Reconsolidation of Traumatic Memories, The RTM Protocol: Albuquerque trainee results

Richard M Gray[1,2], Amanda S. Davison[3], Frank Bourke[1]

[1] The Research and Recognition Project, Corning, NY

[2] The Touro School of Osteopathic Medicine, Middletown, NY

[3] The Family Connection, Albuquerque, NM

Corresponding Author: Richard M Gray, 160 Atlantic Avenue, Long Branch, NJ 07740. Email:

rmgray2012@gmail.com Telephone: 732-513-0280

Abstract

Objective: Between 2018 and 2020, 18 licensed mental health professionals participated in certification trainings in the reconsolidation of Traumatic Memories (RTM) protocol. Participants collected and reported back anonymized data on clients they treated using RTM, including pre-post PSSI-5 (n =74) or PCL-5 (n =11) statistics for each client.

We hypothesized that trainee results would match or exceed those reported in published RTM studies; the protocol's utility would extend to more trauma types than previously reported; that their results would validate the efficacy of the training.

Method: Between 2018 and 2020, 99 patients diagnosed with PTSD were referred to a professional counseling and therapy organization in Albuquerque NM. 90 of those patients were deemed eligible and were treated by the 18 certified RTM trainees. Patients averaged slightly more than one trauma each and averaged about 3 sessions per trauma. Data collection beyond symptom severity scores were limited by the exigencies of the COVID-19 epidemic.

Results: Of 90 RTM-eligible clients, 5 dropped out, 85 completed RTM treatment for at least one trauma. Pre-post- PSS-I-5 or PCL-5 results found that 80 (95%) scored below minimal diagnostic criteria for PTSD, exceeding previously reported success rates. Trainees extended the range of treated traumas beyond military contexts including family violence, first responder trauma exposure, sexual abuse, school-related traumas, and traffic accidents.

Conclusions. RTM training appears to be effective in developing a cadre of licensed professionals who are able to replicate and surpass the results of RTM as previously reported.

Key Words: Reconsolidation of Traumatic Memories (RTM); Post-traumatic Stress Disorder (PTSD); Reconsolidation; Adult human population; Training competence.

In spite of its presence as an identifiable consequence of war and violence for thousands of years, posttraumatic stress disorder (PTSD) was first designated as a distinct condition with the publication of *Diagnostic and Statistical Manual of Mental Disorder*, third edition (*DSMIII*; American Psychiatric Association [APA], 1980; Bodkin, Detke, Pope, & Hudson, 2007; Foa & Meadows, 1997; Gray & Liotta, 2012). It has been included in all subsequent editions (APA [DSM IV], 1994; APA [DSM-IV-TR], 2000; APA [DSM-5], 2013).

DSM-5 (2013) reports that among 75-year-old Americans, PTSD has a lifetime prevalence of 8.7%. The 12-month prevalence for American adults is about 3.5%. Results are generally higher for women than for men. DSM-5 indicates that prevalence estimates are lower outside of the US., clustering below 1%. PTSD rates are higher among veterans and others who have a higher risk of traumatic exposure through employment. These include police, firefighters, and emergency medical personnel. The highest rates of PTSD are found among survivors of rape, military combat and captivity, and ethnically or politically motivated internment and genocide (APA, 2013).

The prevalence of PTSD among U.S. veterans of the Gulf War, Operation Iraqi Freedom, and Operation Enduring Freedom has been estimated at nearly twice the rate of the noncombat population. For Gulf War veterans, that translates to a prevalence ranging between 10% and 11% and for veterans of the Iraqi and Afghanistani theaters between 13% and 17% (Gradus, 2019; Hoge, Grossman, Auchterlonie, Riviere, Milliken, & Wilk, 2014).

PTSD is a disorder of memory. It is defined by the *DSM IV* (APA, 1994) in terms of five criteria. The first criterion is the traumatizing event. To qualify as a traumatizing event, both of the following must appear: (a) The person experienced, witnessed, or was otherwise confronted with one or more events that actually involved or threatened death, serious injury, or some other threat to the physical integrity of that individual or others, and (b) The individual's response involved intense feelings of horror, fear, or helplessness.

In DSM IV, as used in previous studies, the diagnostic criteria are further divided into three symptom clusters: reexperiencing, avoidance/numbing, and arousal. According to Foa and Meadows (1997) the reexperiencing symptoms include the hallmark signs of PTSD, nightmares, intrusive thoughts, and flashbacks.

