the substances and how it makes them feel. This was completely absent in all the smokers responses making the point that the actual smoking of the cigarette is not the motivation. The participants were unaware that the reasons they gave for smoking were nothing to do with the actual administration of the drug until it was pointed out to them. This discovery is an important finding in that it shows the complex unconscious nature of smoking as a coping mechanism and exposes the weaknesses of using conscious willpower in any quit attempt. When asked pre treatment what was pleasurable about smoking P2 replied; "nothing really, I hate it actually" Similarly, P4 answered; "when I light up it's actually disgusting". These comments show the cigarette as a powerful enabler of dissociation, for where the smoker finds the actual act of smoking unpleasant, by simply taking their mind off the physical dislike of the cigarette dissociation takes place and allows the psychological escape that it affords. This demonstrates how powerful the cues can become when they are related to this coping mechanism in that they take on a role that signals to the individual that relief can be achieved through dissociation via the act of lighting a cigarette. This theme shows that the cues are not solely linked to the administration of nicotine as suggested in some studies in the literature review, but demonstrate a far deeper reward system at work than simply the effects of the drug. This positive reinforcement as Skinner (1938), called it shows why many smokers find it hard to stop. If their behaviour is linked to such powerful, positive reinforcements such as the dissociation aspect, then these powerful stimuli easily override any punishment in the form of the wealth of information of how smoking can cause a slow lingering death from cancer for example. The positive reinforcement may have been turned in on itself in hypnosis with suggestions of becoming fitter, stronger and wealthier each time a cigarette is not smoked. The benefits of promoting the positive aspects of stop smoking can be seen, for as Skinner (1938), argued, positive reinforcement is far more powerful than punishment because punishment he maintained can only make certain responses less likely to occur. Having said that however, Campbell and Church (1969) put forward the argument that punishment is a more powerful influence than that of positive reward. It is here that the positive and negative reinforcement divide becomes blurred. Baron and Galizio (2005), argue that the distinction between the two is confusing, ambiguous and that no evidence exists that allows reliable classification between Skinner's positive and negative

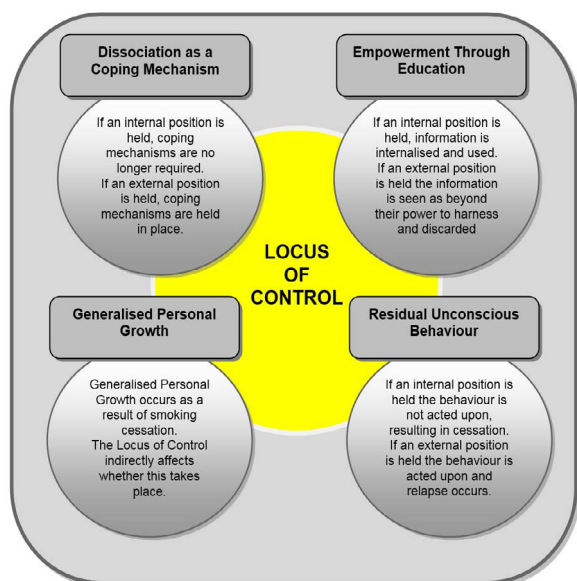
reinforcement and as such the distinction between the two should be abandoned. The technique in the study used these negative attributes which were used to create a new pairing of smoking and negativity along with a positive anchor of feeling calm and in control when not smoking, served to cover both bases in the debate of whether positive reinforcement or punishment are the predominant force.

The Dissociation as Coping Mechanism theme may also feel the influence of the LOC inasmuch as it could determine whether the individual takes control and can dissociate in former cue situations without smoking (internal LOC), or believes that this level of autonomy is beyond them and needs an outside force (the cigarette) as an enabler to make them dissociate (external LOC). An important discovery of this study was that even if the coping mechanism of dissociation is no longer needed, some Residual Unconscious Behaviour remains.

Residual Unconscious Behaviour

The theme of Residual Unconscious Behaviour shows the separation of the cue related craving and the behavioural aspect of smoking post treatment. After deconditioning, the cue no longer has the potential to fire off cravings but the behavioural element has been left behind. This discovery is similar to the results found by Westbrook et al., (2013) mentioned earlier in the literature review where fMRI scans show a type of 'decoupling' taking place between neurocircuitry when viewing cue related images after treatment. However, it could be asked whether the unconscious behaviour was ever part of the cue reactivity in the first place or whether it was an independent mechanism that developed as cue reactivity is created. Given that Hilgard, (1977), expanding upon Janet's (1965), dissociation theory of hypnosis, argued in his Neo Dissociation Theory that the multiple cognitive systems can function autonomously and given the multitude of processes that are active in cue reactivity, then it is entirely possible that this is the case. Indeed, research suggests that laboratory induced craving is not related to dependence on nicotine (Dunbar, 2012). The study concluded with the recommendation that future research should examine the cue reactivity/behaviour relationship as they may well be functioning independently from one another or working synergistically to maintain the habit. Their findings tie in precisely with the findings of the Residual Unconscious Behaviour theme and further expose the complexities and mechanisms involved in smoking. The LOC, as with the others themes would appear to hold some influence here in whether the participant viewed the residual behaviour as something outside of their control, acted on it and smoked or whether they internalised it, and remained abstinent. With the development of this theme an argument could be made for using post hypnotic suggestions to

not act upon this behaviour and to also use pseudo orientation in time to reinforce the suggestions to guard against relapse.



5.8 Fig.5 The influence of the locus of control over the developed themes

Relapse

P2's case is interesting in the fact that several factors were involved in his relapse. His comments of "I think with the benefit of hindsight I suppose I was really doing it for my wife more than me, I wasn't motivated to stop" would lead to questions being asked of his determination in making a serious attempt at cessation. On this point, there is research that shows a relation between smoking cessation following an intervention using hypnosis and self reported motivation to stop smoking (Perry et.al., 1979). Indeed they found that the relationship predicted the outcome for over two thirds (67.39%) of individuals treated with hypnosis. This, coupled with the fact that the findings were reproduced in a second study, could make the argument for more probing questions pre treatment to ascertain the level of commitment to stop smoking. Having said that, this point raises an ethical question of whether an individual should be challenged on their commitment to stop smoking if such questioning uncovers what appears to be a lack of motivation. If an individual were challenged then extreme tact would have to be used to guard against any rapport being eroded or even destroyed if they felt they are being labeled as dishonest in their answers. It could be said that lack of commitment could actually be unconscious resistance that the individual is completely unaware of at a conscious level. Indeed, on this point Siedman (1999), comments that 'hidden' resistance to quitting is "transformed adolescent defiance, now with adult empowerment". He goes further to say that a relapsed smoker with unconscious resistance enjoys each repeated failure as they see this as a 'triumph' over the therapist who is viewed as attacking what is defended as

enjoyment. P2's comments of "I resented the fact that I couldn't smoke, it was like my toy had been taken away from me, my support mechanism if you like has been taken away from me, to a certain extent part of my personality" are compatible with the above theory. The mention of the "toy being taken away" also agrees with the adolescent (or in this case even younger) defiance theory. In challenging this form of unconscious resistance then, not only does tact have to be used but it could be extremely difficult to detect in the first place and may only become apparent after relapse and subsequent questioning.

In addition to P2 holding an external LOC position which could have impacted de conditioning, another factor may have contributed to his relapse, the phenomenon of spontaneous recovery. This conclusion could be drawn given how he reverted immediately to smoking the same amount of cigarettes after exposure to the specific environmental cue of the golf course. Pavlov's (1927), experiments demonstrated spontaneous recovery where a dog that has undergone extinction salivates once again when food is paired with the ringing of the bell. Extinction (which Pavlov paradoxically argued is not forever) is a complex phenomenon and there is much dispute as to how it leads to the mechanisms that inhibit a conditioned response. In Bouton's (2004) review of the literature on Pavlovian conditioning and extinction he argues that original learning is not destroyed or unlearned, but rather when extinction occurs, the original conditioned stimuli, when paired with new alternatives now has two available meanings where the brain can choose between the most appropriate one. Contrasting this theory, research involving honeybees conditioned to associate an odour stimulus to a sucrose reward and then to extinction, came to a different conclusion. When re-exposing the bees to the stimulus and the reward, it was found that the spontaneous recovery was weakened over time and repeated exposures. They concluded that extinction actually destroys memory substrates (Sandoz & Delègue, 2004). The former theory that the original conditioned response has been saved somewhere and not destroyed, could lead to a new understanding of why some smokers return to smoking after just one cigarette. The question could be asked if the original conditioned response is reawakened after being paired once again with a cigarette thus leading to spontaneous recovery and the resultant smoking behaviour. Bouton (2004), makes the point that pairing the original conditioned stimulus with a new inhibitory one is highly dependent on the context for its activation or renewal. This renewal effect suggests that conditioned stimuli are capable of taking on ambiguous roles after extinction has occurred when the stimuli is experienced in a context that differs from which the extinction originally took place. It would appear that the conditioned stimuli acquire

an excitatory role during conditioning as opposed to an inhibitory one during extinction.

Hammersley (1992,) suggests one such solution to prevent against spontaneous recovery could be to administer cue exposure therapy at staged intervals of therapy. This approach it could be said may be beneficial to individuals who are highly reactive to cues who experience the phenomena of the renewal effect or those that have relapsed after previous cessation attempts in the past. The point could be made that in hypnosis direct suggestion could be employed to prevent the stimuli taking on a new role and reawakening the conditioned response. If P2's relapse was due to a need to dissociate as a coping mechanism then mindfulness training would have a role to play here if he sought future cessation treatment. This would serve as a coping mechanism without the enabler of the cigarette and without the need to dissociate. An RCT to explore the efficacy of mindfulness as a stop smoking intervention came to the conclusion that programs using mindfulness may show benefits greater than standard treatments such as the Freedom From Smoking technique (FFS) which use a mixture of psychological and pharmacological interventions (Brewer et al., 2011). In the study, 33 participants received mindfulness training and 32 the FFS treatment. The mindfulness group showed a greater reduction in cigarette smoking than the FFS group and maintained these treatment gains during the follow-up period 17 weeks later. As mentioned earlier in the literature review, there are parallels between mindfulness and hypnosis and so it could be said that this further strengthens the argument for hypnosis being used in future smoking cessation programmes. If mindfulness training enables the person to become present and so not seek to dissociate, then this further adds weight to argument that cigarettes are often used a coping mechanism through dissociation.

Limitations to the Research

It could be said that deep probing questions were somewhat lacking which may have uncovered any lack of commitment to cessation or uncovered an external LOC. Having said that, whether these issues should be broached or not, if uncovered raises ethical concerns.

Further criticism could be leveled at the fact that no measure of hypnotisability was used pre treatment. There is evidence that shows highly hypnotisable individuals have a higher abstinence rate when compared to low hypnotisables (Holyroyd 1991). However, all individuals in this study displayed hypnotic phenomena and so it can be said no participant could be considered a low hypnotisable. The qualitative design employed in this study allowed the use of a small sample number. Although rich data was extracted, a larger sample would perhaps prove beneficial in any future research.

Recommendations for Future Research

Further to the above, if a larger sample is to be used for statistical validity then it is recommended that an element of qualitative analysis is maintained and a possible mixed methods approach is used. The reason for this being that the data that was elicited from the interviews that led to the themes served to provide a rich insight into some of the possible mechanisms that may allow or prevent cessation. The overarching theme of the LOC control and its possible influence over the 4 remaining themes and consequently impacting the outcomes, could be taken into consideration before proceeding with any cessation program. One of the Health Locus of Control Scales could be utilised in this respect. An argument could be actually made here for separate research on the influence that the LOC may or may not have on smoking psychology, smoking behaviour and cessation attempts.

The theme of Residual Unconscious Behaviour may make the point for employing more than one session where this is dealt with if and when it arises. A multi session approach could also guard against spontaneous recovery. Alternatively, post hypnotic suggestions could be employed in the single session to guard against any behaviour that may be experienced or to prevent spontaneous recovery. It is recommended that the information provided pre treatment regarding the cue reactivity/ smoking relationship versus that of addiction, is maintained as a vital part of the approach and possibly expanded to include the Dissociation as a Coping Mechanism and Residual Unconscious Behaviour themes. These two themes may warrant further study in their own right in examining their relationship with smoking.

Summary

This study completed the research that was proposed in full without deviation and as far as can be ascertained is the first empirical study in the world to examine hypnosis in deconditioning cue reactivity in smokers. The data developed into an exposure of the difficulty of compartmentalising the treatment of smoking if treated solely as nicotine dependence whilst neglecting cue reactivity. All 5 themes show important aspects of smoking behaviour, its psychology and its treatment. The development of Generalised Personal Growth post treatment shows change at a deep level taking place and is worthy of further exploration. The development of Dissociation as a Coping Mechanism is an important theme in that it undermines the argument of nicotine as the underlying cause of smoking. The decoupling of the Residual Unconscious Behaviour from the cues shows how various components that maintain smoking behaviour can work autonomously. The Empowerment Through Education theme demonstrates that individuals do well to receive such information but also that they have a

choice in how they use that information. The LOC would impact on this last point and is shown to have varying degrees of influence over all of the remaining themes.

The fact that one participant relapsed was a determining factor in the development of the themes in that contrasting P2's experiences with the abstinent group led to insights that perhaps would not have been possible if the all four participants had remained abstinent. The fact that no meaningful data could be extracted pertaining to gender differences or the impact of the menstrual cycle would suggest that a greater sample number would be needed to test any hypothesis in this area.

Conclusion

Cue reactivity in smokers is shown throughout this research to be highly a complex process which as yet, is not fully understood. Multiple regions of the brain and the sensory organs, along with psychological relationships that impact one another, all combine to create cue reactivity but appear to be at some level, working independently. This study exposes the relationships' interactivity with the discovery of certain mechanisms that may not only influence the strength of the cue reactivity but also have an influence on the success of the

deconditioning and resulting extinction. As a result of this study, clinical hypnosis is shown to be ideally placed to treat the cue reactivity/smoking relationship and the psychological aspects that surround it. The original question of whether clinical hypnosis can decondition cue reactivity in smokers can be answered with a tentative yes, with the caveat being the small sample number. The data extracted and the subsequent themes that were developed could lead to far more focused, individualistic approaches to smoking cessation that could increase abstinence rates. The discovery of the importance of the LOC in smoking behaviour and quit attempts could predict relapse rates and so warrants further investigation. The further promotion of clinical hypnosis in treating the cue reactivity/smoking relationship would rely on, as far as possible, the standardisation of the techniques and reproducibility to allow for rigorous statistical analysis and validity. While future research is needed and recommended, the promotion of clinical hypnosis in this area can now be seen as a credible alternative or as an adjunct to treatments that focus purely on nicotine addiction alone and neglect to attenuate the cue reactivity and psychological aspects that this study shows are strong components in maintaining smoking behaviour.

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ONE-SESSION THERAPY: FAST NEW STANCE USING THE SLO-MO THREE-MINUTE TRANCE¹

MICHELE RITTERMAN

Since the late 1980s, I have taught and written that the world has changed in ways that our therapies must catch up to. The key issues today are in present-time, present-space and synchronicity. Space is about personal space and our reduced sense of freedom, especially within intimate relationships, manifested in the often-heard colloquialism, "I need some space." Synchronicity is about the need for many related things to happen at once in a concurrent and cooperative manner toward the same result for experiential change to occur. Time and the experience of time is perhaps most important in life and healing today. Changing how a person feels inside is not strong enough medicine. If there are no mirrored or corresponding changes in their interactional realities of love/work/etc., the social environment will tend to dominate. Therefore, affecting our use of experiential time and producing the proper stance for action in the world becomes paramount.

