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Effectiveness of Thought Field Therapy Provided by Newly Instructed Community Workers to a Traumatized Population in Uganda: A Randomized Trial

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Abstract: Thought Field Therapy (TFT) is a promising treatment for posttraumatic stress in a resource poor environment. This study further explores the benefits of this treatment in a rural population in Uganda, which had suffered from the psychological consequences of previous violent conflict. Thirty-six local community workers received a two-day training in TFT trauma intervention and treated 256 volunteers with symptoms suggestive of Posttraumatic Stress Disorder (PTSD) who had been randomly allocated to a treatment or waitlist (control) group. Assessment was by the Posttraumatic Checklist for Civilians (PCL-C). One week after treatment, the treated group scores had improved significantly from 58 to 26.1. The waitlist group scores did improve without treatment, from 61.2 to 47, although significantly less than the treatment group, but improved markedly to 26.4 following treatment. There was some evidence of persisting benefit 19 months later. This study supports the value of TFT as a rapid, efficient and effective therapy, empowering traumatized communities to treat themselves, although repeated treatment may still be needed.

Keywords: Thought Field Therapy, PTSD, Uganda, Conflict, Community Therapists

Introduction

Thought Field Therapy (TFT) has been referred to as "acupuncture without needles" for treating psychological disorders. TFT provides relief from psychological distress by using tapping sequences on certain points of the body, derived from known acupuncture points, whilst the client is thinking of the problem being addressed. However, unlike other psychological therapies, such as Prolonged Exposure Therapy (Foa *et al.*, 2007), repeated painful re-living of the traumatic memory is not required. The brief psychological exposure required with energy psychology reduces the risk of retraumatization (Feinstein, 2010). The sequences are developed for individuals and their problems by a diagnostic protocol. Often, however, specific pre-determined sequences can be used for particular problems such as stress,

posttraumatic stress and anxiety, which will be applicable for most clients and can be rapidly taught (Callahan and Trubo, 2001). The technique was developed by Lutz and Callahan (1985), (Callahan and Callahan, 1996). The first conditions treated were phobias, but soon thereafter TFT was found to be very effective for treating other kinds of emotional and psychological distress, such as posttraumatic stress. The original technique has continued to evolve and variants have been developed, such as Emotional Freedom Techniques (EFT). The term Energy Psychology is used to cover TFT and associated variations. TFT can be used alongside other psychological, or indeed medical therapies, although has often been found to be effective when used alone (Callahan and Callahan, 2011). At the start of treatment for Post-Traumatic Stress Disorder (PTSD) the client briefly describes their traumatic event

and whilst thinking about the problem and describing how they feel, gives a score of 0 to 10 for the severity of the emotion, 0 being no concerns, 10 being the worst ever. This score is called the Subjective Units of Distress (SUD). The client is then instructed to tap on various parts of the body in a particular sequence as instructed by the therapist depending on the specific emotion or emotions, whilst still thinking of the problem (s). They then repeat the severity score and if this has fallen by two or more points, they then follow a specific tapping and eye movement sequence (called the 9-gamut). They then repeat the original sequence and score again. If the score (SUD) is then 1 or 0, the treatment is completed with an eye movement sequence to reinforce the treatment. There is a specific sequence for trauma, but other symptoms, such as guilt or anger may also need treatment. Sometimes progress becomes inhibited due to a phenomenon called psychological reversal, which requires its own tapping sequences. Treatment takes 30-60 minutes or less. One treatment is often sufficient, but follow up treatment may be needed, especially if associated psychological issues arise. Callahan and Callahan (2000) and more recently Feinstein (2008), have reviewed the experience of using TFT for psychological trauma following man-made or natural disasters. Feinstein (2012) has reviewed the evidence for the effectiveness of Energy Psychology, particularly for PTSD and concluded, on the basis of three placebo-controlled studies, that rapid and durable gains were apparent and concluded that there was good evidence to support this approach. Kim *et al.* (2013) reviewed the use of acupuncture for PTSD, overall the results were encouraging but generally not conclusive.