Avoidance includes the patient's efforts to avoid memories of the traumatic experience and symptoms of

emotional numbing. The fourth, hyperarousal, includes sleeplessness, irritability, and hypervigilance. Other

criteria include the impact and duration of the symptoms (APA, 1994). DSM-5 (APA, 2013) added a fourth

symptom cluster including cognitive distortions such as persistent negative beliefs and expectations about

oneself or the world, and the persistent, unwarranted, or otherwise distorted blame of self or others for the cause

or consequences of the traumatic event (APA, 2013, Cox, Resnick & Kilpatrick, 2013).

PTSD and Current Treatments.

As noted, PTSD is a disorder of memory in which certain traumatic memories may intrude into and

interfere with everyday life as flashbacks. These are often perceived as real time, emergent facticities that

disrupt everyday living. They also impact the client through affecting mood and perspective as depression, guilt,

or fear that the trauma will be discussed or otherwise confronted. It often disrupts sleep with nightmares that

impact the patient's ability to function for hours or days following.

Frontline treatments for PTSD include Prolonged Exposure (PE), Cognitive Processing Therapy (CPT),

Eye Movement Desensitization and Reprocessing(EMDR) and pharmaco-therapy. All four interventions report

equivalent efficacy in reducing symptom severity scores (Bisson, Roberts, Andrew, Cooper, & Lewis, 2013;

Goetter, Bui, & Ojserkis, 2015; Resick, Williams, Suvak, Monson, & Gradus, 2012; Steenkamp & Litz, 2013;

Steenkamp, Litz, Hoge, & Marmar, 2015). None of these treatments, however, has been fully effective in the

treatment of PTSD for combat related trauma (Kitchiner, Lewis, Roberts, & Bisson, 2019; Steenkamp et al.,

2015). A review of those interventions finds that more than 60% of patients receiving those treatments retain the

PTSD diagnosis post-treatment (Steenkamp et al., 2015).

The RTM protocol is distinct from classical trauma-focused cognitive interventions in that exposure to

the trauma memory is not the central agent of treatment change. Here, the traumatic memory is evoked through

the client's narrative—a lessened exposure (Lee, Nader & Schiller, 2017) —which is believed to initiate a

period in which the memory is destabilized and during which information can be incorporated into the structure

of the target memory (Agren, 2014; Gray & Bourke, 2015; Gray & Liotta, 2012; Fernández, Bavassi, Forcato,

& Pedreira, 2016; Forcato, Bourgos, et al., 2007; Kindt, Soeter, & Vervliet, 2009; Lee, 2009; Schiller, &

Phelps, 2011; Schiller, Kanen, LeDoux, Monfils, & Phelps, 2013). RTM is not an exposure or extinction-based

intervention, it is believed to employ reconsolidation as a memory-updating mechanism.

The Reconsolidation of Traumatic Memories (RTM) Intervention

RTM is a novel, brief therapy derived from Neuro-Linguistic Programming (NLP) techniques. It is

closely related to the Visual Kinetic Dissociation protocol (Gray & Liotta, 2012) from which it is derived. It

differs from it in that it relies explicitly upon the syntax of reconsolidation to enhance outcomes and has been

standardized for scientific evaluation (Gray & Bourke, 2015; Gray & Liotta, 2012; Gray, Budden-Potts &

Bourke, 2019; Gray, Budden-Potts, Schwall, & Bourke, 2020; Tylee, Gray, Glatt & Bourke, 2017).

RTM focuses upon PTSD symptoms expressed as immediate, phobic-like responses to triggering stimuli

(flashbacks) and repeated nightmares or night terrors. Fast arising autonomic reactivity in response to the

patient's narrative or other relevant stimuli is an expected presenting symptom. Nightmares and flashbacks

associated with the diagnosis are expected to be related to one or more of a few identifiable traumatic incidents

either by content or feeling tone. Patients without significant intrusive symptoms (flashbacks, nightmares,

and/or fast arising reactivity when recounting the trauma narrative) related to identifiable traumatic exposure

may be inappropriate to the intervention. Until now, it has been tested almost exclusively with combat trauma

and victims of Military Sexual Trauma (MST; Gray & Bourke, 2015; Gray et al., 2019; Gray et al., 2020; Tylee

et al., 2017).

