

What's wrong with evidence-based practice:
A call for a science-based approach: I. PTSD treatments

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A crisis is developing for clinical psychology. Uncritical acceptance of a fundamentally flawed “evidence-based” (EB) approach threatens the scientific integrity and authority of clinical psychology, and looks set to bring into the profession the “snake oil” therapies that it was supposed to exclude. The solution requires a truly “science-based” approach, with paradigmatic models, to reinvigorate creative scientific thought, research, and practice, and to reaffirm clinical psychology’s pre-eminent authority regarding psychological treatments.

The evolution of “evidence-based” practice

The 1960’s advent of the computer initiated revolutionary changes that have profoundly affected psychological theorising and practice. Behaviourism became untenable with programs, non-material sets of instructions for manipulating information, clearly at the heart of a powerful new technology. The realisation that a computer’s behaviour could not be understood without taking its programming into account led inexorably to Cognitive Theory’s insight that what goes on in our minds affects the way we perceive, interpret, and react to the world around us.

Cognitive Psychology pervasively changed scientific thinking about mental processes; except in one area of clinical psychology. During the Behaviourist era, phobia treatments were developed in which the client was exposed, either in vivo or in imagination, to the feared situation until their anxiety subsided. These “Exposure” treatments clearly involve cognitive processing of memories, images, and beliefs, but the original putative therapeutic mechanism of “habituation”, the waning of a fear response with non-reinforcement during continual exposure to the stimulus, has persisted to powerfully influence theory and practice to this day. Why this is so is tied up with the evolution of EB practice in psychology.

The 1940’s “Boulder Model” exhorted clinicians to adhere to scientific methods, procedures, and research in their day-to-day practice. But psychology has always been in a “pre-paradigmatic state” (Kuhn, 1962), and by the 1960s psychotherapies were proliferating and it was not clear how practitioners should scientifically decide how to best treat clients.

Practitioners in private practice are rarely able to combine substantive research with their clinical work, and the Boulder ideal was realised by practitioners becoming informed consumers, rather than producers, of scientific research and theory. And then the technology driven explosion in scientific research changed what it meant to be an “informed” consumer of science. Enter “PTSD” into a research database and you will soon find that being informed cannot mean reading everything written on the topic.

Psychology looked to other sciences for methods to distinguish “snake oil” and placebo from genuine, scientifically justifiable treatments, and it seemed reasonable to adopt medical science’s procedures for testing medications. Nowadays, when deciding how to best treat clients, practitioners rely on the EB approach, based on Randomised Controlled Trials (RCTs) and reviews and meta-analyses of RCTs of psychological therapies.

The “evidence-based” approach in psychology

The essential feature of a medical RCT is the double-blind comparison of a medication with a placebo that is identical to the medication in all respects (including even taste and physiological effects) except for the presence of the putatively active drug. If and only if these conditions are satisfied, can it be concluded that a medication is more effective than placebo.

The scientific evaluation of a drug is difficult enough, but the task becomes extremely problematic when the treatment to be tested is something like Exposure, Cognitive Therapy, or Eye Movement Desensitisation and Reprocessing (EMDR). These “brand names” sound like discrete, definable interventions, but actually code for all the clients’ experiences during the complex interpersonal interactions that go on between a therapist and a client during multiple meetings, sometimes conducted over months, as well as all that goes on in the mind of the client during and between consultations.

Under the standards of medical science, it is not possible to construct an adequate control for psychological outcome studies. A proper control of placebo and other expectation effects should resemble the tested intervention in every way other than the feature being compared, and what could that possibly look like? Establishing “Gold Standards” (Foa & Meadows, 1997) for psychological RCTs does not obviate the control condition problem. “Waiting for treatment” conditions clearly establish expectations in clients, and therefore cannot control for the effects of placebo or natural change over time. Controls in which subjects receive treatments known to be either effective or ineffective also do not provide a truly adequate comparison condition.

An RCT finding that a psychological treatment is effective supports the conclusion that treated subjects experienced something that resulted in a relatively greater therapeutic effect than that associated with the experiences of control group subjects. Beyond that, such a finding tells us little to nothing about why the treatment was effective, why it was not effective with clients who did not improve, or how the treatment could be modified to improve its usefulness.