My primary work experience is in the clinical world, so I will speak to that here. How can we use special skills of our mind to maneuver through the world today? The big secret as I wrote in *The Tao of a Woman* (Ritterman, 2009) comes from a Chilean saying: *Despacito por las piedras*. "If you are in a big hurry, slow down." But we must know EXACTLY WHEN AND HOW to slow down while living in a machine-fast world. So let's see how THE SPEEDING UP OF SOCIAL TIME impacts the TIME PRESSURES upon our STATE OF MIND and UPON THE STANCES we take in our life.

I will explain how I learned that TIME sense is as important a variable in therapy as the past and memories, sensations and perceptions in general, and I will explain what TIME has to do with TRANCE STATES or STATES OF MIND and WHAT IT HAS TO DO with our problems and how we handle them. It pertains especially to the kind of therapy we are called upon to do today. I will discuss and illustrate, in single-session interventions and within those sessions, the significance of what I call THE SLOW-MO STATE and the three-minute trance. We'll begin with a beginning, then four explanatory and demonstrative parts, then a conclusion.

To Begin at a Beginning...

It was in the late 1980s that I realized that the human experience of time had changed forever and that psychological methods and most long-term therapies hadn't caught up with that change. This became clear to me in my own home, the first night I was to use a brand new microwave. Until that night, I had cooked a nice three-course dinner for my family of four and we had enjoyed meal time as family time no matter what else we all had done apart each day. That fateful night, my eight-year-old son was playing Nintendo in the living room and he asked me, "Mom, when will dinner be ready?" and I looked at this new dial on the microwave oven, and instead of saying "half an hour" as I always had, I said, "35 seconds"... and he said, "That's too long!" And I understood, even as I unplugged the bulky microwave and lugged it out into the backyard in protest--complete with the defrosting "healthy choice" meal inside and my son calling upstairs, "Dad, Dad, Mom's flipped!"--that my son was already living in a dimension of time that was different from what I had known and that if this new perception of time was not part of the understandings in my own life and my own field of psychotherapy, then the field of psychology was off the mark (Ritterman, 1995). It was apparent then that crude technological time was destroying the delicate rhythms of home time, leaving families like little orchestras in which each musician plays at a different beat, and all of them are out of sync. I later wrote "A Five-Part Poetic Induction in Favor of Human Decency (Countering the Hate Movements" in which I concluded that it was easy to hate and harm quickly, but that "Love and healing take time" (Ritterman, 1994, p. 481).

NOW, this issue of time is even more evident. Come with me in your mind to one week ago in my therapy office. A couple comes in, and no sooner had they settled into their places on the couch than each of them SIMULTANEOUSLY pulled out their cell phone from their jackets, as if drawing guns from their holsters. Each one had a saved text to read quickly about what had irritated them about the other the week before. Before they could read their texts to me, the husband hurried to say to his wife:

¹ Based on keynote speech, "The Three-Minute Trance to Adjust Your Stance and Avoid Medications," presented on November 18, 2011, at the annual convention of the Mexican Psychological Association, held in Puebla, Mexico.

“Listen, I don’t like how my mom is treating you on FACEBOOK. I want you to know that it is OK with me if you UNFRIEND my mother”—a many years long relationship between daughter-in-law and mother-in-law, to be dismantled with the click of a box on a screen!

Today, in this world of nanoseconds, economic pressures and social and political upheaval, our longer slower therapies do not always address the URGENCIES our clients feel in the moment. For all of us TIME, TIMING and our SENSE OF TIME is NOW. This is perhaps the central issue in determining the therapies we need.

*Perhaps we have learned to swim in the river,
but suddenly we come to a rapids and we have no
idea how to handle it,
or a sink hole appears,
and we have no idea
how to be in the moment with this new challenge.
And this new time urgency
that began as minds competing with technology,
and leaves us open to quick fixes
like the dream of the magic pill,
rather than what we need
which is new skill
at making quick shifts:
Quick but wholistic shifts inside
and quick but informed interactional shifts.*

It is my dream that psychologists and some psychiatrists, even working individual-by-individual, can help the people of the world to deal with the pressures of time without jumping without just cause to medications, as if there is something defective about our brains. What I call “brain-blame” ought to be our last recourse. First let us create a more human-friendly society, and when we can’t, let’s help people use their creativity to respond to the madness outside of themselves. This means having tools to help our clients be present in this moment. Every day in my office I watch the beauty of minds, like flowers with time-lapse photography, opening.

PART ONE: TRANCE AND STANCE OR THE ‘SLO-MO’ THREE-MINUTE TRANCE

I will tell you how I first learned about the idea for this tool and I will demonstrate it with you the reader, and I will show how I used this tool with several clients. I call this tool or technique my Prozac without addiction or side effects (such as shrinking of the brain organ). It is designed to deal with the present fast pace of life, both internally and externally and it is a friend of one-session intervention and therapy to help people get UNSTUCK FAST.

It was 1975, and I was a 28-year-old Psychology student, starting to conduct my four-year Ph.D. dissertation research, which was one of the first controlled studies comparing a new drug, just out, called Ritalin, with placebo and family therapy for a group of boys now identified with a vaguely defined syndrome that was hypothesized without evidence-based research to make young boys jumpy in their classrooms. I was doing this as a student of Jay Haley, Salvador Minuchin, and Bernice Rosman at Philadelphia Child Guidance Clinic and Children’s Hospital of Philadelphia. A young psychiatrist from my clinic came back with a first professionally produced video (Erickson & Lustig, 1975) of the father of hypnotherapy, Dr. Milton Erickson, to show to Dr. Salvador Minu-chin, one of the fathers of family systems therapy. Sal, who was my boss and mentor, invited me into this private viewing. And, as they say, the rest is history...

Dr. Erickson’s subject in the video was Mondy, a beautiful African-American woman in her twenties. She reported to Dr. Erickson that she became overwhelmed entering social situations, her heart racing, her mind spinning. (If Mondy were seen by most North American psychiatrists today, she would probably be given a ten-minute interview without any blood tests or x-rays, and she would leave the office with a medical diagnosis as if she were part of some diseased cohort and suffered certain biochemical brain deficits needing to be medicated. Mondy’s medical records would state that she suffered Social Anxiety Disorder and she would likely be prescribed Paxil or Zoloft or Celexa— which is like assuming fevers are caused by taking too little aspirin.)

Dr. Erickson was an M.D. psychiatrist, but one who was very cautious in the prescription of medications because he preferred to work with the whole mind and body. He was also an M.S. psychologist with a pragmatic problem-solving approach to human difficulties. Let’s see how he treated this problem with Mondy in one session, in the video I watched with Sal.

He asked her EXACTLY what situations made HER feel anxious? She got nervous when she had to walk into a room with other people in it. She became self-conscious.

He went deeper and deeper into the specifics of this state for her: the unique details of HER anxiety. In short, he slowed time down with her, in their rapport, in order to be invited to rapidly enter into the world of THIS MOMENT BEFORE SHE ENTERS A GROUP, THE WORLD OF THAT MOMENT FOR HER. To do so, he used trance to help her turn to the channels in her mind that could help to explore what exactly went on inside of her mind, in order to connect with her emotionally so that he could establish A RAPID AND POWERFUL THERAPEUTIC RELATIONSHIP with Mondy, and to identify what was going on inside of her that was then seemingly automatically producing AN AGITATED STANCE in

certain social situations. THIS PARTICULAR ANXIETY: He did not look at her complaint as if all people who feel anxiousness suffer the same underlying unitary defect. He pondered: What's THIS anxiety making her feel, think and do that isn't working for her NOW? IN THIS MOMENT? (Just as Walt Whitman called his book of poems Leaves of Grass because every leaf of grass is a different color of green.) He maintained a deep emotional rapport throughout as he gathered the unique details to identify two things:

- (1) HER CURRENT TRANCE and
- (2) THE RESULTING (maladaptive) STANCE

He used the trance state TO HELP HER BRING HIM INSIDE OF HER MIND. When she revisited the feeling she got approaching a group, he learned quickly that she was showing herself many disturbing memories like old T.V. shows in her mind. The worst old program was a beating she got with a hairbrush by her mother for doing something naughty when she was a child. Erickson had her relive and memorize that most terrible experience of humiliation and shame that was unconsciously triggered for her when she thought of entering a group. He learned that JUST BEFORE entering a group, she imagined the group as big and powerful like her mother was, and herself, small and beaten, as a child. She showed physical changes, such as an altered rate of respiration, she grimaced and winced and her body tightened and contracted during the reliving of the beatings.

Now Erickson KNEW what was triggering HER social anxiety. Not someone else's anxiety, as if it were just a brain problem with no mental or emotional content. Now, still in THE WORLD OF THE MOMENT SHE ENTERS INTO BEFORE GOING INTO A GROUP, he then--only minutes into this single session--had her turn to a DIFFERENT CHANNEL in her OWN mind where she remembered herself feeling quite the opposite, the brain channel of her happy times. She remembered playing with abandon chasing ducks. She was the big powerful force and she was laughing and dancing and clapping her hands as they were flapping their wings and hopping about to escape her. She was playing with abandon, without self-consciousness.

During the reliving of these memories, she smiled, opening her eyes, still in trance, her face radiant with a child's mischief and delight. When she did, he beamed approvingly at her, giving her a heavy dose

of unconditional love to look at and to use to project onto groups. STILL IN THE MOMENT BEFORE SHE WOULD NORMALLY BECOME ANXIOUS, he had her go back and forth from one state to another: From the shameful and humiliated state of Mommy's bad girl taking a painful beating with the brush again and again, to the happy child playing with abandon, chasing ducks. And he taught her to move quickly to the good one.

Then he taught her how to take that beating, the imagined disapproval of others, that everyone was looking at her with disapproval and judgment, like her mother had done and have that trigger her to switch to her happy self and instead project onto the faces of the people in the group a loving look. The kind of look people might give to a happy child playing with abandon. The kind of look he was giving to her. They were playing with her usual trance and stance followed automatically by her new trance and stance. He trained her to open her eyes, feel triggered with upset, close her eyes and literally in the blink of an eye, to add into her old natural sequence a feeling of playing with abandon, a new internal and external trance, a projection of love. He taught her a skill instead of giving her a pill.

I don't have long-term follow-up on Mondy, but after watching this video, at age 28, I decided to work personally and directly with Erickson for the next five plus years, until he died in 1980. (See Ritterman, 2013, for a further account of my time with Erickson.) I knew I'd witnessed something I was not being taught in graduate school! Erickson's one-session therapy with Mondy was and remains the single best piece of clinical work I've ever witnessed. All of this went into my own unconscious mind, where I would be developing my one-session interventions, and then the tool of the three-minute trance.

Although I finished my four-year research on Ritalin, I had already concluded that jumpy little boys needed to learn how to concentrate. They needed skills not pills². I began to understand that instead of a diagnosis and a hypothesis of underlying brain damage, which was becoming the model of choice for the American Psychiatric Association and was pressuring the field of psychology as well, Erickson gave Mondy the tools to discover THE AUTOMATIC TRANCE she was entering unconsciously in social situations, and to switch to the TRANCE STATE AND STANCE needed to spontaneously handle social situations. He offered her a way to be present in the moment and to give this moment a chance to be different from what she'd anticipated it would be.

² For more on the overemphasis of neuropsychiatry and medication at the expense of social and psychological factors with "ADD" clients, see Mate (1999). page10 image13376

PART TWO: THE VALUE OF TRAINING IN TRANCE AND STANCE: SUBJECTIVE TIME AND THE SLO-MO BRAIN.

For more on the overemphasis of neuropsychiatry and medication at the expense of social and psychological factors with "ADD" clients, see Mate (1999).

Even when our clients take yoga classes, study meditation, or learn to use trance states, they do not know how TO BRING THOSE PAUSES PRECISELY INTO the challenging sequences of automatic responses and interactions specific to their own fast-paced daily lives. If they cannot ACT or TAKE THE BEST STANCE in the moment, automatically, drawing on these learnings, using their meditations and trances at the moment of need, they will be chronically overwhelmed and break down one way or another at their own point of biophysiological fragility. For the past 36 years, I have developed these methods I first observed in Erickson's work with Mondy, and have used them with considerable success with a variety of clients:

- *survivors of Hurricane Katrina in New Orleans, and of domestic violence;
- *a wife depressed after her husband left her;
- *a breadwinner denied the life-long pension promised by his job;
- *a couple in which the wife's drug addiction is ravaging the whole family;
- *a little boy who becomes wild and out of control at school;
- *a man who has panic attacks when he goes out dancing with beautiful women.

I also use Slo-Mo in my own life to learn ever more about being present here, now, in this moment we share.

I assume that most of us would like to try simpler possibilities first, before we refer the students we see or our clients or ourselves to the psychiatrist for the magic pill--or even for longer-term thereapies. Let's say we ourselves would like to live more in the moment and be able to have a wider range of responses available to us than the ones we usually use. So, HOW did Erickson accomplish this important practice for Mondy, something she will need to do again and again and again, until it is automatic, just like tai chi, or sun salutation in yoga, or practicing the piano, or learning to sing a new song in a new way? How did he help Mondy SHIFT from a bad trance and an unhelpful stance to a good trance and a helpful stance? But first, I'd like you to experience subjective time for a few minutes of clock time.

PART THREE: EXPERIENCING SUBJECTIVE TIME AND SLOW-MO

I have talked about entering into the world of this moment. Now I will tell you how to do it. Remember, though, that just as important as this shift is that people "wake up" and "do something different" afterward in their social context.

Erickson only wrote half of one book, *Time Distortion in Hypnosis: An Experimental and Clinical Investigation* (Cooper & Erickson, 1959/2002). The rest were his articles or books others wrote about his work. This one book, however, was about subjective time or experiential time. I see this work as the most important thing Erickson understood. Erickson had his finger on the pulse of how people have control over themselves and how they lose control over themselves. He worked with what I will call SLOW-MO. SLOW-MO comes into play in shock. Many people have experienced SLOWMO in an upsetting experience, like a car accident. It is a capacity of mind that makes us REALLY BE PRESENT and to remember and observe in an incredibly detailed way.

I call this SLOW-MO. Subjective time. When EXPERIENCED TIME DOES NOT MATCH THE CLOCK TIME. THIS BECOMES A SKILL WE CAN USE TO DEAL WITH THE RUSH OF TIME IN MANY WAYS. It happens in a heartbeat. IN THE BLINKING OF AN EYE. In a specific instant. In a moment, time opens up like a huge chasm for a person and there one's whole sense of life can be up for grabs. On the negative, this opening of time can happen when one is sad, and it can feel like "forever." I know of a young woman, a teenager, a friend of a client of mine, who drank too much at her San Francisco condo, and in a moment shifted from happy-party mode to deeply despondent and jumped off her deck to her death! I also worked with a young woman who, in trance, revealed how she had responded to a post-hypnotic suggestion she had not known she had received and thus saved herself. She had many years earlier taken one self-defense class for women and a wise teacher said: "If you are ever being attacked from behind, when you need this method, you will remember it." Right before she came to see me, a would-be rapist had entered her apartment. He forced her at gunpoint into her bedroom. The rest happened without her awareness, an automatic seeming stance: Looking in a mirror out of the corner of her eye, she saw the assailant behind her, momentarily distracted as he undid his pants. And automatically, in the blink of an eye, she recalled the lesson, scraped his shin with her shoe, elbowed him in the ribs and punched him in the head and escaped! So let's think how this works. The mind is like cable television. There are many channels and you can turn on one or the other of the channels. Hypnosis depends upon this activation of several different channels within the programming of what the

Western world calls the “unconscious mind.” In the method I am describing, we want to pinpoint the moments that make a person automatically turn on a certain channel in their mind, a certain state that I am calling a trance state, and from that place that they automatically or unconsciously adopt a certain stance that does not work for them--such as Mondy taking a fearful stance approaching new groups as opposed to a stance of curiosity or playful anticipation.