The RTM protocol assumes, in harmony with modern neuroscience, that experience is encoded as

sequences of subjective sensory images (typically visual, auditory, and kinesthetic representations). Those

representations may be ordered differently in different contexts and individuals. They are further modified by

submodality distinctions. Submodalities are the details of sensory experience that code for valence (or value,

whether positive or negative) and intensity (salience, the importance of the event). In some cases, submodality

distinctions (spatial location) are also significant determinants of meaning. Submodalities provide information

about the dimensions of sensory experience such as stimulus intensity (loud or soft, bright or dim, lightly touching or pressing), source distance and location, changes in intensity (increasing, decreasing, or variable), dimensionality (3D or flat, stereo or mono), signal complexity (as timbre, hue, or granularity), and coding for such factors as valence (positive or negative emotion) and familiarity. Many of these distinctions are significant markers of multi-sensory emotional salience that are integrated in the midbrain (Andreas, & Andreas, 1989; Bandler, 1985; Dilts & Delozier, 2000; Dilts, Grinder, Bandler, & DeLozier, 1980; Gray & Bourke, 2015; Gray et al., 2019; Gray et al., 2020; Tylee et al., 2017; Veale, Hafed, & Yoshida, 2017; White, Berg, Kan, Marino, Itti, & Munoz, 2017). These elements operate below the level of reflexive consciousness and have been described as parts of core or phenomenal consciousness (Alcaro, Carta & Panskepp, 2017; Capra & Luisi, 2017; Feinberg & Mallat, 2020; Northof & Lamme, 2020)

RTM does not posit an image apart from its neural representation. So, changing the structure of internal representations is believed to directly impact the neural networks that embody each memory, and the responses they elicit. When these representations are modified under the therapist's direction, the client's subjective experience is changed directly. When these changes occur in the context of reconsolidative blockade (see below) the changes tend to be permanent.

RTM is designed to introduce perceptual distortions that code the target memory as a distant, past memory (see Table 1. for an outline of the intervention). The specific elements involved in this recoding include the movie theater context, the flattening of the event onto a distant movie screen, the loss of color, temporal distortions, the instruction to watch another dissociated self as they watch the movie, and others. These all distance the patient from the content. While each, separately and in combination, decreases the complexity of the visual image, they also reduce its salience, its emotional intensity. At last, the memory is coded as a distant, non-threatening, distributed memory of the target event. As such it is spontaneously integrated with the client's life story.

Table 1.

Treatment outline: Reconsolidation of Traumatic Memories

1. The client is asked to recount the target trauma briefly.

2. As soon as they show signs of autonomic arousal, the clinician stops the narrative and reorients them to the present.

3. Elicit SUDS (Subjective Units of Distress) rating.

4. The clinician aids the client in choosing a recognizable but neutral name for the event.

5. The clinician assists the client in choosing "bookends," times before and after the event: a time before they knew the event would occur, and another when they knew that the event was over and that they had survived.

6. The client is guided to imagine being in a movie theater in which the pre-trauma bookend is displayed in black and white on the screen.

7. They are instructed how to remain dissociated from the material on the screen.

8. As if from behind and above, the client watches their own responses as a black and white movie of the target trauma plays from bookend to bookend. The movie is repeated with structural alterations as needed until the client is comfortable.

9. The client steps into the last frame of the movie, turns on the sound, color, and dimensionality, and experiences the event backwards, as a fast rewind lasting 2 seconds or less. It begins with the post-trauma bookend and ends with the pre-trauma bookend. This is repeated as needed until they are comfortable and show little or no autonomic arousal.

10. The clinician elicits the trauma narrative and probes for responses to stimuli that previously elicited a fast arising, autonomic response. If the response is significant, earlier steps of the process are repeated.

11. SUDS ratings are elicited.

12. When the client is free from emotions in recounting the event, or sufficiently comfortable (SUDS = 1 or 2), they are invited to proceed to the next phase of treatment. If SUDs $\geq$ 3, trending upward, the

client is directed to repeat elements of the protocol beginning either with the rewind or the black and

white movies.

13. The client is invited to design and experience several alternate, non-traumatizing versions of the

event, and rehearses these several times.

14. The client is again asked to relate the trauma, and their previous triggers are probed.

15. SUDS ratings are elicited.

16. When the trauma cannot be evoked, and the client can recount the event without significant

autonomic arousal, the procedure is over.

Note: Other versions of the RTM outline can be found in Gray et al., 2019; and Tylee et al., 2017.

Each treatment session begins with a brief, controlled retelling of the target trauma. That narrative is

interrupted as soon as signs of emotional arousal are observed (e.g.: changes in posture, breathing, muscular

tone, lacrimation, flushing, voice tone, etc.). The narrative is interrupted with the expectation that a very brief

exposure to the trauma will initiate labilization of the memory with reconsolidation blockade of the target

memory following (Agren, 2014; Gray & Liotta, 2012; Forcato et al., 2007; Kindt et al., 2009; Lee, 2009;

Schiller and Phelps, 2011; Schiller et al., 2011; Schiller et al., 2013). Previous research with humans and

animals has shown that such a brief, incomplete, or unreinforced reminder will render the traumatic memory

subject to change for a period of from one to six-hours (Lee, Nader, & Schiller, 2017; Nader et al, 2000;