Negative effects of the evidence-based approach

By providing no mechanism for comparing alternative PTSD treatments in terms of their features, components, strengths, limitations, or usefulness with different client populations, the EB approach supports the intellectual isolation and scientific fragmentation associated with pre-paradigmatic competing schools of thought. Reviews typically do not provide integrated discussions of effective PTSD treatments, and some even note EMDR’s EB status, and then decline to review it (e.g., APS, 2010). The EB approach tends to foster beliefs and “either/or” thinking that compromise the quality of treatment planning by encouraging the use of standardised treatments with all clients, and by impeding the combining of procedures to best meet the needs of each client.

Reinventing the wheel

Lacking paradigmatic theories, clinical psychology’s “schools of thought” impede the development of treatments by discouraging both an awareness of the history of ideas and the general sharing of knowledge between practitioners. Consequently, psychotherapists sometimes unknowingly “reinvent the wheel” and rename it, as if it is something new.

For example, “Imagery Rescripting” is on its way to achieving EB status as an effective PTSD treatment (Arntz, Tiesema & Kindt, 2007), and has been shown to be effective with clients who did not benefit from Exposure (Grunert, Weis, Smucker & Christianson, 2007). The Imagery Rescripting procedure in which clients recall a trauma memory, review it, and then from an “adult perspective” “comfort and reassure” their “younger self”, is essentially similar to techniques that have been branded as Transactional Analysis (Pearson, 1994), Neurolinguistic Programming (Bandler & Grinder, 1979), Analytical Hypnotherapy (Barnett, 1981), and Ideo-dynamic Hypnotherapy (Somerville & Jupp, 1992).

Unwarranted beliefs about treatment outcome

An RCT demonstration of a treatment’s efficacy is not scientific evidence that the therapeutic processes assumed by proponents of the therapy are in fact responsible for improvements.

The EB status of both Exposure and EMDR suggests that neither the protracted emotional reliving of traumatic experiences, nor the wriggling of eyes from side to side while recalling trauma memories, are necessary experiences for effective relief of PTSD. Beyond that, we have no scientific basis for the conclusion that emotional reliving or eye movements are even significant therapeutic processes. Nonetheless, the assumption that “habituation” underpins Exposure continues to inculcate the belief that PTSD treatment has to be lengthy and stressful.

Unwarranted beliefs about suitability of treatments

The belief that the EB status of Exposure or EMDR indicates their general suitability for PTSD sufferers blinkers awareness of research that should inform treatment planning.

Even when well-trained professionals follow recommended guidelines for Exposure, a substantial minority of clients fail to make sufficient gains or drop out of treatment (Foa, 2000; Resick et al., 2002; Schnurr et al., 2007; Shalev, Bonne, & Eth, 1996). Few practitioners seem aware that Exposure has been described as contraindicated for clients with: comorbid disorders of psychosis, substance abuse, cognitive deficits, and personality disorder; traumatic memories associated with emotions of guilt, shame or anger; memories of rape involving mental defeat or feelings of alienation and permanent change; or memories of being a perpetrator.

Clinical psychology’s Trojan Horse

The EB approach threatens the scientific authority of clinical psychology, and looks set to become the “Trojan Horse” that brings “snake oil” therapies into the profession.

The limitations of EB practice could be overlooked when the literature was dominated by RCTs attesting to the efficacy of Exposure. Most psychologists are comfortable enough with Cognitive Therapy, but accepting EMDR as an EB treatment remains difficult for some. If accepting psychoanalytical therapy as an EB treatment (Shedler, 2010) causes unease, what will the reaction be when the so-called “Power Therapy”, Emotional Freedom Techniques (EFT) has to be accepted as an EB treatment for PTSD?

In EFT clients are taken through repeating cycles of recall of trauma memories, rating the associated level of distress, and then pairing memory recall with various behaviours, including the tapping of acupuncture meridian points.

EFT proponents acknowledge the role that conditioning, reciprocal inhibition, and cognitive restructuring processes play in the EFT procedure, but assume that all negative emotions are due to disruptions in the body's "energy system", and EFT principally works by balancing "energy".

For a glimpse of where EB practice is taking clinical psychology, visit the EFT website at "EFTUniverse.com" and click on the Research Page link where you will read: "EFT supports the evidence-based standards defined by the American Psychological Association (APA) ...All the published studies listed below have effects at the $p < .05$ level or better. EFT has met the APA standards as an 'efficacious' or 'probably efficacious' treatment for phobias, anxiety, depression, and PTSD" (EFTUniverse.com Research page).