Before I describe six cases of the three-minute trance or the Slow-Mo Mind in single-session therapies, I would like to demonstrate three minutes of clock time versus three minutes of slo-mo time. I want to take 3-6 minutes of egg-timer time³ to show you experientially how dramatically our minds can change states into a positive state. To have the effect of a positive meditational/ hypnotic experience, right within the flow of your life right now, allow our 3-6 minutes, one or two turns of an egg-timer, to help you right here and now to feel a bit of what it means to shift into an alternative state of mind. ³ Here is another example of how the times they are a’changing! An “egg timer” is an “oldschool” analogic hour-glass device a cook uses, turned upside down with sand running through it, to measure how long to boil an egg. Nowadays modern cooks might just set their Smart Phone alarm for 3 minutes! When I teach, I hand out egg-timers to the students to take home as a post-hypnotic cue for themselves after our class has ended.

Slo-mo is where our brain has the most play to relax and let the mind shift. **FIRST WE MUST STOP THE CLOCK.** Please consider these two verses from The Tao of a Woman (Ritterman, 2009, p.139), designed to help stop the clock and enter into the slow-mo mind, where we can practice shifting stance quickly.

Your Mind⁴

Just as your respiratory system
does the best it can
to take in the air that is useful to you
and let go what is not,
and just as your digestive system
does the best it can
to take in what is digestible from what you eat
and eliminate when is not,
so also your mind has the right to take in what is
helpful to you and let go what is not, with each breath

Is some heavy energy spinning your way? Observe its course. Step aside. Allow yourself now to attain the calm that is helpful (but not essential) in searching your brain for the memories and experiences most useful to you in this moment.

To Attain Calm⁵

Breathe in, and then exhale slowly and deeply. Remind yourself: “I have done what I can for the moment about everything outside of me. [Breathe in. Looooong exhale. That’s right. Now let yourself know:] I have all the time I need in the time that I have.”

As your body naturally inhales again, daydream. Watch how the clouds change shape.

Here alone with me while you are reading this suggestion, this wish from me to you, as your lengthened exhales continue, you may have a moment when you feel you do not belong, you are not as smart as someone else, or your job is not as good, or you do not feel as special or informed or qualified....From that place, from that precise moment, you may have a series of memories you don’t like or recognize a tendency to behave in a way you do not like. These are a default setting in your mind. But your unconscious mind knows the way to shift to another state! I want you to take two minutes of clock time to relive a time you felt unconditionally loved for who you are, more than for your job or your education or your status, loved for your very being. Appreciated. In one moment of your life. Allow yourself to enter into that place in which you felt totally acceptable and worthy just being who you are. Memorize that moment. Were there the smells of food cooking or flowers, the sounds of music or ocean, was some person or favorite dog or cat looking deep into your eyes, was the temperature warm or cool? Feel that moment in which you knew in the core of your being that you were as valuable on this planet as anyone. Your Unconscious Mind can continue this search for you at ease inside your skin, the trillions of cells inside the galaxy of your being shining inside you, and you can memorize these feelings just like you did the letters of the alphabet, learning what gets dotted and what gets crossed, shaping your way into your future. And through the many years and channels of your mind when you brush your teeth tonight or when you wake up tomorrow and brush your teeth, and throughout the rest of your life, so that you will spontaneously feel appreciated. And you can unconsciously shift from feeling less-then to feeling good-enough. Shift from the road that leads you backward to sorrow to the track that leads you forward to well-being and good dreams, and the stance you need for this moment. What is inside of you is most important. And you can then work to actualize your inner state in the outer world, even without conscious intention.

³ Here is another example of how the times they are a’changing! An “egg timer” is an “old- school” analogic hour-glass device a cook uses, turned upside down with sand running through it, to measure how long to boil an egg. Nowadays modern cooks might just set their Smart Phone alarm for 3 minutes! When I teach, I hand out egg-timers to the students to take home as a post-hypnotic cue for themselves after our class has ended.

⁴ From M. Ritterman (2009). The Tao of a Woman. Berkeley, CA: Skipping Stones Editions (p. 139). ©Michele Ritterman 2009. Used with permission.

⁵ From M. Ritterman (2009), The Tao of a Woman. Berkeley, CA: Skipping Stones Editions (p. 135). ©Michele Ritterman 2009. Used with permission.

PART FOUR: SIX SINGLE-SESSION CLINICAL EXAMPLES OF THE THREEMINUTE TRANCE

Here are six one-session client vignettes in which I used Slow-Mo Trance and Stance tools.

Case #1. A handsome young Asian-American man in his late thirties came to me in a deep depression. He'd gone to the family psychiatrist who saw him for ten minutes and prescribed anti-depressants and then he heard about me and decided to work with me instead.

My goal was to find out what was making him sad. He reported that he just couldn't seem to do anything. He barely could get out of bed in the morning. He'd always been a happy guy. "What was the immediate cause?" I asked, hoping that he would STOP CLOCK TIME AND BEGIN TO LET ME INTO HIS MIND. His beautiful young wife, the love of his life, had just been diagnosed with terminal cancer. He could understand her being paralyzed with sorrow, but why him? He was supposed to take care of her. She was the one with the disease. His sorrow was compounded with shame.

Clearly all of this would be cause enough for depression. But I wanted to know about HIS DEPRESSION, to go inside of the moment in his mind where he got lost and incompetence became his stance. So we used STOP THE CLOCK AND GO INTO SUBJECTIVE TIME. We can NEVER KNOW WHAT WE MAY FIND WHEN WE USE SLOW-MO TO ZOOM INSIDE A PERSON.

In trance, he reported that what was hard for him really was he felt helpless. He felt that once she died he could not take care of himself. He couldn't go on without her. This report was different and deeper, underlying the sorrow and shame. Now we had the problem identified. The so-called depression (the unrelenting streaming of sad shows on that cable channel of his mind) was on top of his deeper fear channel in which he saw programs in which he was unable to take care of himself.

Using the SLOW-MO time trance induction, I asked him to search for a moment in his life when he had felt he could take care of himself. He recalled "THE COLOR BLUE." "BLUE?" What could that mean? I asked that he look closer. "BLUE WHAT?" (If I asked each reader what does the color blue bring to your mind, we would all have a different answer: sky blue nail polish, my dad's favorite shirt, the color of a sailboat....As therapists we might think: "Oh, blue, that's sad, that's the blues" but don't go there--see what the client thinks of as "blue.")

"Ah, a blue glass pitcher," he said.

"WHERE?" I asked.

In the refrigerator of his childhood home. At first he and I were both surprised. When I asked him to tell

me more about the blue glass pitcher, he revealed that he was four years old and the fridge was very big and on a shelf, his mother had left him the blue bottle filled with milk and a box of cereal, because he had said he was a big boy and he could wake up and make breakfast for himself. It is Saturday morning. Everyone is asleep but him. He goes to the fridge and sees the big blue glass milk pitcher and he knows he can make his own breakfast and he feels proud and competent. This memory alone did the job for him. The entire slow-mo experience lasted for about ten minutes. He required one session. No meds, ever. And he got the tool that he needed.

So let's track what happened. He imagines his wife is gone. That is where his anxiety starts. Not in the caretaking. He is afraid he can't go on. He is powerless, helpless without her. He is regressed from the current pain back to before the age of 4. We introduce a rest as in music, a pause, and help him shift to a different mental state based on his own experiences that are on a different "channel" of his mind--his own memory of competence. He comes up with the medicine that is the antidote. And what do you think it is? A blue glass pitcher of milk! This memory allows him to alter his stance toward his situation.

Case #2. A couple in a long-term relationship comes in complaining about a many-years-long problem with their sex life, but they are shy to discuss it. I tell them we can talk about whatever they like. (Other subjects will automatically metaphorically address this underlying issue.) She says she baked him a platter of Christmas cookies and there were many varieties. She'd prepared all day. He walked in the door, saw the platter, raced over with enthusiasm and began downing some of them. After working all afternoon to prepare this treat for him, she felt enraged and wanted "to kill him" when he grabbed the cookies!

Next step in the faster-than-the-speed-of-light reaction sequence that happens with them: He felt absolutely baffled. What did she want him to do? Ignore the gorgeous cookies? Did she not want HIM to be the one to eat them? Was he not GOOD ENOUGH for the cookies?

Looking at the man and woman, we could see how she might call him self-centered and he might accuse her of offering and then withholding. But what if we just look at the hypnotic sequence? What is making her suggestion to him unclear? We stopped the clock, using the slow-mo, three minute trance to suggest the wife let the husband know AT JUST THE RIGHT MOMENT what she really wants, which she reveals calmly, is to hear how much she would like him to ADMIRE her cookies. What if the husband finds within himself the pause button that lets him locate trust that the wife does want him to enjoy the cookies, but that she needs him TO SLOW DOWN, APPROACH MORE SLOWLY and ADMIRE THE

COOKIES before he touches them? Different way of thinking and observing--think about it!
This couple went home and made love after the cookie story three-minute trance provided a sequence of delicious interactions.

Case #3. I had a single session in front of a large group with a country-and-western singer who had never recovered from over-dosing on the stage. In a three-minute trance, I helped him remember before he had his overdose so vividly that he could wake up and face the audience and feel fully comfortable. Then flip into the post-drug memory, in which with open eyes he stared in panic at the audience, frozen like a statue, and then, close his eyes, opening them again to the comfortable space of singing before his overdose. He learned quickly how to move out of the debilitating state and back into his channel of thousands of moments when he felt confident and connected to both his guitar and the audience.

Case #4. I saw a man who'd married a woman who'd not resolved her sexual conflicts after prolonged incest with her father and hadn't wanted a marriage with sex. After her therapy, she wanted sex. He then came in for a single session. He had no recollections of early childhood affection. No happy physical memories. In the three-minute trance, he recalled floating through the air on giant hands. I think of the Netter (2006) books of medical drawings of the body. There is an illustration of the representation in the brain of information from the hands and feet alone. They take up much of the brain. I realized that even a single memory or sensation can occupy our brain for better or worse and carry much weight. In the negative, an obsessional thought can rule our lives! In the positive, a single memory can be used to transform a person's experience of him/herself. From this single memory of being held as a baby by his mother, he recalled that he'd received much maternal affection until he was five and became a "big boy," and that his mother's mother had disapproved of coddling a "big boy." From these memories that came out like scarves from the magician's sleeves, he was able to remember his body and move rapidly to enjoying his manhood and sexuality.

Case #5. I worked with a mother and daughter. For years the daughter had harbored hatred of the mother for an affair she had over many years with a man in another state. In this one session, I helped them stop the clock, and let the mother reveal her husband's--the girl's father's--lifetime of infidelities, her hidden desire to protect the family and preserve it, by having a supplementary affair of her own, and helped the daughter identify her own longing to be number one for her mother.

They had then identified within themselves all the experiential feelings needed from the various channels of their minds, to create a different stance toward one another. The family continued on a different footing all the way through to the death of the father, who was considerably older than the mother, five years later. They did this without the need for other intervention.

Case #6. In Puebla, Mexico in November, 2011, I worked therapeutically (speaking in Spanish) with a woman who had only a week before experienced a bus hijacking. I was ill at that time, and actually had been resting in bed at the home of a therapist who'd offered to care for me before I left town. So the client and I had under an hour to accomplish anything before I needed to return to sleeping.

My years of experience working with torture and trauma before the diagnosis of PTSD had been created taught me that the closer in time the treatment to the traumatic assault, usually the more effective. She had already talked to many friends about it, but no one had stopped the clock, helped her enter into what I now call Slow-Mo, and found out what bothered her?

What bothered her was not that the driver could have been in on it, not that a gun was held to her neck, not that they stole her cell phone. She had digested and eliminated those poisons.

What bothered her was that she heard an older woman behind her on the bus cry and she couldn't help her because she had to sit statue-still with her head down. She knew that there were two children up front and she feared that they would cry out and get killed. As soon as the hijackers left the bus with the passengers' money and cell phones, she was the person who took charge of the situation and got everyone calmed down.

The undigested part of the trauma, obtained only by my withholding the idea that I understood or could guess what bothered her, and by stopping the clock to enter into her meticulous recounting of the micro-moments of the event, revealed that this woman felt bad that she couldn't be who she is, during the assault. In half an hour of talking with me, she was a bit improved and less depersonalized. As she finally cried with release, she told me, "You came inside. You got it. You helped me get to the real injury underneath the obvious." I also read her a poem from *El Tao de Una Mujer* (Ritterman, 2009; translated beautifully into Spanish by Leandro Wolfson):

My Teacher's Last Gift⁶

My teacher received a visit
From a very old Japanese man.
The visitor told my teacher that he saw his life
As he stood on the top of a mountain

⁶ From M. Ritterman (2009), *The Tao of a Woman*. Berkeley, CA: Skipping Stones Editions (p. 157). ©Michele Ritterman 2009. Used with permission.

Looking down over the climb that he had taken.
The jagged rocks and sharp weeds
That cut him along the ascent
Had become overgrown with moss
And wildflowers.

CONCLUSION

When I met Erickson in my late twenties, he said that I was too young and too pretty to be taken seriously and that I needed to wait until my hair was as white as his to express my opinions. Well, if it weren't for my hairdresser, Frank, clearly my time has come! At this point in my life, I am old enough to say that my life's work has been about the power of human interactions to heal people mentally and emotionally or to make them sick or even to die, as in voodoo. I have studied human interaction at many levels, from family interactions that drive children or members of a couple mad in my book *Using Hypnosis in Family Therapy* (1983/2005); to social forces and torture by the state in my book *Hope Under Siege: Terror and Family Support in Chile* (1991); to spir-itual levels of interaction among people, *In The Tao of a Woman* (2009).

We need to help clients learn to bring their trance states, their SLO-MO, their rest notes, right in-to the ongoing interactions in their lives, right into the environments that would otherwise trigger them FASTER THAN THOUGHT to get stressed and overwhelmed. The martial arts teach us that we need to know many stances in life that we can move to quickly to handle any challenge at hand. We as therapists now need to teach our clients how to UTILIZE their SLOW-MO states to attain the PROPER STANCE for any one moment. This is a tall order. But it is as necessary as understanding their early childhood relationships or processing their feelings. If they cannot ACT on these learnings, they will be chronically stressed and overwhelmed and may break down one way or another.

You might want to propose that they become non-violent urban warriors, people who have the skills necessary to stand up to the challenges of this moment to save their own minds and hearts, and to heal with unconditional love. So I close saying to you: OCCUPY YOUR MIND. IT IS YOUR FINAL AND OWN TERRITORY. DON'T LET ANYONE CONQUER YOUR MIND.