Schiller, Monfils, Raio, Johnson, LeDoux, & Phelps, 2010). After termination of the narrative, calming and

reorienting the patient to the present, patients are then guided through a series of dissociative experiences that

are designed to perceptually recode the trauma memory as a past, non-threatening event. Insofar as these

changes represent new information that is relevant to the target memory and its current level of threat, it is

believed that, in accordance with reconsolidation theory (Agren, 2014; Gray & Liotta, 2012; Fernández et al.,

2016; Forcato et al., 2007; Kindt et al., 2009; Lee, 2009; Schiller, & Phelps, 2011; Schiller et al., 2013), those

changes will be incorporated into the structure of the target memory. After treatment, the details of the event

typically can be recalled, discussed, and otherwise encountered without evoking the strong autonomic arousal

that is characteristic of PTSD, and the perspective within the memory typically shifts to a more-distant, third-person position. Once the intensity of the memory has been attenuated, the meaning of the event is typically reappraised spontaneously. With RTM, the content of the target memory remains unchanged, only its perceptual structure is altered (Gray & Bourke, 2015; Gray et al., 2016; Gray & Liotta, 2012; Tylee et al., 2017).

The cognitive elements of the intervention are well established in the annals of cognitive behavioral research (see NLPWIKI, 2014). In RTM they are systematically used throughout the protocol to change the apparent present-time, emergent nature of the trauma material (Gray & Liotta, 2012), to a more distant perspective consistent with non-pathological memories. Although the interventions, as described below, are most directly derived from the discipline of Neuro-Linguistic Programming (Andreas, & Andreas, 1989; Bandler, 1985; Dilts & Delozier, 2000; Dilts, Grinder, Bandler, & DeLozier, 1980), all the elements are standard elements of cognitive psychology.

Perhaps the defining element of the protocol, is the use of the cognitive elements of the intervention during the period of labilization that follows the termination of the trauma narrative. During this period, thought to last from one to six hours (Nader, 2003; Nader et al, 2000; Schiller et al., 2010), relevant information about the target memory that is new, or novel, that provides safety information, or information that changes the status of the threat, may be introduced into the structure of the memory (Agren, 2014; Fernández et al., 2016; Forcato et al., 2007; Kindt et al., 2009; Lee, 2009; Schiller, & Phelps, 2011; Schiller et al., 2013). While the cognitive elements of the protocol may have some value on their own, we hypothesize that it is their presentation in the context of reconsolidation that leads to the fast, largely permanent changes in the index memories that characterize RTM.

Studies of RTM Efficacy.

There have been three previous randomized waitlist-controlled studies (RCTs) of RTM and one pilot. All three of the RCTs evaluated the protocol using the PSS-I and PCL-M for DSM IV at intake and at two-weeks post-treatment. At six weeks post and later follow-ups the PCL-M was used either alone or with the PSS-I (Gray & Bourke, 2015; Gray et al., 2017, Gray et al., 2020; Tylee et al., 2017). Three of the studies

investigated RTM with samples of male veterans. The fourth study (Gray, et al., 2020), examined a mixed group of thirty service-related women, 21 of whom suffered from some degree of Military Sexual Trauma (MST). All studies obtained high effect sizes and significant loss of diagnosis. Those who no longer met diagnostic criteria, as well as those who were merely subclinical but with significant symptom score reductions, reported a complete absence of flashbacks and nightmares after the last treatment.

These studies used PTSD symptom inventories based upon DSM-IV-TR (APA, 2000). This was done to ensure comparability with previous studies of the intervention and in light of the large body of research already accomplished using that standard (Hoge et al., 2016).

Gray and Bourke (2015) evaluated RTM in a population of veterans all of whom had a prior diagnosis of PTSD. They found a mean (PCL-M) intake score of 61.7. They reported a mean post-treatment reduction in trauma severity of 33 points, with a final mean PCL-M score of 28.8 ± 7.5 at 6 weeks or the last measure reported. Hedges' g at 6-weeks-post showed a 2.9 SMD difference from intake to follow-up (CI 99% [26.05, 33.71]; p. < 0.001). Informal follow-ups reaching approximately 75% of treatment completers indicated that treatment gains were maintained for up to 4 years (R. Gray, personal communication, August 5, 2019).

Tylee and colleagues (2017) reported a mean (PCL-M) reduction of 39.8 points (cumulative intake mean = 66.5 ± 8.27) for all treatment completers, with a final mean PCL-M score of 26.8 ± 13.08 at 6 months. Hedges' g for all treatment completers at 6-months-post indicated a 3.59 SMD difference from intake to follow-up (CI 99% [22.06, 33.54]). Twelve-month mean PCL-M scores for treatment completers, with 81.5% reporting, were 20.9 (± 4.2), a reduction of 46.5 points. These results were significant at the .001 level.