At the EFT website you can download the "EFT Mini Manual" in which you will read that: "The place that the effectiveness of EFT has been shown most dramatically is in the treatment of PTSD. Thousands of soldiers returning from the battlefields of Iraq and Afghanistan with PTSD have been treated with EFT. Studies have shown that their PTSD symptoms rapidly diminish, as the intensity of those traumatic combat memories drops away (EFT Mini Manual, Page 5).

EFT is promoted as if it has something special to offer. "The EFT basics are extremely easy to use. Small children learn it quickly, and kids as young as eight or ten have no trouble teaching it to others. It's fully portable, requires no special equipment, and can be used at any time of the day or night and under any circumstances" (EFT Mini Manual, Page 17).

Professional societies and government agencies worldwide accept the EB approach as best practice for determining the efficacy and scientific status of psychological treatments. But continuing support of an EB model that is inherently incapable of distinguishing the relative scientific merits of competing ideas about therapeutic processes could result in clinical psychology losing its pre-eminent position in the marketplace of psychological ideas and treatments. If the EB approach cannot convincingly sort science from snake oil, how will agencies in the future decide which treatments deserve inclusion in systems such as Medicare? If treatments such as EFT meet EB criteria, and can be provided by minimally trained practitioners, will psychologists always be preferred as treatment providers?

It will not be easy for psychologists to challenge the beliefs that underpin their allegiance to the EB approach. The solution requires nothing less than a shift to the kind of science-based approach and paradigmatic theories that drive research and practice in most other sciences.

In the following sections I will outline what a science-based approach to PTSD treatment, based on the cognitive psychology of memory, existing cognitive models, and research literature, could look like.

An outline of a science-based approach to PTSD

Memory recall is a reconstructive process (Bartlett, 1932; Neisser, 1967), and under normal conditions, memories recalled over time are susceptible to change as a result of the cognitive processing of memories, imagery, dreams, conversations, and other experiences.

The role of cognitive processing of memories in normal trauma resolution was appreciated as far back as Breuer and Freud (1893/1974), who observed:

“‘Abreaction’, however, is not the only method of dealing with the situation that is open to a normal person who has experienced a psychological trauma. A memory of such a trauma, even if it has not been abreacted, enters the great complex of associations, it comes alongside other experiences, which may contradict it, and is subjected to rectification by other ideas. In this way a normal person is able to bring about the disappearance of the accompanying affect through the process of association (p. 59).”

At the core of PTSD are trauma memories that remain essentially unchanged even when they are recalled every day for decades. PTSD develops from a pathogenic cycle in which the recollection of a trauma memory causes stress, and associated cognitive processing produces a sense of threat, such that the sufferer adopts avoidant coping responses to protect themselves. This avoidance deflects attention away from the trauma memory and inadvertently prevents engagement with and “emotional processing” (Rachman, 2001) of the traumatic experience (Creamer, 1995; Ehlers & Clarke, 2000; Foa & Kozak, 1986; Horowitz, 1993). Consequently, the memory remains unchanged, primed to re-ignite distress and further repetitions of the pathogenic cycle when it is next triggered into recall.

In their influential model, Foa and Kozak (1986) proposed that in PTSD, trauma memory resolution is stalled by the operation of maladaptive memory networks, which are characterised by pathogenic “Stimulus”, “Response”, and “Meaning” elements. These memory networks act as programs for escape or avoidance behaviour, and trauma memory recall fosters avoidance which impedes processing of new, potentially beneficial information.

According to Foa and Kozak (1986), two conditions must be met to relieve trauma memories. The memory must first be “activated” so that it is available for modification, and then new information, including elements that are “incompatible with some of those that exist in the fear structure”, must be provided so that “a new memory can be formed.” PTSD resolves when this new information is accommodated into the evoked memory structure, and the previously “frozen” memory becomes subject to normal trauma resolution processes.

Foa and Kozak (1986) initially linked their model to the learning theory concept of habituation, and assumed that “activation” of the memory required an emotional reliving of the experience. However, Foa and her colleagues subsequently incorporated cognitive processing into their theorising about Exposure Therapy. As Foa, Rothbaum and Furr (2003) argued, “Although PE (prolonged exposure) does not involve formal discussions of the patients’ beliefs about the world and themselves, it has been thought to decrease pathological anxiety via modification of the cognitions that underlie the target disorder (p. 51).”