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MIND-BODY TRANSFORMATIONS THERAPY (MBT-T) A SINGLE CASE STUDY OF TRAUMA AND REHABILITATION

THE PSYCHOSOCIAL AND CULTURAL EPIGENOMIC THEORY, RESEARCH AND PRACTICE OF
THE NEW NEUROSCIENCE OF PSYCHOTHERAPY AND TRANSLATIONAL MEDICINE

JANE MORTIMER, KATHRYN ROSSI AND ERNEST ROSSI

Abstract

This single case study of trauma and rehabilitation explores a new evidence-based psychotherapeutic protocol of Mind-Body Transformations Therapy (MBT-T). The psychological theory, research and practice of MBT-T is reviewed and illustrated with the transcript of a single 90 minute session of psychotherapy with a 59 year old professional woman who experienced a post-traumatic stress disorder (PTSD) initiated during her adolescence. Replication of this study with large clinical populations and controls is now required to confirm how the MBT-T protocol could supplement the traditional cognitive-behavioral dynamics of psychotherapy for ameliorating stress-related disorders with the neuroscience of the 4-stage creative cycle. We first demonstrate an emerging psychosocial theory for the rapid facilitation of therapeutic RNA/DNA mind-body transformations. We then generalize this demonstration with the MBT-T Self-Reporting Response Form for collecting group data for documenting a new psychosocial epigenomics protocol for applications to translational medicine in our supplementary materials.

Key Words: *Activity dependent gene expression, bioinformatics, consciousness, epigenomic psychosocial theory, 4-stage creative cycle, mind-body communication, psychotherapy, rehabilitation, RNA/DNA molecular dynamics, neuroscience, translational medicine.*

Introduction

This single case study of the rehabilitation of a post-traumatic stress disorder illustrates the psychological theory, research and practice of a new psychosocial and cultural approach to the epigenomics of psychotherapy and rehabilitation suitable for large groups. Epigenomics is a scientific approach for exploring the interaction of nature and nurture: how genes interact with the environment

to modulate behavior, cognition and consciousness (Bell & Robertson, 2011; Robinson, Fernald & Clayton, 2008; Feinberg, 2007). Recent research in neuroscience, clinical and social psychology documents how complex psychosocial and cultural epigenomic mechanisms modulate gene expression without altering the DNA code (Cole et al, 2005, 2007, 2009, 2010, & 2011). The Mind-Body Transformations Therapy (MBT-T) protocol focuses on a special class of epigenomic genes that are often described as “activity or experience-dependent genes,” which can be turned on (activated) or off (suppressed) by signals from the physical and psychosocial environment that may be appropriate applications to translational medicine (Rossi, 1986, 1993, 2002, 2004, 2007, 2012; Rossi & Rossi, 2013; Lloyd & Rossi, 1992, 2008).

Sources of the psychosocial theory, research and practice of Mind-Body Transformations Therapy (MBT-T)

The theory, research and practice of Mind-Body Transformations Therapy (MBT-T) originated from the seminal studies of Milton H Erickson's therapeutic hypnosis and medical rehabilitation by Ernest Rossi in the 1970s (Rossi, Erickson-Klein & Rossi, 2008-2014). In his neuroscience update of Erickson's innovative cognitive-behavioural approaches to psychotherapy Rossi (Rossi, 2012, 2013; Rossi & Rossi, 2013) outlined how modern RNA/DNA microarray technology makes it possible to measure the expression levels of many thousands of genes simultaneously. This evidence-based research in psychosocial epigenomics has become a new standard in personalized and translational medicine (Eisen et al, 1998). Current research documents the use of RNA/DNA microarrays for assessing psychotherapeutic responses via a variety of top-down therapeutic protocols that were originally developed by many diverse cultural, historical and spiritual traditions of mind-body healing. These include the relaxation

response (Dusek et al, 2008), therapeutic hypnosis (Lichtenberg et al, 2000, 2004; Rossi, 2012; Rossi & Rossi, 2013), meditation (Creswell et al, 2012) social regulation of gene expression (Cole, 2009, Cole et al, 2005, 2007, 2010, 2011), emotional freedom techniques (Church et al, 2012; Yount et al, 2013), the therapeutic placebo (Sliwinski & Elkins, 2013) and yoga (Lavretsky et al, 2013) to facilitate optimal states of human consciousness as well as the amelioration of stress related dysfunctions (Unternaehrer et al, 2012).

This single case study explores the hypothesis that such top-down therapeutic protocols epitomized by the Mind-Body Transformations Therapy (MBT-T) protocol could become the foundation of a more general theory of mind-body communication, meditation, psychotherapy and rehabilitation (Rossi, 2002, Rossi et al, 2008, Atkinson et al, 2010). A full description of the administration and scoring of the new top-down MBT-T protocol (originally named the "Creative Psychosocial Genomic Healing Experience, CPGHE) is freely available (Rossi, 2012). Confirmation of the results of this single case study could update the cognitive-behavioral efficacy of evidence-based translational medicine and psychotherapy recommended as a standard of clinical excellence by Insel (2009, 2010, & 2012), director of National Institute of Mental Health. In this paper we will first demonstrate the MBT-T with an individual and then outline how the MBT-T protocol can be used with groups.

A single 90-120 minute MBT-T demonstration of PTSD rehabilitation with one subject

Mind-body communication and transformations utilizes the normal circadian and 90-120 minute Basic Rest-Activity Cyclic (BRAC). Researchers are currently using time-series gene expression data to facilitate how mind-body communication could facilitate health and recovery from trauma and stress related problems (Atkinson, et al, 2010) Bar-Joseph et al, 2012; Lloyd & Rossi, 1992, 2008, Rossi, et al, 2008; Qian et al, 2013). This single 90-120 minute demonstration of MBT-T explores and illustrates a variety of interesting and insightful approaches for modeling Mind-Body Transformations Therapy on all levels from mind to gene with the 4-stage creative cycle.

**STAGE 1 of the Creative Cycle:
Focusing of attention and positive expectancy with hand balancing.**

Rossi: May I demonstrate a gentle balance with your hand to help you learn how to deal with your own issues in your own way?

[Turns toward the audience] Milton H Erickson, MD would reach out with his hand and just lightly touch the wrist (Ernest Rossi touches the underside of Celeste's forearm and wrist. I then move my hand gently upward and across Celeste's forearm to her

wrist as I lift it. But my touch is so light that the client gets the tactile cues to lift her hand herself (See Fig.1).

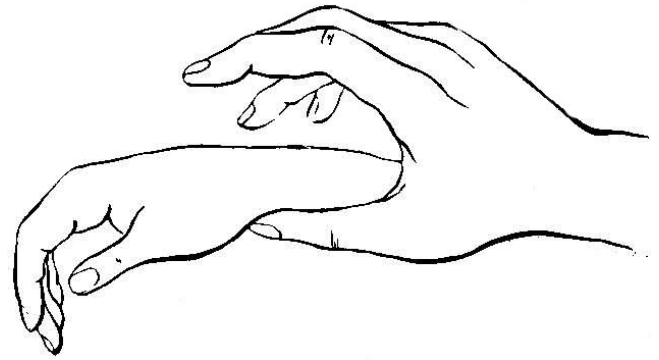


Figure 1. Hand, thumb and finger placement for facilitating inner balance, sensitivity and the novelty-neurogenesis effect to optimize the subject's 4-stage creative cycle of mind-body awareness and problem solving (Rossi, Erickson-Klein Rossi, 2014).

Rossi: That's right, yes! Allowing that ... I am not grabbing her hand roughly but moving my hand very gently ... and I am not telling you to put it down. [Turns toward the audience] And so you see Celeste's hand remains suspended in midair. This is what Erickson called a "therapeutic catalepsy," which is a position of balanced muscle tonicity and receptivity that is comfortable for the client. Erickson believed that this kind of balanced muscle tonicity led to what the modern neuroscience calls focused attention and a positive expectancy that something good is going to happen. It is the novelty of the surprising touch that activates the psychosocial epigenomic dynamics of the "novelty-numinosum-neurogenesis effect" (NNNE), to optimize the 4-stage creative cycle and problem solving (Rossi, 2002) summarized in Table 1.

Qualia of Human Experience that Activate The Novelty-Numinosum-Neurogenesis Effect	
Neuroscience (Molecular Science)	Numinosum (Spiritual Practice)
• Activity	• Fascinating
• Novelty	• Mysterious
• Enrichment	• Tremendous
Kempermann, 2006	Otto, 1923
Ribeiro et al., 2008	Jung, 1958

Table 1. An integration of research consistent with the hypothesis that both neuroscience and traditional healing rituals of many cultures activate the NNNE to facilitate rehabilitation of PTSD from mind to genes and molecules (proteins, neurotransmitters, hormones, psycho-neuro-immune factors, etc. (Rossi, 2012, pg. 130).

The patient's private thoughts: *Wow, I would like to open my mind but my arm does not feel comfortable so I will move my shoulder back a bit to be supported by the chair. It is apparently important to be comfortable and balanced in this theory.*

By facilitating this gentle hand balancing Rossi subtly focuses the client inward to experience focused attention with positive expectations. This is what Erickson would call "shifting the burden of effective responsibility of psychotherapy onto the subject" (Erickson, 1964, in Rossi, Erickson-Klein Rossi, 2008 Vol. 3, pgs. 67-71). The typical client begins with the attitude, "Oh, Doctor, please help me." Erickson's initial response was to immediately shift the burden of creative inner work with focused attention and positive therapeutic expectation from the doctor to the patient so that she becomes active and receptive in expecting that something good will happen with her new attitude of self-help!

This therapeutic self-help attitude is an important but little recognized psychosocial epigenomic secret of Milton H Erickson's therapeutic hypnosis. People liked to believe that Erickson was some sort of master hypnotic manipulator. While this designation may have some superficial appearance of truth, Erickson actually taught simple effective techniques for activating the patient's own inner focus and creative process for inner problem solving.

Rossi: [Ernest pauses for 20 seconds looking at Celeste. Such creative pauses allow her to focus on private experiences with positive expectation.]

STAGE 2 of the Creative Cycle: Introducing the NNNE and the psychosocial epigenomics of the MBT-T

Rossi: [Turns towards the audience] You're introducing the subject to an experience of novelty, which for Erickson often meant experiences of unusual but comforting hand touch. This hand balancing initially focused the subject's attention with positive expectancy which Erickson would then proceed to help the subject explore some interesting questions about themselves, their past, etc. He would start to build on positive expectations and focused attention in appropriate and unique ways for every individual. He would ask people to explore some of their earliest memories. What are some of the earliest things they learned? How did they learn how to read? Could they see the first book they read? Could they remember back even further to when they learned how to walk? This early memory review facilitates activation of the NNNE in turning on the molecular level of experience-dependent epigenomic expression for rehabilitation and problem solving.

The patient's private thoughts: *Yes, I can remember looking at pictures and learning to read letters one by one, and I do have memories of when I learned to walk!*

Rossi: So you continue, Celeste, with your earliest memories of writing. I don't know if you can actually experience ... (creative pause) what some of your earliest focusing was? What were some of your earliest words when you were learning how to write? What did they look like? I don't know if you can go back even further learning how to ... Yes, what is the earliest memory of your learning how to do something? Can you remember talking to yourself to help you learn?

The patient's private thoughts: *Yes, I can remember the book 'The Little Bear' with its sweet watercolor images, black spine binding and blue mottled paper cover with a small line drawing of the Little Bear.*

Rossi: That little girl ... What did they call you as a little girl?

The patient's private thoughts: *"Child," they called me "Child!"*

Rossi: I don't know if you can remember ... Yes ... What was the first birthday you can remember? ... How old were you going to be? ... Do you remember what were the first gifts you received? ... And so continuing privately within yourself now, Celeste, going from one birthday to the next.

The patient's private thoughts: *Age 4 I received my doll that I named "Nancy" for my birthday. Nancy had brown hair and a pretty blue brocade dress my grandmother made for her. My grandmother made a trunk full of doll clothes for each of my many dolls throughout my childhood.*

Rossi: A year older ... Growing from one birthday to the next ... gradually until you are as old as the bigger kids.

The patient's private thoughts: *At age 5 I am all grown up and fully formed. I see my face, my dress, my birthday cake with pretty pink roses and my new doll Debby. Debby was my favorite doll of all time and I still have her in my closet today.*

Rossi: I don't know if you can remember age 7, 8, 9?

The patient's private thoughts: *I see my face clearly at each age and remember my birthday parties.*

Rossi: And then, yes, becoming a ... teen? Age 11, 12, 13 ...

The patient's private thoughts: *Age 11 I joined the Orchid Society. Age 12 was when the first cute surfer boy asked my father for permission to date me – which my father declined. Age 13 when traumas began after my father died unexpectedly and my mother remarried.*

Rossi: Yes ... some of the best experiences ... some of the ... not so great experiences (Rossi quietly and warmly laughs) ...

The patient's private thoughts: *This is when the hell begins!!! [Exclamation points as she begins to access the adolescent sources of her PTSD.] How soon can we get this over with? Can't I just stay with happy memories? I just need to have the courage to stay fully with this age ascending since I know it is going to be time limited and I won't have to stay here long in therapy.*

Rossi: Some of the high hopes ... and some of the worst of those earliest ... What you are going to be when you grow up?

The patient's private thoughts: *I'm going to be a psychologist and help people starting with me. That's what I am going to do, and did. I began to read books trying to learn how beginning with 'I'm OK, You're OK'.*

Rossi: And now moving into 15, 16, 17 Wow! ... When did you know you were ... going to college?

The patient's private thoughts: *The lost years of the worst of my trauma, abandonment, loneliness and dissociation. I graduated from High School early at age 17, took the weekend off and then began college just to get a head start on living my life as I dreamed it could be.*

Rossi: Yes. What was that young lady ... What were the thoughts of herself and her future?

The patient's private thoughts: *I am determined to create an independent life of my own where I don't have to depend on anyone to take care of me. I do not want to be stuck on the whims of others.*

Rossi: How was it learning new things? ... Really focusing in on all the transitions between adolescence, becoming a young adult ... going to college.

The patient's private thoughts: *It is always hard learning new things. Outwardly I was confident but inwardly very insecure.*

Rossi: I don't know if you remember the first day... the first time you entered your dormitory or place where you lived in going to college. I don't even know if you lived away from home. [Turns toward the audience] This 'I don't know' technique is a therapeutic inquiry where the client takes responsibility for themselves, as I cannot possibly know everything. i.e. notice that the therapist really does not need to know everything! However, the therapist does need to know how to facilitate the patient's private thoughts that activate the NNNE to optimize the epigenomics of self-help in translational medicine.

The patient's private thoughts: *My first day of college in the winter was very rainy and cold. My small college had old military Quonset huts for buildings with wood stoves for heat and fantastic teachers. I guess I never told anyone about my living situations in college. I lived on Atoll Street for a little while sharing a room*

with my brother who worked at night when I slept, and he slept during the day while I was at school. Fortunately that only lasted a few months before I had my own room to myself.

Rossi: What were some of those first college classes? ... Just watching yourself going to them ... one semester to the next ... some of the really surprising things ... some, I suppose, disappointments? ...