Gray, Budden-Potts and Bourke (2017) reported a 74-person study following the same randomized waitlist design. The main measure at all time points was the PSS-I. Mean intake score on the PSSI was 38.5 ± 6.783 with mean reductions at 6-weeks-post of 23 points and final mean scores of 15.38 ± 15.23. These results were significant at .001 level. The effect size, Hedges g, for within group 2-week comparisons was 2.35 (95% CI [1.76, 2.94]).

In their study of thirty female subjects, Gray, Budden-Potts, Schwall, & Bourke (2020) reported that treatment group PSS-I scores decreased from a mean of 43.6 ± 2.5 to 9.7 ± 6.3 at 2-weeks post (decrease, 33.9; $g = 3.7$; 95% CI [2.5, 4.8]), and remained stable to 1-year post. PSS-I scores for treated controls dropped from a mean of 38.6 ± 3.5 to 7.1 ± 5.9 at 2-weeks post (decrease, 31.5; $g = 3.4$; 95% CI [2.3, 4.5]) and remained stable to 1-year. Treatment group PCL-M means decreased from 73.5 ± 3.1 to 28.3 ± 7.2 at 2-weeks post (decrease, 45.2, $p < 0.001$ | $g = 4.2$; 95% CI [3.0, 5.4]). Scores for treated controls dropped from a mean of 67.1 ± 4.5 to 25.6 ± 7.4 at 2-weeks post (decrease, 41.5, $p < 0.001$| $g = 3.5$; 95% CI [2.4, 4.6]), and remained stable to 1 year.

Purpose of the Study

After completion of the above studies, R&R began a series of certification training programs for licensed mental health professionals. After four days of onsite training, trainees completed three RTM treatments for three separate cases of PTSD. Those treatments were evaluated by qualified coaches from the R&R Project. The first of these trainings was held in Albuquerque, NM in November 2018. After completing training, trainees collected and supplied anonymized pre- and Post- PCL-5 or PSS-I-5 data to support their observed results. Here, we review results from completed clients over the two-year period between October 2018 and October 2020. We hypothesized 1) that the trainees' results would at least match the results reported in the above-cited RTM studies; 2) that the protocol's utility would extend to more trauma types and populations than those previously reported; 3) that the predicted results would validate the efficacy of the training program.

Method

Participants

During several trainings in the Albuquerque, NM area between 2018 and 2020, 18 licensed, credentialed mental health professionals participated in a 4-day certification training in the RTM protocol provided by the Research and Recognition Project (R&R). Those participants reported back to R&R anonymized data on the clients, the number and type of traumas treated for each client, the number of treatment sessions per client, and pre-post PSSI-5 or PCL-5 statistics for the index trauma for each client (even if more than one trauma were

treated) in accordance with PSSI-5 instructions. Clients self-referred or were referred by friends, family, and colleagues to a professional counseling and therapy organization in professional offices, in the environs of Albuquerque, NM where all treatments and evaluations were completed. Assignments to each therapist were made by senior clinicians based upon perceived goodness of fit and clinician expertise.

Participants were regular patients at The Family Connection, an outpatient mental health provider in greater Albuquerque, NM. Of 99 initial patients, 14 were eliminated from the study or dropped out for various reasons. These are detailed in table 5. Of those eliminated, nine, in 4 categories: COVID restrictions (5), Discharge-insurance (1), Discharge-Medical (2), RTM not indicated (1) were eliminated from the study. Four others, from the following categories dropped out during the course of treatment: unspecified discharges (4), and unspecified dropouts (1). Ten others have not yet completed treatment.

We note that while pre- and post-treatment records of symptom severity were reported in a consistent manner, other data were not collected from all participants. Circumstances surrounding the COVID-19 Pandemic and the ensuing economic collapse, led to the decentralization of clinical services, and as most clinicians were working remotely, further data collection became difficult, if not impossible. These circumstances also increased the caseload of all of the participating clinicians. As a result, we present only partial demographics. We also note that we only present completer data. Demographic data are presented in Table 2.

Table 2.			
Sample Demographics (completers only)			
Age			
	Gender	N	Mean
	Female	49	35
	Male	22	42
	NR	14	61
	Total	85	38

Employment

Status	N
Employed	30
Retired	2
Unemployed	9
NR	44
Total	85

Education

Level	N
8th Grade	2
In High School	2
GED	1
High School Diploma	8
In College	3
Associates Degree	3
Baccalaureate degree	1
Master's degree	2
NR	63
Total	85

Table note: NR = not reported.