Further, according to Foa and Jaycox (1999):

“The process of imaginal reliving helps change the meaning of PTSD symptoms from a sign of personal incompetence to a sign of mastery and courage. That is, during trauma reliving the patient experiences many of the PTSD symptoms and comes to realise that he or she doesn’t lose control or ‘go crazy’. In this manner the dysfunctional schema of self incompetence is corrected and replaced by a sense of control and personal competence (p. 54).

In the model proposed here, “beneficial new information” is assumed to be any information communicated explicitly or implicitly during therapy sessions, or intervening periods of time, that contradicts or challenges some of the pathogenic cognitive processes involving Stimulus, Response, and Meaning elements in a client’s trauma memory network.

What is it that effective therapies do that might be working to add new information to pathogenic trauma memory networks?

How treatments add new information to trauma memory networks

All psychological treatments involve complex, multi-stage processes that play out between, and within, the therapist and client over time. In limiting this discussion to Exposure Therapy, EMDR, and EFT, and the roles of psycho-education, assessment, and memory changing interventions, I am not suggesting that other processes are not important in producing outcomes, nor am I implying that there are not potentially many other effective treatments that could be integrated into a science-based approach.

Psychoeducation

All PTSD treatments incorporate educative interventions that provide a motivating rationale for therapy, promote hope and a sense of safety in the client, and work to explicitly or implicitly challenge a number of known symptom-supporting beliefs and appraisals (e.g., a client's beliefs about their symptoms, their trauma reactions, their ability to overcome and control symptoms, the trustworthiness of other people, the use of avoidant coping strategies, and the likelihood of relief).

Assessment

PTSD treatments typically involve assessment pre-, during, and post-therapy with trauma memories. Whereas, prior to therapy, a sufferer attempts to avoid all recall of trauma memories, in assessment they are asked in a matter-of-fact manner to voluntarily bring the feared memory to mind so it can be discussed and rated. Reynolds and Tarrier (1996) reported a therapeutic effect from clients rating their PTSD symptoms over time, and suggested that voluntarily bringing re-experiencing symptoms to mind for rating might increase perceived self-control over such symptoms.

A notable and inexplicably unremarked upon feature of Exposure Therapy, EMDR, and EFT is that they all repeatedly ask clients to interrupt recall of a trauma memory to give scaled ratings on the Subjective Units of Distress Scale (SUDS). The SUDS procedure redirects the client's attention away from their trauma memory to a more objective, present-focused, verbal form of mentation. Given that SUDS ratings also directly influence such important treatment variables as session length, number of repetitions of the trauma memory, and the frequency and nature of the therapist's interventions to moderate anxiety, it seems reasonable to question whether the SUDS procedure could be centrally important to the effectiveness of Exposure, EMDR, and EFT.

In effect, any request for clients to deliberately halt or change their experiential flow to discuss what is happening, or to rate symptoms, or to start, stop, or suspend a trauma memory, potentially constitutes a therapeutic intervention that can provide an experience of enactive mastery with implicit information regarding self-efficacy and the ability to control symptoms.

Direct Memory Changing Procedures

During all effective PTSD treatments clients are guided through what could be conceptualised as experiences of enactive mastery over trauma-related imagery.

Asking clients to voluntarily recall trauma memories in the presence of a therapist potentially imparts new information about the therapist's attitudes and the client's ability to voluntarily call up and control re-experiencing symptoms. But Exposure, EMDR, and EFT require clients to attend to much more than just the setting around them while they recall trauma memories.

In Exposure, clients are asked to sustain first person recall and emotional reliving of a trauma memory for extended periods of time across multiple sessions. In apparent contradiction to the assumption that "habituation" requires a sustained and undistracted fear response, Exposure therapists frequently interrupt a client's memory recall to request SUDS ratings. Therapists also employ imagery and other techniques, collectively dubbed "titration", to ease excessive levels of distress during treatment.

In EMDR the client is asked to recall a trauma memory and describe its associated negative cognitions and emotions. The client then rates "subjective disturbance" on a SUDS scale and the perceived validity of an alternative "desired cognition" on a Validity of Cognition (VOC) scale. The client next describes the location of associated body sensations, and a "Stop signal", of raising the hand to signal distress, is established.