The patient's private thoughts: *I loved my classes of Shakespeare, American History, Physiology and survey Psychology classes. One English teacher was so condescending and terrible. He marked my papers with so much red ink that I couldn't see my words, while my Shakespeare teacher guaranteed me a "C" if I would simply write my essays. He wanted to help correct the negativity from the first English teacher. My physiology teacher did the same as I wanted to drop the class since I thought I was too stupid to pass. He assured me that I was the only non-nurse in the class and as such I couldn't possibly know, or learn as fast as they could. Both professors had a profound effect on me through their kindness and eyes to see that I really could succeed.*

Rossi: And then moving on to the miracle of all miracles, graduating ... but still not finished. The part of you that wanted to go on to graduate school ... and watching that whole process of graduate school ... working on your doctorate ... frustrations, breakthroughs ...

The patient's private thoughts: *My Bachelors Degree in psychology was useless because I could not afford to take a job in my field since the pay was too low.*

Rossi: And finally graduation. And was that? ... You would be a graduate, a professional and learning to become who you are today.

The patient's private thoughts: *I got a Masters of Arts Degree and still could not afford to take a pay cut to work in the field of psychology. I had to go on to earn a doctorate. There were too many traumas along the way to think about all of them. Some of my professors wanted me to fail while some professors put me on a pedestal just so they could knock me down later. I finally graduated with top honors by not listening to the ones who wanted me to fail, nor to the ones who over-idolized me. Even though I broke my neck nearly becoming paralyzed, I persevered because I wanted to lead a life where I could take care of myself as I promised myself in my teen years.*

STAGE 3 of the Creative Cycle: Facilitating the Aha! Therapeutic experience with the private inner self observer

Rossi: I wonder if you can see the whole thing in perspective? Looking at that young child first learning ... all the way to the young adult? Yes, that private inner self observer ... knowing

the simple truth that only you could possibly know. How will you use your inner observer to help yourself now and in the future?

The patient's private thoughts: *Yes. I am the same person throughout the years even though I broke my neck and successfully rehabilitated myself. Twenty-five years later I had another serious traumatic head injury that I also successfully rehabbed. I am proud of my recoveries. Come to think of it – I have always known how to help myself.*

Rossi: And continuing on to today in your growing maturity ... That's right, seeing and feeling your whole self, that whole journey from childhood to today ... That is all of it is one story. The story of ... Yes, what would you call the story of ...

STAGE 4 of the Creative Cycle: Facilitating the self-help epigenomics of translational medicine via the MBT-T

Rossi: So continue focusing in your own mind privately ... getting this marvelous perspective ... opening your mind. This incredible journey you have been on. [Turns toward the audience] By allowing people to have their own private experiences, without the need to confess everything the therapist bypasses most of the persons so-called "inner resistance" so their natural 4-stage creative cycle can proceed with optimal freedom and self-help!

The patient's private thoughts: *There truly is a whole continuity to who I was as a young child and who I am today.*

Rossi: And when you know that ... in a couple of minutes you can come back to the room fully alert, conscious, and ready to begin a ... deeper exploration of how you can work with yourself ... effectively ... optimizing your learning, healing and well-being in the wonderful adult you are now. When you know you can do that let's see whether your eyes will open first, or will you stretch first? [These are the realistic behavioral inevitabilities that are signaling the end of the person's creative inner work.] Coming completely alert for the new process of inner optimizing creative ... mind and well-being.

Rossi: Let's see how you are. Do you feel ready, for example Celeste, to move on, or is there something else that you want to share that is appropriate to share with the audience at this time?

Celeste: *That was really beautiful (therapeutic tears) about the Continuity of My Life. I've always known who I am from the earliest days. I can clearly remember my 4th birthday. By the time I was age five I deeply knew who I was. I distinctly remember thinking that I was all grown up at the age of 5, and do you know what? I was.*

There were a lot of things I didn't know yet. I was still a kid and needed to be taken care of. Even though I didn't have a full adult mind, I knew I was fully grown and fully formed by the time I was 5. I was a little lady at that point and I needed private time. I needed a lot of private time at the age of 5.

Rossi: Really?

Celeste: *Yes I did. I knew at the age of 5 what I know to be important today:*

- You have to be smart and think things through

- You have to let people come to their own conclusions. You cannot tell people what their conclusions are, and certainly nobody can tell me what my conclusions are!

- You cannot tell me what to think or believe just as I cannot tell you what to think and I cannot tell you what to believe.

I really understood that all at the age of 5.

Rossi: Thank you. That is a beautiful summary of your personal path to self-help and recovery.

One week follow-up

A week Later Celeste reports another profound MBT-T group experience wherein she found her neck gently elongating in a continuing healing and freedom from her head and neck injuries.

Celeste: *It was really weird that I could not get comfortable during this week on account of neck pain. I stood up, sat down, lay down and tried to exercise to see if the pain in my neck would go away. Finally, I realized that this was a continuation of last weeks' therapeutic experience. I simply tuned in and allowed memories of breaking my neck and other concussions to come up. Rapidly, a kaleidoscope of memories ping-ponged in my brain and then my neck simply let go! I was so surprised to have new neck length and freedom from pain and freedom of movement. If you have an open mind you never know how far you can go with self healing!*

Facilitating the 4-Stage Creative Cycle in the MBT-T: The Roles of the Therapist and the Patient

This case study reflects an example of Mind-Body Transformations Therapy (MBT-T) (formerly described as the Creative Psychosocial Genomic Healing Experience). This therapy consists of utilizing our natural 4-stage Creative Cycle in self-help.

STAGE ONE: Self Exploration

Stage 1 involves preparation and self exploration. The role of the therapist in this stage is to allow the client to use arousal and stress to motivate the client toward problem solving and healing. It is not the role of the therapist at this stage to alleviate emotional distress. Arousal is an inner stage of therapy that triggers a creative process of problem solving as illustrated in Figure 2.

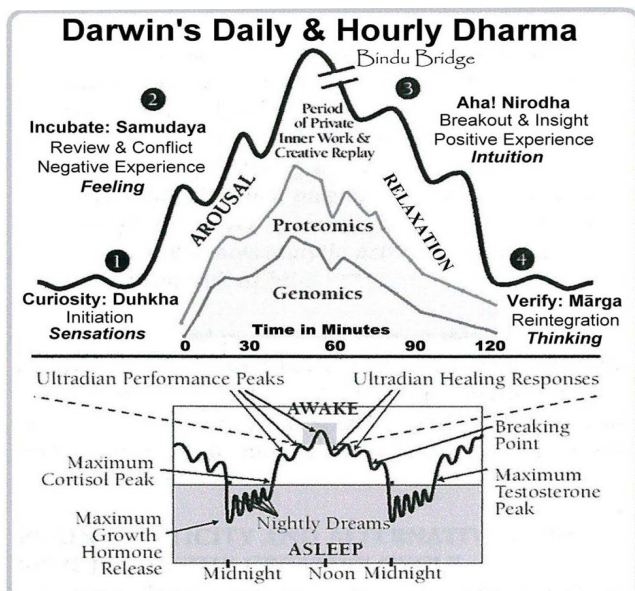


Fig. 2. Qualia of Darwin's daily and hourly work of the 4-Stage Creative Cycle in one 90-120 minute basic rest-activity cycle (top) of the ~24 hour circadian cycle (bottom). The Sanskrit terms represent the qualia of Buddha's Four Noble Truths. The proteomics (protein) profile in the middle curve depicts the energy landscape for protein folding within neurons of the brain (Cheung, et al, 2004). The functional concordance of the co-expressed genes are illustrated by the genomics profile below it (Levsky, et al, 2012). The lower diagram illustrates how the qualia of human experiences are typically experienced as the BRAC within the circadian cycle of waking and sleeping (Rossi, 2002, pg.129.)

STAGE TWO: The dark night of the soul: Privacy & Implicit Processing Heuristics

Stage 2 often involves the patient in inner conflicts and feeling stuck, which may elicit negative memories and abreactive emotions. This stage can be accompanied by crying, frowning, and feelings of inadequacy, stress and depression. The most important role of the therapist during this stage is to support the client's private inner work. Facilitating private inner work more often than not involves replaying painful past memories that are the source of the problem. The client is supported by the therapist's indirect permissive suggestions (also known as implicit processing heuristics).

For example, the therapist may ask in Stage 2:

Will it be okay to allow yourself to continue replaying that privately for awhile ... difficult though it may be, so that you can learn what you need for healing [problem solving, etc?...] [See top of Fig. 2].

Can you let yourself continue to experience that for another moment or two in a private manner—only long enough to experience what it leads to next?, And will it be okay to replay that trauma again privately in a way that you would really like to experience it? ...

This is also a time in which the therapist may need to assist the client to reframe negativity and confusion. Reframing confusion as a creative

transition to Stage 3 Aha! can be very therapeutic. For example, the therapist may ask the client,

Have you ever experienced confusion before learning something new?

The most common error that therapists make during this stage is to offer advice that interrupts the client's private inner work and may stop her from working through the negative emotional arousal. The therapist can shift the primary burden of responsibility of effective therapy onto the client by using simple implicit processing heuristics such as,

Knowing you can continue receiving whatever comes up all by itself and saying a few words about it whenever you need to, but only what I need to hear to help you further.

These and many other novel and innovative techniques for facilitating Stage Two of the 4-stage creative cycle with the MBT-T helps the patients bypass their so-called "inner Freudian resistances" (Rossi, 1993, 2002, 2007, 2012) and focus on their positive inner resources to greatly shorten the total number of sessions (typically 2 to 10) required for effective brief psychotherapy.

1. Respecting patient's privacy
2. Patient's inner work
3. Sleep-Dreams-Early morning Thoughts
4. Implicit processing heuristics
5. Self-observer, self-healer, positive self-talk
6. Novelty-numinosum-neurogenesis-effect (NNNE)
7. Positive continuity of life review
8. Extended 90-120 minute sessions (BRAC)

STAGE THREE: The Aha! Creative Moment

Facilitating Stage 3 of the 4-stage creative cycle, the Aha! Moments, is the essence and high point of the MBT-T. Stage 3 usually surfaces as a result from the private inner work of replaying the origins of the problem in Stage 2. There may be a slight smile of surprise with the emergence of Stage 3 and the head may nod positively and slowly with minimal movement. In Stage 3 new solutions or insights are created along with positive self change. It is not unusual for clients to shift slowly back and forth between Stages 2 and 3. Clients often need help during this transition to recognize the value of their creative insights, especially if such insights were not valued or supported during childhood.

STAGE FOUR: Giving yourself your own behavioral prescription for everyday life

Stage 4 leads to verification of positive experiences and behavioral prescriptions that come from the client themselves. It is a fundamental part of MBT-T to take the insights gained in Stage 3 and apply them to make changes in real life. The client can be gently supported to do this by asking questions such as:

*How can this experience change your life?
How will you use this to make changes in your life?
What will you actually do in your life that is different
this week?*

In this way, symptoms are reframed as signals and problems can be reframed into opportunities through accessing inner resources. MBT-T emphasizes the use of creative mind-body cycles that occur approximately every 90 to 120 minutes (also known as ultradian rhythms) (Lloyd & Rossi, 1992, 2008). The client is encouraged to explore such mind-body cycles in everyday life, taking a 20 minute break every 90 to 120 minutes and tuning into themselves in a sensitive and compassionate way, keeping a written record of experiences of anything new that comes up during this resting phase and his or her early morning thoughts. This can provide useful hints for therapeutic work in the next session. Clients can be told that they will go through 12 creative work cycles each day, which amounts to about 84 possibilities each week, to make positive changes in their lives and solve their problems. With this opportunity clients may learn to find the resources within themselves.

Summary

The theory, research and practice of Mind-Body Transformations Therapy (MBT-T) is a new psychosocial and cultural epigenomic method for facilitating recovery from post-traumatic stress disorder (PTSD) that is suitable for enhancing the new neuroscience of psychotherapy and translational medicine. A single session clinical demonstration with a 59 year old woman illustrates the details of a variety of novel neuroscientific epigenomic mechanisms that are hypothesized to facilitate the natural 4-stage creative cycle of self-help on many levels from private experiencing to the molecular dynamics of experience-dependent gene expression. Supplementary materials illustrate how this single session of MBT-T can be adapted for applications to large groups engaged in self-help programs for recovery from a variety of stress related disorders. This paper introduces a novel top-down psychosocial and cultural epigenomic approach to supplement the traditional bottom-up molecular-genomic approach to translational medicine. We now recommend further research to assess the degree to which this top-down approach enhances the evidence-based efficacy of the traditional molecular-genomic applications of rehabilitation and translational medicine.

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Supplemental Material

Workshop 28 as a demonstration of the NNNE

This handout was used in our workshop with large groups (~200 therapists) at the December 2013 Evolution of Psychotherapy Conference presented by the Milton H Erickson Foundation. This handout of Workshop 28, or appropriate parts of it, are used to begin facilitating the Novelty-Numinosum, Neurogenesis Effect (NNNE) of the entire audience. The MBT-T was then administered to everyone. For professionals in mental health the novelty of much of the new information in the PowerPoint presentation of this handout tended to evoke the numinosum as a motivating factor that sometimes evoked the psychosocial activation of epigenomics of experience-dependent gene expression and neurogenesis to facilitate the molecular genomics of the self-help appropriate for psychotherapy and translational medicine. This PowerPoint tends to evoke the NNNE just as the hand balancing therapeutic approach, which was used in the single session MBT-T experience with the 59 year old woman in the main section of this paper.