85 individual clients reported for an average of 3 sessions per trauma and dealt with an average of 1.2 separate traumas. Among those treated, 22 reported that they were concurrently being treated with psychotropic medications, another 63 are unreported. Of those with reported psychotropic medications, 16 of 22 (73%) scored below the diagnostic cutoff of 23 points for a presumptive diagnosis of PTSD using PSS-I-5. Another 23

% scored above the cutoff but reported mean score reductions of 29.8 points (range 17 to 48 points). Medication

results were only reported for patients completing the PSS-I-5. (Table 3-supplimental materials).

Measures

PSSI-5

The PSSI-5 is a 34-item semi-structured symptom inventory based upon the DSM 5 criteria for the

assessment of past-month PTSD. After screening for the presence of a qualifying trauma, usually the first or the

worst, 20 other questions assess the following diagnostic criteria: Intrusion, avoidance, changes in mood and

cognition, arousal, and hyperactivity. Items are assessed for frequency and intensity of symptoms on a 5-point

scale. Symptoms are considered present with a score of 1 or more. These items result in a total symptom

severity score ranging from 0 to 80. Two additional items assess for overall distress and interference with daily

functioning. Two more (for a total of 24 items) assess for delayed onset and persistence of symptoms,

respectively. Diagnosis depends upon the presence of 1 intrusion symptom, 1 avoidance symptom, 2 cognition

and mood symptoms, and 2 arousal symptoms for a period of 1 month or greater, in addition to clinically

significant distress or interference (a score of 2 or higher on either Item 21 or 22; Foa, McLean, Zang, Zhong,

Rauch, Porter, . . . Kauffman, 2016).

PSSI-5 showed high internal consistency (α =.89), test-retest reliability (r. =.87), and interrater

reliability for both the total severity score (κ =.98) and for the PTSD diagnosis (κ = .84). It demonstrated

convergent validity with CAPS for DSM5, the PTSD Diagnostic Scale for DSM 5 and PCL-S for DSM 5 (all .r

=.72). A score of 23 was identified as a cutoff score for the probable diagnosis of PTSD (Foa, et al., 2016).

In accordance with PSS-I-5 application guidelines, the instrument was used to assess the identified

worst, or most significant trauma (the target trauma) at intake and at the end of PTSD treatment, even if

multiple traumas were treated, scores were determined based upon the initially identified target trauma.

PCL-5

The PCL–5 is a 20-item self-report inventory that evaluates past-month DSM–5 PTSD symptoms tied to

patient's currently most distressing event. Items are rated from not at all (0) to extremely (4) and are summed

for a total severity score. Subscale severity scores are calculated by summing items in each of the four DSM–5

PTSD symptom clusters: intrusion, avoidance, negative alterations in cognitions and mood, and alterations in

arousal and reactivity. It differs from PCL for DSM IV in that it lacks separate military and specific versions. It

also provides several alternate categories of DSM Criterion A not found in the earlier version (Weathers, Litz,

Keane, Palmieri, Marx, & Schnurr, 2013)

Wortman and Colleagues (Wortmann, Jordan, Weathers, Resick, Dondanville, Hall-Clark, . . . Litz,

2016) examined the psychometric properties of the PCL- 5. It was found to display high internal consistency (α

= .95), with high convergent and discriminant validity when compared against the PSS-I for DSM IV (.r =.94, .r

= .92, respectively). A score of 33 was reported as optimally effective in the presumptive diagnosis of any

PTSD. The earliest group of trainees (n = 11) used the PCL-5 to evaluate changes in patients' symptom, soon

thereafter, the remaining clinicians used the PSS-I-5.

Therapist Training and Supervision

Trainees, consisting of 18 state-licensed mental health professionals, attended one of a number of 4-day

in-person trainings held in Albuquerque, NM between November 2018, and July 2020. In the course of the

training trainees practiced elements of the protocol with lesser anxiety-based disorders and then used the

protocol under the observation of certified trainers for several cases of PTSD. After completion of the in-person

training, trainees were required to complete several successful administrations of the protocol with two or three

clients depending upon the date of the training. Those sessions were video recorded and reviewed by experts in

the protocol (both certified trainers and program developers). Upon successful completion of the supervised

clients, the trainees were certified to use the RTM protocol with individual clients.

Experimental Design and Randomization

Participants in the study were regular patients at The Family Connection, an outpatient mental health

provider in Albuquerque, NM. There was no randomization. Patients were either already assigned to the

participating agency or were assigned in the accustomed manner by supervisory staff. Data was collected as

anonymized pre- post- PSS-I-5 and PCL-5 scores based on completed cases alone.