The client then recalls the memory while simultaneously watching the therapist's index finger as it is moved rapidly horizontally back and forth. After each set of a dozen or more bi-directional eye-movements, the client is told to "Blank it out, let it go and take a deep breath", and then the client is asked for another SUDS rating. As in Exposure, the client's SUDS ratings determine session length, and the EMDR process is recycled until the client reports a SUDS of 0 or 1.

In the EMDR "installation" stage, the client simultaneously recalls the original memory and thinks about the earlier positive cognition, then rates how true the cognition feels. The client is then instructed to "hold them together" while attending to further sets of eye movements. This process is recycled until the ratings indicate an increased belief in the positive cognition.

In the EMDR "body scan" stage, clients are instructed to concentrate on the memory and the positive cognition while mentally "scanning" their bodies. If any sensation is reported, further sets of eye movements are performed either to reinforce positive feelings or ease discomfort.

In EFT, clients recall a trauma memory, give a SUDS rating of the associated emotion, and then simultaneously attend to the memory and a series of experiences which include a repeated statement of self-acceptance and the client's tapping with their fingertips specified acupuncture points on the face and body. The tapping process takes a minute or two to complete, and is repeated if the SUDS rating of the recalled trauma memory remains high.

It is apparent that Exposure, EMDR, and EFT share some striking procedural similarities. Each treatment utilises the basic two step process for changing trauma memories described by Foa and Kozak (1986). In each therapy, clients are asked to recall a memory and simultaneously attend to various cognitive processes, most notably the SUDS rating procedure, and a range of other bodily sensations and aspects of the external environment, which can be seen as potentially imparting new information capable of modifying pathogenic cognitive processes that maintain the trauma memory network.

Benefits of a science-based approach

A paradigmatic model of a basic therapeutic process that underpins all PTSD treatments, offers potentially enormous theoretical and practical benefits.

A science-based approach would sharpen conceptual thinking. If a cognitive processing model can account for therapeutic effects, then Occam's Razor might pare away such explanatory concepts as exposure, habituation, reciprocal inhibition, balancing energy, stimulating cerebral hemispheres, et cetera.

Seeing brands of therapy as different mixes of techniques for adding new information into trauma memory networks, suggests a generative research program to tease apart the relative contributions that procedural components make to therapeutic outcomes. Such research could then inform systematic thinking about how procedures could be developed, modified, or combined to more effectively address the mix of pathogenic factors that support PTSD in each individual client.

Progressively more fine-grained examinations of therapeutic processes become possible with a science-based approach. In regards to the necessary components for treatment effectiveness, we know that EMDR works without the eye movements (e.g., Cusack & Spates, 1999; Davidson & Parker, 2001; Hyer & Brandsma, 1997), but we do not know if Exposure works without the emotional reliving of trauma memories, or whether EFT works without the tapping of acupuncture points. Why not compare Exposure with the client taking a first person versus third person perspective during trauma memory recall? Why not compare EFT under two conditions of tapping acupuncture points versus tapping points a couple of centimetres removed? Why not examine all three treatments minus the SUDS ratings procedure?

Examining the relationships between treatment procedures and pathogenic cognitive processes in subjects would lead to a deeper understanding of therapeutic processes. For example, following on Foa, Rothbaum and Furr's (2003) hypothesis that prolonged exposure decreases anxiety via "modification of the cognitions that underlie the target disorder", researchers could examine changes during treatment in subjects' pathogenic attributions regarding the meaning of their symptoms. If such research supported the notion that exposure works, at least in part, by modifying pathogenic cognitions, then the question would arise as to whether Exposure was the most effective and least stressful means for changing such beliefs.

But perhaps most importantly, a science-based paradigm would roll the Trojan Horse back outside, and protect clinical psychology's status as the pre-eminent authority on how to best treat PTSD. Our continuing support for the EB approach, and our failure to assimilate innovative therapies into mainstream clinical psychology, will inevitably invite aggressively promoted brands to carve out significant portions of the mental health treatment market.

With a science based approach, clinical psychology could rightfully take full ownership of EMDR, EFT, and every other treatment that has or will ever be developed. For the first time, the profession could speak with genuine scientific authority on why and how all treatments work. It would then be apparent that only professional psychologists have the expertise needed to flexibly deliver, effective, minimally stressful, science-based treatments that are tailored to meet the needs of every client who seeks help.

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