MIND-BODY TRANSFORMATIONS THERAPY (MBT-T) © Group Self Report Version (2014)

Jane Mortimer, Kathryn Rossi, Ernest Rossi

NAME _____ DATE _____ TIME: _____

Age _____ Education: K8 HS BA MA Dr. Work: _____
Night Sleep Length: 1h 2h 3h 4h 5h 6h 7h 8h 9h 10h 11h 12h + (Circle)
Dreams: _____ Days/Week. Dreams/Night: _____

Initial Stress: On a scale from 0-10 rate your level of stress 0 - 10 _____
End Stress: On a scale from 0-10 rate your level of stress 0 - 10 _____

STAGE ONE: Accessing Inner Resources:

1. Warmer – Cooler: Yes / No
2. Stronger – Weaker: Yes / No

STAGE TWO: Engaging Personal Issues:

3. Adult - Child: Yes / No
4. Problem - Opposite: Yes / No

STAGE THREE: Creative Private Replays:

5. Negative Past Review: Yes / No
6. Positive Now & Future: Yes / No

STAGE FOUR: Integration and Reality Testing:

7. Positive Self-Change: Yes / No
8. Positive Self-Prescription: Yes / No

9. Without looking at the clock estimate in minutes how long the hand exercise lasted: _____

10. On a scale from 0-10, how real was your experience? 0 - 10 _____

11. On a scale from 0-10, how surprised were you by your experience? 0 - 10 _____

12. On a scale from 0-10, how *confident* are you in your self prescription? 0 - 10 _____

OFFICE USE

Initial Time: _____ am pm Real Time (Min): _____

13. Creative Mental Engagement: Real Time _____ / Est. Time _____ x 100 = _____ %

14. % Stress Reduction: Initial Stress % _____ (-) Final Stress % _____ = _____ %

15. 4-Stage Ideodynamic Protocol: yes = 100% no = 0%, Sum (#1 - #8)/8 _____ %

16. MBT-T (NNNE): (#11 + #12 + #13 + #14 + #15) / 5 = _____ %

(GE/BP/SCH/PNI)

Telegen _____ SISRI-24 _____ Comments: _____

THE USE OF HYPNOSIS IN THE TREATMENT OF PAIN A STORY OF TECHNIQUE AND COLLABORATION

ROXANNA ERICKSON-KLEIN RN, PHD & MARY ELLEN BLUNTZER MD

Erickson-Klein begins

"Do you mind if I ask you a personal question?" The familiar preamble accompanied by an apprehensive look heralds the crossing of an unseen social barrier. My siblings and I already know what is to follow. "What was it like to live with Milton Erickson?" Frequently the questioner follows with an eager look and sigh of relief. The gesture silently adds "Now the question is asked, I await a magical answer." The unanswerable question is asked, not on a few occasions, but with regularity that numbers in thousands. Occasionally the questioning goes deeper "How was Milton Erickson different from others in his everyday life?" "How did his actions and temperament affect those around him?" "Was he a good father?" And often the questions extend to "Are you the genius that he was?" Another unasked question lingers in the background: "Can you help me to go beyond my own limits so I can become the genius he was?" That question remains unanswered and unanswerable. What is salient about my father is how hard he worked and his openness for ongoing exploration. From the moment of awakening, his mind was working even as he relaxed. His interests exceeded intellectual curiosity and encompassed a broad tolerance for ambiguity; discoveries made everyday embraced an outlook of flexibility. Early in his career, Erickson practiced at the Eloise State Hospital in Detroit Michigan while his young family resided on-site. Failing health brought our family to Phoenix, Arizona in 1948 where my parents chose to continue proximity of personal and professional lives by converting a bedroom of our small home into an office. The shared space of the front entrance, living room, and the single bathroom brought together the children, patients, colleagues, pets and neighbors; the home/office became a seamless integration of problem solving, creative ideas and professional exploration. The varied interactions of eight siblings are always complex. Our lives involved role-modeling of healthy behaviors including collaborating and compromising for resolution of needs or differences. Our space was a home / office where love and

respect were bolstered by the opportunity of healthy engagement with other human beings. The combined perspectives of family, students, and patients in participatory roles gave depth to the richness of life. Family members enjoyed the unique texture of the unexpected and were often rewarded with lasting appreciation for unique gifts that each person who entered our home brought with them. Hypnosis was common topic of shared conversations. Discussions between Dad and colleagues or patients often carried over to the living room or dinner table. While none of my seven siblings nor I aspired to be "like" Dad, each of us found hypnosis central to everyday life. We all share a powerful belief in the positive potential of the unconscious mind and the viewpoint that wisdom is multiplied through interactions with others.

Pain Management in My Professional Practice

Today, subjective reports are considered to be the standard measure of pain. I begin with the patients' concerns and quickly seek to contextualize experiences within a larger picture: functionality, quality of life, and ability to participate in desired activities. Evaluation of discomfort from a stance of how it interferes with enjoyment of life is more relevant than the commonly used numeric distress scale.

Interview: I begin treatment with a patient telling "the story of my pain". Stories link suffering to various life events that may or may not make sense from a medical perspective. A personal story provides a potent resource, and often gives direction leading to diminishment of pain. While confrontation with pain risks hesitancy, fear, and discomfort, expectation and nourishment of hope can often displace limitations. Encouraging the patient to turn towards the pain, I ask direct questions to explore about how discomfort impacts life. I ask the patient to pause and reflect, and to describe the pain in as much detail as is available. Occasionally, the mere act of looking for details objectifies and de-potentiates the distress. Descriptions reveal

the patients' internal resources, creativity and use of imagination. Word choices reveal individual beliefs of how change occurs, perception of time, triggers, and responses to sensory stimuli. Integrated into the listening phase, I inquire about "has this been tried-- or that?" seeding possibilities for exploration and expectation of success. As the conversation develops, I elicit descriptions from patients of experiential discovery for what is effective. Limits of beneficial effects are addressed with curiosity. Hope and expectation are brought in to enhance possibilities of new discoveries. Harvested from the discussion is a collection of meaningful words that can be used for positive suggestions.

Goal Setting: The next phase is to facilitate the patients' identification of realistic goals and criteria to measure progress. Typically goals do not involve making the pain totally go away, rather put the sensations in a different context with less interference with participation in life. Concrete measurable objectives are agreed upon. I express the expectation that the patient will evaluate their progress regularly.

Self-review: Acceptance of self-responsibility provides a foundation essential for all psychotherapy. The phrase Give yourself a check-up is how I formalize self-review. The locus of control is handed to the patient. Along with self-reflection come the burdens and privileges of responsibility to continue on a useful path or to alter direction to find a useful path. Many times patients feel unprepared and inadequate for this process, yet quickly recognize the necessity. For many, it is as if they have been lost in the woods and I begin to speak about working with a compass.

Hypnotic Suggestion: Throughout the interview, goal setting, and nourishment of self-review, I use a combination of direct and indirect suggestion. For example I seek the details of pain as it recedes, I question the prospect of separation of pain from fear, I ask about the times when pain is not an issue. I encourage active awareness of adjustments, changes, re-balance of movement or other factors that impact a sense of well-being. In these ways hypnotic suggestion is already integrated into the sessions informally from the first encounter, and more formally after the basic groundwork is established. Hypnotic suggestion offers an opportunity to cultivate flexibility; a broadening of perspective. Hypnosis is a tool that is at once vast yet specific, as vague as it is incisive. Collaboration offers a greater opportunity for discovery, redirection of energy, and sets a platform for looking from a new direction. Pain robs a person of their own locus of control;

the act of reclamation opens the door to meaningful adaptations. Most of the time, these strategies work. My expectation that a direction will be found to offer freedom from the shackles of pain and permit re-entry into a meaningful lifestyle allows me to guide long suffering patients to success most of the time. Yet, on some occasions, relief is not forthcoming. Even with Erickson, there were a few of his patients who were forced to make significant compromises of lifestyle for unwelcome chronic painful conditions. Some found successful relief from pain and later recurrence of discomfort. For some, therapy lasted longer than the brief interval in which hypnotic pain management was the focus. Some conditions require re-evaluation, re-focus, and even acceptance of ongoing losses.

Application of Hypnotic Intervention to Cases: For further discussion, I have selected three cases from my work with patients who presented seeking relief from pain. Of the three cases, I consider one to be a full success and the second a partial success. In the third I had very little impact in the relief of symptoms. I have asked my colleague to comment on her perceptions about my choice of hypnosis as the primary therapeutic tool.

Successful Treatment

Several years ago a 66 year-old retired physician sought hypnotherapy for chronic back pain following an injury resulting from a rock climbing accident. He asked for hypnotherapy to augment a series of traditional medical interventions that had proved ineffective in restoring his flexibility and comfort. He was specifically interested in returning to the active outdoor life he had previously enjoyed. In listening to his story, it became quickly apparent that part of his unresolved distress stemmed from relationship issues. His fiancé had not attended to him in the way he needed during his many months of acute care. The injury was compounded with uncertainty of potential for full recovery, questions about lifestyle compromises and the disappointment of not being able to count on a loved one. While he acknowledged that the relationship added to his distress, he sought only hypnotic techniques to minimize the experience of physical pain. I accepted this without question. For hypnotherapeutic interventions, I began with a Jacobson progressive relaxation transitioning into a suggestive guided imagery with visuals the patient provided. I facilitated his imaginary experience of walking strongly and comfortably in a location that I described in a most vague and permissive manner. I incorporated many suggestions of physical awareness with the imagery then began to interject suggestions of becoming "more independent" "appreciative of himself" "confident in his own abilities" "filled with the expectation

of new discoveries““finding new comfort within himself“. As with most of my patients who are in the process of re-adjustment to physical changes, I generously offered suggestions related to finding an inner sense of alignment and balance. I then encouraged him to become attuned to the sense of healing and progress and to any lifestyle changes needed to accommodate a healthy sense of self. My suggestions were specifically intended to address the relationship with himself, but intentionally ambiguous enough to carry the expectation that he would discover relationship with others was also relevant.

Over a two-month period I saw him for six sessions and within that time, while apprehensive about “potential discomfort“, he had found comfort and had resumed a level of function that brought back his joy of living. Six months later, he returned. By then he admitted he recognized that interpersonal relationships were contributing to residual pain and was ready to be more flexible in his conversations. I listened to his concerns, and saw him for two sessions. Each session involved hypnotic trance work in which the patient imagined going to a time and place of feeling his feet solidly on the ground, moving comfortably, feeling appreciated for all of his inner strength and beauty. The work was very broad and open. A year later, he reported that he had broken up with his fiancé, was free of pain and was fully active in outdoor adventures. He attributed his healing to finding a balance of comfort within himself.

Limited Success

A second case involved a matriarch in her mid-sixties who had been diagnosed with end-stage cervical cancer. While in radiation treatment her bladder had been damaged; every time she urinated she experienced “intense, overwhelming and excruciating burning“. Referred by her oncologist to hospice, pharmacologic remedies had been abundantly explored but none reduced the searing pain each time she voided. She had reached a point of expressing that “God wants me to suffer“ and self-described her time on earth as one of suffering. She anticipated comfort after death, and had even “begged the Lord to take me“. She lived with her daughters who treasured each day with her; all agreed that the Lord was not yet ready. The patient would have to wait until the time was right. On a home visit, I offered hypnosis as a way of relaxing and finding a “new way“ of feeling the sensations that occurred when she urinated. The hypnotic inductions I used connected to her expressed spiritual beliefs of joining Jesus in heaven -- when the time is right. I questioned the possibility “previewing“ the comfort that awaits. I proposed an imaginary visit ascending to the heavens, for a short while, and then returning to the “here and now“ to share the joys with her family. Both she and her daughters rapidly embraced the possibility.

Beginning with a guided imagery, hypnotic suggestions were given for her to feel the comfort, through and through, and to bring the comfort with her “for a visit“ to her earthly presence. Within three short sessions she reported that she had learned to access the comfort, to connect with it, and to bring the “billowing clouds and caress of Jesus“ down to her bed. Thus she was able to ease suffering when it struck her. Functionally, she improved markedly and began to be more interactive and participatory within the household. She resumed ambulation with her walker, supervising in the kitchen and once even answered the door. I followed her for the next eight months until her death, sometimes just listening to her describe her imaginary visits to heaven, sometimes offering my own suggestions for imagery. I consider this to be a partial success in that the patient continued to refer to her pain as a ten on a scale of one to ten, but it had given her tools and a context for a life of value.

Unsuccessful Hypnotic Work

A third case involves a 45 year-old female who was referred by a physician for treatment of pain related to trigeminal neuralgia. The patient had been appropriately examined and diagnosed, but had never established a stable patient-physician relationship due in part to her unwillingness to take medication. She described increasingly severe symptoms over an interval of about five years during which she had visited a variety of physicians and other resources. Each time medications were offered, she researched potential side effects and made the decision not to take the risks. A married factory worker in generally good health, she described herself as “never having been sick in any way prior to the onset of facial pain“. Deeply religious, she used prayer and Biblical readings to help her, but had not found relief for this condition. She described the pain as unpredictable, varying day-to-day, and growing in frequency of intensity over time. Unaware of pain as she slept, morning awakening brought uncertainty. She began each day with prayer that “today is the day the Lord heals me“ coupled with apprehension of not knowing what the day would bring. By early morning, she experienced the presence of pain, sometimes mild and sometimes fully debilitating, and each day the pain remained constant through the day. She described, some days are two, and some days are ten, but once it hits, it is there all day long. Initially she was able to re-direct herself with prayer or distraction techniques. She had learned to use an imaginary gesture of “pushing“ the pain to a smaller area to make it more tolerable. Today she tearfully describes the unpredictability, intensity and increasing debilitation to be intolerable. Hypnosis is incompatible with some regional religious orientations. This was asked about in the context of her faith on the initial visit. She reasoned that the Lord had sent her resources and she must

try to learn to use them. In addition to encouraging her to find a physician with whom she could have an ongoing relationship, I referred her to her pastor, but she responded that she belongs to a huge mega-church in which personal attention by the pastor is not practiced.

An exhaustive variety of hypnotic approaches were used. She seemed, in many ways, to be a responsive subject though she struggled with giving herself freedom to feel change. With each hypnotic exercise, she returned to discussion of the cognitive process and to her religion. Suggestions offered both in cognitive sessions and in hypnotic sessions ranged from exploring new perceptions to trusting your unconscious ability to adapt. Despite her seeming motivation, and what seemed to be genuine efforts to learn, she failed to find significant relief from anything offered.

In the next year and a half, she stopped coming when her husband experienced a serious illness but once he stabilized she resumed treatment. A total of 20 visits with me, and visits to various other physicians and services all proved unsuccessful at symptom reduction. Today she reports "a claw-like presence grabbing and pinching my face." While the patient is willing to continue ongoing visits and I am available for a broader therapeutic approach than focus on her pain, her expressed sole purpose for therapy is to find relief from her facial pain.

Despite the persistence of symptoms her participation in life appears to be generally well-balanced. Secondary gain appears minimal. She has managed remarkably well in conducting her life "as if" she does not suffer. Office visits provide her with a forum for verbalizing the discomfort that minimizes the need to alter personal friendships or burden her family. Her focus remains fixed on Biblical readings and expectations of spiritual healing. Those expectations remain unfulfilled. I am at a loss of how to offer her genuine guidance.

Bluntzer offers a collegial viewpoint

In the realm of medicine, few areas are more controversial and more confounding than somatization and psychosomatic symptoms. The three cases serve as useful examples of the complexities and hardships of addressing the combined affective and somatic elements of psychosomatic illness. Whether working with pain in which underlying diagnosis explains the symptoms, or in working with conditions that are unexplained, the challenge remains the same-- how to facilitate the quest for comfort.

For better understanding of useful ways to address subjective symptoms, it is of value to clarify the current practice of psychosomatic medicine. I have tried to address shortcomings of current approaches with the proposal of a "Self Model" that can maximize resources for clinicians and patients. Treatment of pain with hypnotherapy is useful in the presence of subjective distress in the absence

of objective findings. Once the physician has made that determination the physician-patient conversation has effectively ended. Medical literature implicitly informs the doctor that the patient is no longer a reliable source of information. In other words, the physician shifts from the collaborative to the somewhat coercive partner. This influences the relationship in one or more of these three directions:

- (1) *The patient is viewed as impaired (burdened with alexithymia -- difficulty in identifying and describing feelings)*
- (2) *The patient is viewed as neurotic (emotionally unstable, and with propensity for negative affect)*
- (3) *The patient is deemed a victim of misperception.*

Correspondingly, the physician is condemned to being the person who defines the true patient. The task becomes how to rescue the patient: how to convince the patient of the physician's reality or how to help the patient lead a meaningful life despite their impairment, neuroses or misperceptions. Milton Erickson's methods of hypnotherapy are an alternative to this imbalance. The patient is viewed as the resource of solutions. The practitioner is only a partner or guide. The patient's reality is not questioned; they remain the authority on their experiences. The patient is not viewed as impaired, weak or dishonest. The utility of this method is unquestionable given current medical horizons of research.

The task of remodeling the relationship into a duet of effort is without defined methods. The physician and patient are required to muster substantial curiosity, flexibility and tolerance of ambiguity in an area where "objective, scientific fact" trumps all subjective experience. To my knowledge this task is not recognized in medical literature. The topic is only skirted in the mind-body pursuits of various researchers as Herbert Benson, John Kabat-Zinn and others. While this is a fascinating and lively area of scientific exploration, its discoveries are not common knowledge. How these discoveries will assist the physician or the patient with psychosomatic symptoms is unclear.