Client permissions and Consents.

      As clients were participants in a normal counseling/therapeutic context and all data were supplied in anonymized form, no consent was necessary.

Statistical Methods

      Simple calculations, such as counts and percentages, were done in Microsoft Excel. Effect sizes were calculated using Cohen's d and Hedges' g for within-group comparisons over time, with EffectSizeCalculator for Microsoft Excel (Centre for Evaluation and Monitoring, 2018). All significance testing used Student's independent t-test, 1-tailed were performed using SigmaStat v. 4 for Windows 10.

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Results

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      Trainees completed the treatment of 85 patients in 8 categories of trauma (Tables 4 and 5.). They averaged 1.2 traumas per patient with an average treatment time of 3 sessions per trauma. 74 clients completed the PSS-I-5 (Table 3), 11 others completed the PCL-5 (table 4). The 74 persons submitting PSS-I-5 evaluations achieved an average 37-point reduction in symptom scores (Range = 8, 65) with a mean post-treatment score of 7.45 ($\pm$ 3.7), well below the cutoff score of 23 for a presumptive diagnosis of PTSD (Foa et al., 2018). Effect sizes (Hedge's g) across all trauma categories ranged from 1.05 (95% CI [-1.04,3.24]) for health traumas to 3.5 (95% CI [2.49,4.57]) for family violence and combat trauma (See table 3). These meet the ISTSS criterion for efficacy in the treatment of PTSD of ES $\geq$ .80 SMD (Kitchener et al., 2019). They correspond to probabilities ranging from $p < 0.05$ for health traumas (n = 2) to $p < .025$ for Family Violence (n= 20) and Combat (n = 4) traumas (Devilly & McFarlane, 2009).

Eleven other patients used the PCL-5 as the measure of treatment outcome. Their results appear in table 4. These achieved an average 39.8% reduction in symptom scores (range 0,38) with a mean post-treatment score of 13.5 (± 6.5), 12.5 points below the cutoff of 33 for a presumptive diagnosis of PTSD (Wortmann et al., 2016). Effect sizes (Hedge's g) for all trauma categories ranged from 2.5 (95% CI [0.37, 4.66]) for other/unspecified traumas to 9.2 (95% CI [2.52,15.8]) for combat trauma. These also meet the ISTSS criterion for efficacy in the treatment of PTSD of ES ≥ .80 SMD (Kitchener et al., 2019). They correspond to

Table 3.

PSS-I-5 Results from trainee treatments by initially reported target trauma type

Trauma type	N	Mean Baseline PSS-I-5	SD	Mean Post PSS-I-5	SD	Δ	Δ %	ES d	ES g	95% CI Lower	Upper
Sexual Trauma	21	45.8	12.9	10.2	9.3	35.6	78	3.17	3.11	2.21	4.06
Family Violence	20	49.8	13.7	13.7	12.9	36.1	72	3.58	3.5	2.49	4.57
Other	18	46.9	12.5	11.2	10.1	35.7	76	3.14	3.07	2.11	4.04
Accident	6	41.8	15.76	5.5	4.2	36.3	86	3.14	2.9	1.28	4.52
Combat	4	39.3	11.26	7.5	5.7	31.8	81	3.56	3.1	1.04	5.14
First Responder	2	42	0	2	0	40	95	-	-	-	-
Health Trauma	2	48.5	33.2	4.5	3.5	44	91	1.86	1.05	-1.04	3.14
School Violence	1	42	0	5	0	37	88	-	-	-	-
Means	74	44.5	12.4	7.45	5.7	37.06	83.38	3.075	2.788	1.348	4.245

Table note: Some categories were too small for the computation of effect sizes. n= number of clients; Δ = (Baseline PSS-I-5) − (Post TreatmentPSS-I-5); Δ% = % change; ES d = Cohen's D; ES g = Hedge's g; CI =Confidence Interval.

probabilities ranging from p < 0.05 for other/unspecified traumas (n = 3) to p < .001 for Combat (n = 2) traumas

(Devilly & McFarlane, 2009).

Of 99 initial patients, 13 were either eliminated from the study or dropped out for various reasons. These

are detailed in table 5. Of those listed, nine, in four categories (COVID restrictions, Discharge-insurance,

Discharge-Medical, RTM not indicated) do not appear to relate to the characteristics of the RTM treatment per

se. As noted above, 10 persons are still in treatment. There were, therefore, 5 dropouts (discharge

Table 4.