It is the loss of a previously equal partnership that is most dissatisfying. The moment a symptom is deemed psychosomatic the physician's option of mobilizing the patient's internal resources becomes severely impoverished or non-existent. It is this frustration that has crippled many a physician-patient effort. "Just send them to a psychiatrist" has been the recommendation of my peers. While sometimes this is a necessary choice, it leaves the physician in the position of rescuer, definer of truth and the one who determines the patient is impaired or dishonest or weak.

What has troubled me throughout my career is the element of dishonesty or deception by the doctor that is sanctioned when adopting this customary

method. After all, the physician lacks years of intimate information about the patient's inner life. While psychiatric intervention may result in a patient's relief, most patients will not pursue that option. If they do, it may be a lengthy, costly pursuit with a possibility of failure. Regardless, the patient is designated a victim of misperception, delusion, misattribution or misinformation. The problem is the patient's mind, not their body.

An impasse occurs at the moment the physician refuses to openly acknowledge the areas of thought where the patient disagrees with scientific evidence. If confrontation occurs, it often is interpreted as an effort to "convert" the patient to the "scientific" viewpoint. Manipulation is named and the future of the relationship impaired.

In order to address this dynamic inherent in the practice of medicine I have designed a model that accounts for the patients' vast unknown resources in a way that does not dispute science, that does not demand that the patient be labeled a victim. The model must sustain the authority of the patient about him/her self. In order to achieve that, my patients and I have sometimes agreed to entertain a different definition of self. This work has resulted in a more holistic model that promotes curiosity, flexibility and tolerance of ambiguity without loss of the merits of science. This restores the collaborative relationship between the two parties and sustains honest communication.

In collaboration with my patients I begin by drawing a simple diagram of a model of "Self" that is easily communicated and negotiated. It avoids any disputes about what is 'real' and what is 'not real'. The self is imagined as three continuous functions, each with a unique form of communication that may or may not be logical. The model describes three realms, and all three can be imagined connecting to a universal consciousness.

Higher Self:

Communicates using creativity and intuition.

Common Self:

Communicates using logic and cause-effect.

Deep Self:

Communicates illogically with symbols and metaphors.

While for some patients the word hypnosis may threaten loss of control, discussion of a Self Model does not carry burdensome associations. The introduction of Higher Self, Common Self and Deep Self creates space for the logical as well as the illogical, the real as well as the unreal. This opening of perspective shifts formerly conflicted ideas into complementary elements, and adds formerly discarded resources. Introduction of this model stimulates curiosity and requires some minimal flexibility and tolerance of ambiguity.

The concept of Higher Self welcomes the beauty and power of the inexplicably numinous and embraces the patient's spiritual orientation. The patient and I

usually agree that religion has been designated by society as the authority in this realm. None of the patient's religious beliefs need be challenged. When presenting the model I am careful to acknowledge that science has concerned itself primarily with the realm of Common Self and has made innumerable useful discoveries there. The authority of medicine in this area is affirmed. The Deep Self provides a designated territory for irrational thoughts and feelings. The illogical becomes recognized as a resource to be located and used. This acknowledgment shifts the relationship from victim/rescuer to a duet of collaboration. It is this partnership that made Erickson so effective and which explains the popularity of many therapies that lack scientific validation.

Fundamental tenets of constantly engendered curiosity, flexibility and tolerance of ambiguity create a context that maximizes the opportunity for change without invalidating the patient's authority. It releases the physician from dishonest and deceptive pursuits. The patient no longer risks humiliation by scientific findings. By acceptance of all three levels, all experiences can be viewed as contributions to health and well-being. Thus, the essential element of honesty is restored to the patient-physician relationship.

The Model as is Relates to Three Cases

Three cases of using hypnosis for pain management with varying degrees of success have been described. These examples are re-visited with the Self Model. The partnership of the clinician and the patient engaging the key elements of curiosity, flexibility and tolerance of ambiguity become apparent in the context of case examples.

Successful Treatment: The 66 year-old physician with the back injury did not envision his relationship as a component of his pain. This division conflicts with current scientific evidence that pain is both affective and somatic. However, the Self Model permits integration of the relationship component into the Deep Self. Upon claiming it as such, it now becomes a resource. Although this model was not formally introduced, the hypnotic work done invited the patient to connect to a sense of Deep Self in a symbolic manner. The permission inherent in Deep Self allowed the patient to eventually examine relationship issues that had formerly been excluded. In addition it allowed him to work without risking invalidation, humiliation by science and without endangering the supportive relationship with the clinician. Equally important, the clinician was able to maintain internal integrity that supplied a reliable springboard for creativity. The patient, a physician, was fully competent in the realm of Common Self. His own knowledge of the limits of scientific treatment moved his Higher

Self to seek help by exploring hypnosis, a methodology that had not been part of his recognized resources. Using this model every element of his experience had utility and value.

Limited Success: The case of the woman with advanced cancer began after interventions reasoned to be useful by the Common Self had already been exhausted. This case elegantly demonstrates the advantageous use of Higher Self resources without embarking on a theological debate. The clinician is not required to adopt or question the religious point of view embraced by the patient. Instead religious ways are used as rich resources to empower the patient. The clinician's use of these beliefs is ethical and honest. In addition, adopting the Self Model prevents the clinician from over-investment in the science/ logic/ cause-effect discussion of the Common Self, or confusion with the symbols or metaphors that emerge from the Deep Self. There is an economy of energy that is created from the Higher Self which is utilized in the patient as a major source of growth and change. While the somatic component of pain remained a ten, the affective component of pain was diminished as evidence by her expanded behaviors.

Unsuccessful Hypnotic Work: The patient with trigeminal neuralgia was also religious. Her faith is so strong as to give her the strength to face each day in the presence of daily torture indicating the presence of Higher Self resources. Disconnection from Higher Self resources including the pastor and the religious community impaired her ability to use the Higher Self in service of her expressed needs. In addition she rejected assistance from the realm of medicine, the Common Self. Her limitations in using hypnosis reflected a mistrust of her Deep Self, even prohibiting her from using her own metaphor for pain

as a claw on her face. The inability to identify a Self of maximum resource created an impasse that prevented progress. Perhaps a discussion of the Self Model might have loosened the conversation and allowed her to claim internal resources that could have then been strengthened by the clinician's creativity. However even though efforts to stimulate curiosity were met with some success, the clinician was unable to augment the patient's limited flexibility and tolerance for ambiguity.

Conclusion by Both Authors

At the time of this writing, the Self Model has proven highly successful for both authors. Work with hypnosis can be enhanced by exploration of the Higher Self, the Common Self and the Deep Self. It offers a method of being maximally inclusive of all available resources, and as Erickson taught, promotes a partnership with the patient in which there is an integrity of information, spirit and direction. Recognition and effective use of curiosity, flexibility, and tolerance of ambiguity maximizes opportunity for successful hypnotherapy. These three elements and the Self Model provide a framework from which a clinician can examine and modify their own work both the successful cases and those with less than optimal outcomes. Additionally, it facilitates critique among colleagues.

Openly reporting cases in which the outcome was less than optimal reveals not only the weaknesses of the patient but the limitations of the clinician. Having a resource base of colleagues with whom to discuss outcomes, both good and bad, helps to advance the field. Erickson lived that principle, inviting contributions from all available parties. What Milton Erickson sought in life was no different from most of us -- to be the best we can, to help others to become the best they can, and to share the wisdom that we all contain within. What he taught us was to work hard, to adapt when needed and to remain open to discovery

SELECTING THE BEST LIGAND FOR MIGRAINE RECEPTOR NMDA FROM THE COMPOUNDS OF VALERIANA WALLICHII, ASPARAGUS RACEMOSUS AND ACORUS CALAMUS

PREENON BAGCHI^{1,2,4*}, MAHESH. M^{1,4}, SOMASHEKHAR. R^{1,2,4} AND AJIT KAR^{3,4}

Abstract

Gene mutation in NMDA is one among the causes for Migraine. The amino acid sequence was retrieved; the 3D structure was determined by homology modelling. The 3D structures of the compounds of Valeriana wallichii, Asparagus racemosus and Acorus calamus were sketched using Chems sketch & converted to 3D. Using the pharmacophore features of the known ligands 2-Methyl-6-(phenylethynyl) pyridine (MPEP), 3-((2-Methyl-4-thiazolyl) ethynyl) pyridine (MTEP) and aniractam, compounds from V. wallichii, A. racemosus and A. calamus are selected and docked with NMDA receptor. Compound having the best docking score is selected as the best ligand. Keywords: Migraine, G protein-coupled receptor, Glutamate receptor, phyto-compounds, Modeling, Pharmacophore, Docking.

Introduction

Migraine is a common sleep disorder that affects population worldwide. Childhood migraines can be linked to behavioral problems and disorders [1]. Migraine is a result of multi-gene mutation (including psycho-social factors) [1]. In this work NMDA receptor [2] is virtually screened with the compounds of Valeriana wallichii, Asparagus racemosus and Acorus calamus.

NMDA: N-Methyl-D-aspartate (NMDA) receptor is a sub-type of the glutamate receptor, whose function is to mediate fast excitatory synaptic transmissions in the central nervous system [3]. NMDA receptor is one of the main mediators of excitatory neurotransmission, is highly permeable to calcium ions and thus plays a key role in the plasticity of synapses, which is believed to underlie memory and learning, as well as the development of the

nervous system [4]. The binding of both glutamate and glycine activates NMDA receptor. The glutamate hypothesis of migraine suggests that NMDA receptor becomes functionless in this neurological disorder [3, 4]. NMDA receptors also play an essential role in the development of neural pathways, including cutting of cortical connections during adolescence, making them a critical component of developmental processes whose malfunction may lead to migraine [5].

Valeriana wallichii: Valeriana wallichii is native to India (Himalayas). It is an important Indian medicinal plant & is used for its benefits in calming down the nervous system. It relieves stress and anxiety and also fights depression. The compounds identified from the plant are acetoxyl valerenic acid, acevaltrate, baldrinal, bornyl acetate, bornyl isovalerate, fenchene, β -sitosterol, calarene, homobaldrinal, isovaltrate, valeranone, valeranal, valerenic acid, valepotriate, valtrate, valtroxal and xanthorrhizol [8].

Acorus calamus: Acorus calamus or sweet flag has been long known for its medicinal value and is cultivated in India for this reason. The rhizome possesses anti-spasmodic, carminative and anthelmintic properties and is used for the treatment of epilepsy and mental ailments. The compounds identified from the plant are 1 α , 2 β , 3 γ , 19 α -tetrahydroxyurs-12-en-28-oic acid-28-O- β -D-glucopyranosyl (1 \rightarrow 2)} β -D-galactopyranoside, 2,3-dihydro-4,5,7-trimethoxy-1-ethyl-2-methyl-3-(2,4,5-trimethoxy phenyl)indene, 2,4,5-trimethoxy benzaldehyde, 2,6-diepishyobunone, 3 β , 22 α , 24, 29-tetrahydroxyolean-12-en-3-O- β -D-arabinosyl(1 \rightarrow 3)}- β -D-arabinopyranoside, 4, 5, 8-trimethoxyxanthone-2-O- β -D-glucopyranosyl(1 \rightarrow 2)-O- β -D-galactopyranoside, acoradin, acoragermacrone, acoramone(1,2,4

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–trimethoxy-5(2-propanoyl) benzene, β-sitosterol, Calamusenone, cis-asarone(cis-1,2,4 –trimethoxy-5(2- propenyl) benzene, galangin, γ-cis-asarone(cis-1,2,4 –trimethoxy-5(2- propenyl) benzene, isoeugenol methyl ether, isocalamendiol limonene, preisocalamendiol, shyobunone thujane and Z-3-(2,4,5-trimethoxy phenyl)-2-propenal. [9]. **Asparagus racemosus:** Asparagus racemosus's tubers are candied and eaten as a sweetmeat. It is one of the constituent of medicated oils for external application in nervous and rheumatic affections. The important constituents of Asparagus racemosus are sarsasapogenin, shatavarin, rhamnose, asparagine and racemosol [10, 11].

Methodology

Predicting the 3D structure of NMDA receptor

The NMDA sequence with accession number NP_001009184 was taken the National Center for Biotechnology Information (NCBI). Since Basic Local Alignment and Search Tool (BLAST) search engine against Protein Data Bank (PDB) gave no template for the receptor, the amino acid sequence was submitted to I-TASSER server [In I-TASSER server 3D models are built based on multiple-threading alignments] [12] and the following template was selected and its crystal structure was downloaded from Protein Data Bank (PDB).

• 1WU5A: Crystal Structure Of Reducing-End-Xylose Releasing Exo-Oligoxylanase Complexed With Xylose (identity 50%)

Now, using the above template, the 3D structure of NMDA protein was generated by modeller [13].

Model Verification

Modeler generated five models. Using SAVES server's Ramachandran Plot Module, the best protein model was selected [14].

Ligand preparation

The 3d structures of the components of Valeriana wallichii, Asparagus racemosus and Acorus calamus were drawn using chemsketch [15] and saved as *.mol file.

Generating phase database

Now using Application→Phase→Generate Phase Database module of Maestro software phase database of the compounds of Valeriana wallichii, Asparagus racemosus and Acorus calamus was done [16].

Selection of ligands for NMDA receptor

Ligand-based pharmacophore model was selected by extracting the common features of the three-dimensional structures of compounds which are known to interact with the target protein (known ligand) [17]. Known ligands 2-Methyl-6-(phenylethynyl)pyridine (MPEP), 3-((2-Methyl-4-thiazolyl)ethynyl)pyridine (MTEP) and Aniractam were loaded in the Maestro workspace and by using Applications→Phase→Create Hypothesis module

pharmacophore features of the known ligands were noted [16].

Docking

Protein Preparation

The modeler generated protein is not suitable for immediate use in docking or other molecular modeling calculations. By using Protein Preparation Wizard of Maestro9.1 the modeler generated protein was uploaded for optimization & energy minimization [18].

Active Site Generation

The active site position of the protein was determined by SiteMap module of Maestro [19].

Ligand Preparation

The above identified ligands were prepared using Ligprep module of Maestro. The ligands were opened in the workspace and saved as a single database file. This file was opened in LigPrep. LigPrep is tool to prepare high quality 3D structure for large number of molecules taking input as 2D or 3D structures and giving output as a single, low energy 3D structure [20].

Induced Fit Docking

Using module Workflows→Induced Fit Docking module of Maestro the receptor NMDA was docked with the identified ligands [21].

ADME screening

ADME is an acronym in pharmacokinetics and pharmacology for absorption, distribution, metabolism, and excretion. Using QikProp module the ADME properties of the above ligands was determined [22].

Results & discussion

Predicting the 3D structure of NMDA receptor

The 3d structure of NMDA protein was modeled. Since BLAST search generated no templates, the NMDA amino acid sequence was submitted to I-TASSER server.

I-TASSER server output gives 3d structure of proteins based on protein threading method. Protein threading is a procedure for identifying template proteins from prepared structure databases that have a similar structure or similar structural motif as that of the query protein sequence [12]. The top template (best result) in each threading program is selected for further consideration. The quality of the query protein-template alignments and the difficulty of modeling the query protein is judged based on the statistical significance of the best threading alignment [23]. Ramachandran plot of I-TASSER server output gave 82.0% residues in the core region, 14.5% in the allowed region, 2.4% residues in the generously allowed region and 1.0% disallowed region.

	Number of residues in most favoured region	Number of residues in additional allowed region	Number of residues in generously allowed region	Number of residues in disallowed region	
Model 1	242 (83.7%)	37 (12.8%)	3 (1.0%)	7 (2.4%)	
Model 2	254 (87.9%)	31 (10.7%)	1 (0.3%)	3 (1.0%)	(selected)
Model 3	245 (84.8%)	32 (11.1%)	6 (2.1%)	6 (2.1%)	
Model 4	246 (85.1%)	34 (11.8%)	6 (2.1%)	3 (1.0%)	
Model 5	234 (81.0%)	45 (15.6%)	7 (2.4%)	3 (1.0%)	

Table 1: Values of NMDA protein obtained in favoured, allowed and disallowed region using Ramachandran Plot (SAVES server).

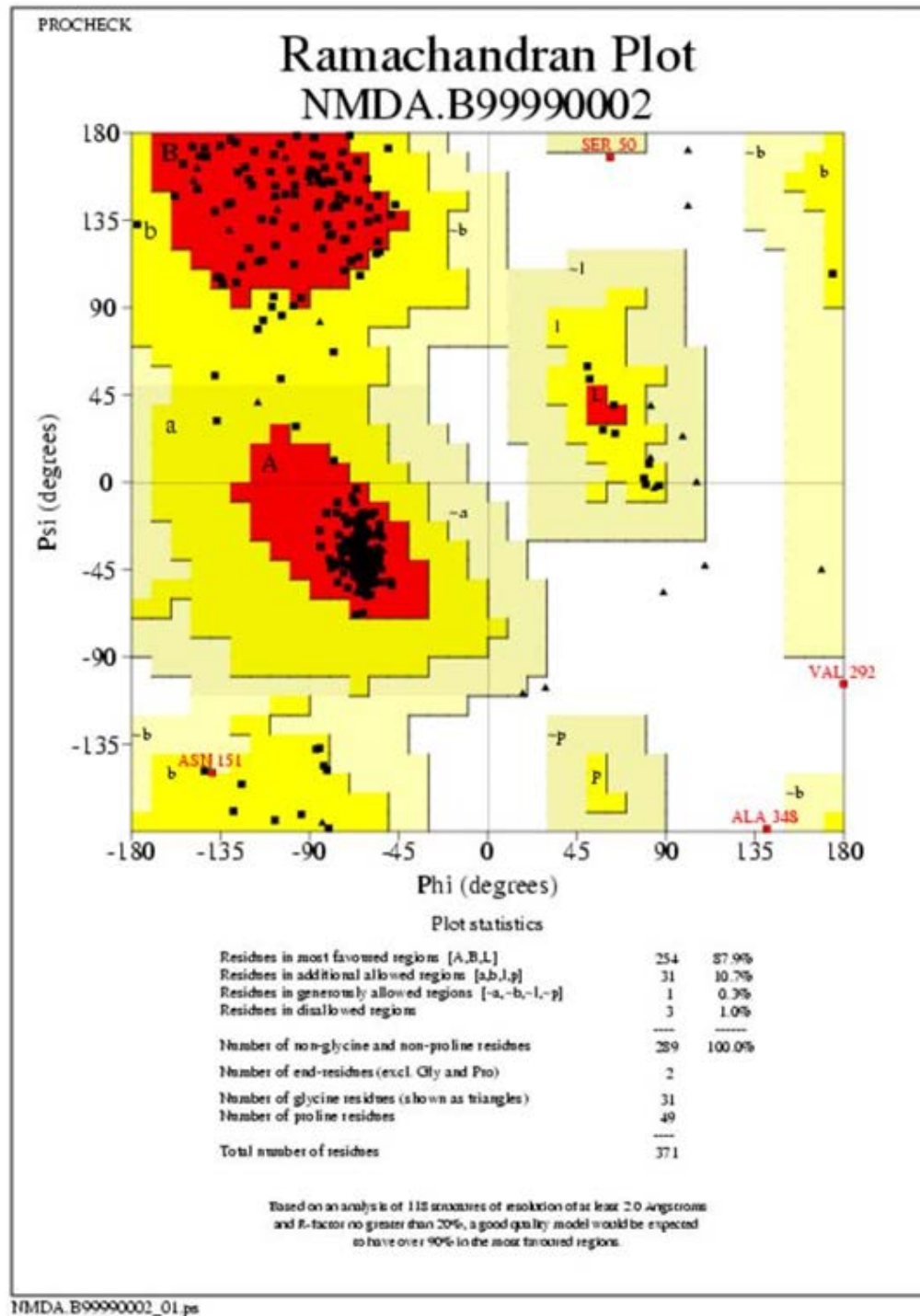


Fig 1: Ramachandran Plot of the selected best NMDA model.

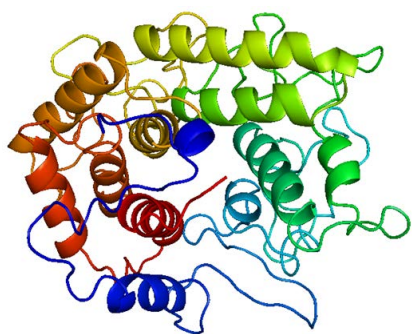


Fig 2: 3d Structure of the selected best NMDA model.

This best aligned template is taken for homology modeling studies by using modeler and Ramachandran plot of this model gave 87.9% residues in the core region, 10.7% in allowed region, 0.3% in generously allowed region and 1.0% disallowed region.

The three dimensional structure provides valuable insight into molecular function and also enables the protein-protein interaction to be analyzed. Ligand-based pharmacophore models are selected by extracting the common features of the three-dimensional structures of the known ligands. To do this, possible conformers of compounds should be previously enumerated.

Then, we superpose our target compounds by overlapping the three-dimensional structures' common substructures as molecular graphs among the other parts of compounds. So, in this method, since we do not have to enumerate all the conformers of a compound, we usually save much computational time by ligand-based pharmacophore modeling [24].

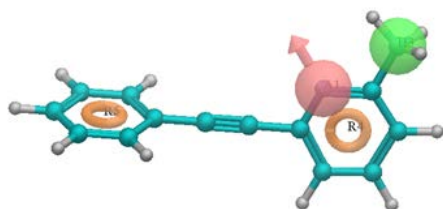


Fig 3: Pharmacophore features of MPEP.

This pharmacophore features matched with the following compounds:

Identified ligands	Fitness score	Plant
Acoradin	1.657	Acorus calamus
2,3-dihydro-4,5,7-trimethoxy-1-ethyl-2-methyl-3-(2,4,5-trimethoxy phenyl)indene	1.422	Acorus calamus
4, 5, 8-trimethoxyxanthone-2-O-beta-D-glucopyranosyl(1-2)-O-beta-D-galactopyranoside	1.031	Acorus calamus

Table 2: Ligands which matches with the pharmacophore of MPEP and their fitness score

Known ligand MPEP: 2-Methyl-6-(phenylethynyl) pyridine (MPEP) acting as an NMDA inhibitor was loaded in the Maestro workspace. Applications→Phase→Create Hypothesis gave pharmacophore features of MPEP as A1, H3, R4, R5 [A=Acceptor, H=Hydrophobic, R=Aromatic Rings].

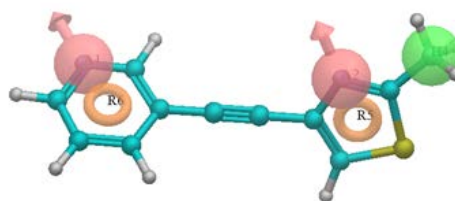


Fig 4: Pharmacophore features of MTEP

Identified ligands	Fitness score	Plant
Acoradin	1.407	Acorus calamus
2,3-dihydro-4,5,7-trimethoxy-1-ethyl-2-methyl-3-(2,4,5-trimethoxy phenyl)indene	1.300	Acorus calamus

Table 3: Ligands which matches with the pharmacophore of MTEP and their fitness score

Pharmacophore features of the known ligand Aniractam A1, A2, A3, H4, R6 matched with:

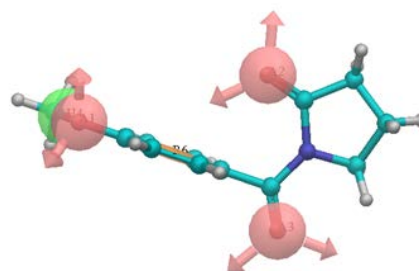


Fig 5: Pharmacophore features of aniractam.

Identified ligands	Fitness score	Plant
Acoradin	1.992	Acorus calamus
2,3-dihydro-4,5,7-trimethoxy-1-ethyl-2-methyl-3-(2,4,5-trimethoxy phenyl)indene	1.884	Acorus calamus
4, 5, 8-trimethoxy xanthone-2-O-beta-D-glucopyranosyl(1-2)-O-beta-D-galactopyranoside	1.603	Acorus calamus
Z-3-(2,4,5-trimethoxy phenyl)-2-propenal	1.684	Acorus calamus
Racemosol	1.275	Asparagus racemosus

Table 4: Ligands which matches with the pharmacophore of aniractam and their fitness score

Induced Fit Docking

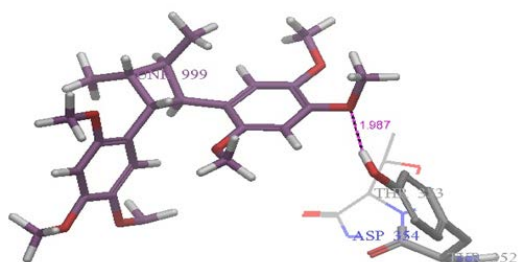
Using Proteing Preparation Wizard of Maestro, our best modelled protein was uploaded and optimized and minimized. SiteMap was used to determine the active site region and as per the output sitemap_site_2 with SiteScore 1.023 was used to determine the active site of the modelled protein.

LYS155, ASP143, ALA 149, ASN151, ILE153, ALA149, THR150, ASP146, SER140, GLU135, GLU136, GLY137, THR133, ASN144, PRO148, GLN145, PHE147, TYR141, GLY92, GLN91, PRO138, TYR133, PRO93, PHE120, GLN123, ASP126, GLN116, VAL119, TYR94, TYR84, GLY78, TYR52, GLN76, GLY77, TYR74, PRO73, PRO70, TYR69

Using Ligprep, ligands were prepared. Using Induced fit docking, prepared protein and ligand was uploaded docking was initiated.

As per the pharmacophore results we find that compound acoradin's pharmacophore has matches with the all the known ligands used here viz. MPEP, MTEP and aniractam, hence this compound is selected as the ligand and induced fit docking studies is done with this compound with NMDA receptor.

As per the output of induced fit docking:



NMDA receptor with acoradin

Fig 6: Docking results of NMDA receptor with the selected ligands

Ligand	Docking score/ glide g score	Doner	Distance in Å	Interaction
Acoradin	-9.527	TYR352	1.987	TYR352 (OH)... (UNK)

Table 5: Docking results of NMDA receptor with the selected ligands

As per the induced fit docking studies, the ligand acoradin successfully docks with NMDA receptor with docking score of -9.527 kcal/mol, ligand interacting the receptor at TYR352. Hence, this ligand can be used for checking its interacting efficacy in in-vitro and in-vivo.

ADME screening

QikProp generated the following output:

Lead molecules	Molecular weight ^a (g/mol)	Molecular volume ^b (Å)	PSA ^c	HB ^d donors	HB ^e acceptors	Rotatable bonds ^f
Acoradin	416.513	1352.876	41.167	0.000	4.500	6.000

Table 6: Principal descriptors calculated by Qikprop simulation [25] (Range 95% of Drugs)

A * indicates a violation of the 95% range.

^a Molecular weight of the molecule

^b Total solvent-accessible volume in cubic angstroms using a probe with a radius of 1.4 Å

^c Van der Waals surface areas of polar nitrogen and oxygen atoms

^d Estimated number of hydrogen bonds that would be donated by the solute to water molecules in an aqueous solution. Values are averages taken over a number of configurations, so they can be non-integer

^e Estimated number of hydrogen bonds that would be accepted by the solute from water molecules in an aqueous solution. Values are averages taken over a number of configurations, so they can be non-integer

^f Number of rotatable bonds

Lead molecules	QP log P(o/w) ^a	QP log S ^b	QP PCaco ^c	QP log HERG ^d	QP PMDCK ^e	% Human oral absorption ^f
Acoradin	4.617	-8.033 *	9906	-4.863	5899	100

Table 7: Physiochemical descriptors calculated by Qikprop simulation [25] (Range 95% of Drugs)

A * indicates a violation of the 95% range.

An M indicates MW is outside training range.

^a QP log P for octanol/water (-2.0, -6.5)

^b Predicted aqueous solubility, log S. S in mol dm⁻³ is the concentration of the solute in a saturated solution that is in equilibrium with the crystalline solid (-6.5, -0.5)

^c Apparent Caco-2 permeability (nm/s) (<25 poor, >500 great)

^d log HERG, HERG K⁺-channel blockage (concern below -5)

^e Apparent MDCK permeability (nm/s) (<25 poor, >500 great)

^f % Human oral absorption in GI (±20%) (<25% is poor)

Conclusions

It is seen that ligand acoradin shows good interaction with NMDA receptor with a docking score of -9.527. QikProp output shows that the ligand has 100% Human oral absorption in GI ($\pm 20\%$) (<25% is poor) which makes it a very effective candidate for being a potential drug candidate. Hence, this ligand is selected for further in-vitro & in-vivo studies.

Acknowledgement

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EXAMINING THE REHABILITATION METHODS OF WOMEN EXPOSED TO DOMESTIC VIOLENCE AT EUROPEAN LEVEL

ANTONIO DE ROSA

The University of Salerno organized the conference: "Models of prevention, treatment and Rehabilitation of Women Exposed to domestic violence: best practices in Europe", on 27 February 2015, from 10 AM to 05.00 PM

The event is a part of the project Ex-Re-Met (Examining the Rehabilitation Methods of Women Exposed to Domestic Violence at European Level) approved in 2013 by the LLP (LIFELONG LEARNING PROGRAMME – GRUNDTVIG LEARNING PARTNERSHIPS – GRU – 13 – P – LP – 79 – DJ – TR) there will be the participation of different European partners.

EX-RE-MET is an international 'Grundtvig Learning Partnerships' project with 6 participating institutions from different EU countries:

- *ProMAs - Project Management Association - ROMANIA*
- *RegioLine Social, Rural and Economic Development Non-Profit Limited Company – HUNGARY*
- *University of Salerno - Department of Human, Philosophical and Educational Sciences – ITALY*
- *AidLearn, Human Resources Consulting, Lda. – PORTUGAL*
- *Department of Woman-Council of Family and Equality of Opportunities – SPAIN*
- *University of Glasgow – UNITED KINGDOM*

In the Ex-Re-Met all partners examined the different methods of rehabilitation of the women exposed to domestic violence at European level in order to see how the European countries could deal with the same problem and what the benefits of rehabilitation on women are. Then all partners prepared reports and made a case study that describes the methods applied and how they were reintegrated into social life in detail.

Ex-Re-Met aims to raise the awareness, gather information about this phenomenon. The basic goal of this partnership is to make it possible for the participating countries and organizations to exchange good practices and experiences thereby it is creating a better opportunity for the related institutions (NGOs, rehabilitation service providers, police, hospices etc.) to help the recovery of those who have been exposed to domestic violence and prevent other possible future violent incidents within families.