PCL-5 Results from trainee treatments by initially reported target trauma type

Trauma type	N	Baseline PCL-5	SD	Post Tx PCL-5	SD	Δ	Δ %	ES d	ES g	95% CI Lower	Upper
FV	3	53.33	17.47	21.33	15.27	32	28%	2.77	2.64	1.14	4.15
Other	3	55.66	14.43	16	10.39	45.27	29%	3.15	2.52	0.37	4.66
Combat	2	61	2.828	20.5	2.121	40.5	34%	16.23	9.16	2.52	15.8
ST	2	44	12.73	6.5	4.95	37.5	15%	3.43	2.73	0.55	4.92
Accident	1	47	0	3	0	44					
Total	11	52.198	9.4916	13.466	6.5462	39.854	76%	6.395	4.2625	1.145	7.3825

Table note: Some categories were too small for the computation of effect sizes. n= number of clients; Post tx PCL-5 = Post

treatment PCL-5; Δ = (Baseline PCL-5) – (Post treatment PCL-5); Δ% = % change; ES d = Cohen's D; ES g = Hedge's g; CI =

Confidence Interval.

 unspecified [4] and Dropout unspecified [1]), out of 90 clients (74 completers with PSS-I-5 and 11 with PCL-5

results + 5 dropouts) or s dropout rate of 5%. This is slightly lower than the average 10% reported in previous

results with RTM (Gray & Bourke, 2015; Gray et al., 2019; Gray et al., 2020; Tylee et al., 2017) but leaves

these clinicians with a completion rate of 83% which is in the range of RTM results reported previously. Of the

85 treatment completers, 80, or 94% completed treatment with a final score below diagnostic cutoffs on both

measures.

Table 5.		
Discharges and Drop-outs from RTM treatment by category		
Type of discharge	N	%
COVID restrictions	5	20.8
Discharged (unspecified)	4	16.6
Discharge (Insurance)	1	4
Discharge (Medical reasons)	2	8
RTM not indicated	1	4
Drop out (unspecified)	1	4
Total	14	100% (14/99 or 14%)

Discussion

We hypothesized that the trainees' results would at least match those reported in the above-cited RTM

studies; that the protocol's utility would extend to more trauma types and populations then those previously

reported; and that the predicted results would validate the efficacy of the training program.

Trainees averaged a 95% success rate, with only 5 persons scoring above the presumptive diagnostic

cutoff for any PTSD on either measure. This matches or exceeds the results reported in the previous RTM

studies. Previous studies' rates of clearance ranged from 71 % (Gray et al., 2019) to 90% (Gray et al., 2020).

Here, we found the diagnosis cleared in 94% of cases.

Prior RTM studies focused upon sexual and military traumas, as they impacted the lives of veterans and

active-duty service members. When non-combat-related or non-military sexual traumas were encountered, they

were often encountered after successful treatment of another trauma that had ties to military service. The current

population focused upon self-referring civilians and included treatments for family violence, first responder

trauma exposure, many forms of sexual abuse, school-related traumas, traffic accidents and others. The trainees have successfully extended the range of treated traumas beyond the military context.

Dropouts from mainline treatments are estimated at 16% (pooled rate [95% CI| 14,18%]; Lewis, Roberts, Gibson & Bisson, 2020) to 18% (Imel, Laska, Jakupcak, & Simpson, 2013). Dropouts in RTM peer-reviewed studies hover in the region of 10%. Only 5% of participants in the present study dropped out.

Insofar as these results match or exceed previously reported results for the RTM Protocol, we suggest that the RTM training initiative has been successful in graduating a cadre of certified RTM providers who are at least as proficient as the original researchers. All hypotheses have been supported.

Limitations

This study suffers from several defects. First, demographic data is incomplete. In future studies without the artificial pressures created by the COVID-19 pandemic, we would hope to have more complete data on our participants. Second, this is a pre-post study without comparison or control groups. In another time, without the pressures that our clinicians are currently facing, we would ask for comparisons of results from RTM with results from other treatments currently used in the agency for a comparative effectiveness analysis. This was not done. Third, studies such as this are enhanced by randomization to multiple treatment and control arms. We would hope to provide a more satisfying design at another time.

Conclusions

In summary, the 18 RTM Certified counselors, working in an outpatient context treated 85 persons diagnosed with PTSD. Of those treated, 80, or 94% scored below diagnostic cutoffs for any diagnosis of PTSD as measured on the PSS-I-5 (74 clients) and the PCL-5 (11 clients). Five additional persons dropped out for reasons related to RTM. This led to a dropout rate, based upon 90 (85 +5) eligible participants, of 5%. These results confirm our hypothesis that RTM-certified counselors' success rates with "real" clients in the "real world" (94% success) compare favorably with the generally reported results across the RTM research studies (71 to 90% success). We conclude that the RTM protocol and its results with other trainees merit further investigation.

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