Developing countries are particularly prone to PTSD, following periods of conflict, due to subsequent social instability, economic difficulties and susceptibility to natural disasters (Desjarlais *et al.*, 1995). For many individuals, symptoms of PTSD can persist long after the initial event (Galea *et al.*, 2005). Therapies are required to treat PTSD in these situations that are rapid, efficient in use of resources and can reach whole communities. Various techniques have been tried with individual, or combined treatment modalities. In a non-randomized pilot study, Folkes (2002), successfully treated refugee and immigrant students in the United States with TFT. Their symptoms of PTSD were categorized by high scores on the Posttraumatic stress disorder Checklist for Civilians (PCL-C) (Weathers *et al.*, 1991), with significant improvements in the scores after three sessions of TFT. Ertl *et al.* (2011), in a controlled trial with narrative exposure therapy, delivered by local intensively trained lay counselors to former Ugandan child soldiers, significantly improved symptoms of PTSD compared to controls, although an improvement in the control groups was also noted. Treatments however,

required individual therapists for eight sessions, lasting up to eight hours. Bass *et al.* (2013) compared, in the Democratic republic of Congo, cognitive processing therapy to individual support, delivered by experienced psychosocial assistants to female survivors of sexual violence. Treatment required individual sessions, lasting one hour followed by 11 two hour small group sessions. Marked improvements in PTSD symptoms, functional state, anxiety and depression were noted in the treatment group, up to six months, compared to the control group, although the latter also showed improvement. Stone *et al.* (2009) found improvements in PTSD scores in Rwandan genocide survivors using rapport building exercises and TFT and subsequently in another group, TFT, EFT or Tapas Acupressure Techniques (Stone *et al.*, 2010).

Sakai *et al.* (2010) also used TFT together with breathing exercises and relaxation therapy to treat orphaned teenage genocide survivors in Rwanda. This was a non-randomized study in which PTSD symptoms were measured by the Child Report of Post-traumatic Symptoms (CROPS) and the Parent (or guardian) equivalent (PROPS) (Greenwald and Rubin, 1999). Basic TFT algorithms, including correction of psychological reversals (Callahan and Trubo, 2001), were used. The improvement in scores was rapid and although some benefit was lost by three months, there was persisting benefit at one year. However, since the community had learnt the treatment algorithms, repeated self-treatment may have contributed to the sustained benefit. Connolly and Sakai (2011) followed-up with an additional study where therapy was given by a group of 28 local people (all but one were female) who completed a two-day TFT algorithm training course. The newly trained therapists treated 171 genocide survivors with their recently learnt TFT process, supervised as necessary by TFT trainers. Participants were allocated alternately to a treatment or waiting list (control) group. Symptoms were assessed by the Modified PTSD Symptom Scale (MPSS) (Falsetti *et al.*, 1993) and the Trauma Symptom Inventory (TSI) (Briere, 1995). These questionnaires had been translated into the local language, in which the participants were literate. Forty-six participants were not included in the final TSI assessment, as they had scored more than 74 on the Inconsistent Data subscale. The treatment group completed questionnaires prior to and one week following treatment. The control group completed questionnaires at the same time and received treatment two days after their post-test. They returned to repeat the questionnaires after a further week. The participants completed their questionnaires independently, only rarely was assistance required from translators. Twenty-five participants failed to attend for the first

post-test and a further 21 of the waiting-list group failed to attend for the second post-test. The results, by analysis of co-variance and repeated measures analysis of variance, strongly suggested that brief TFT provided by local people with only limited training reduced the symptoms of PTSD. The proportion meeting the diagnostic cut-off as determined by the MPSS was also reduced. Eighty-eight participants were assessed at two years, using the same instruments and the benefit was sustained. Connolly *et al.* (2013) undertook a similar study in Rwanda, of 199 participants using the same test instruments. They were allocated alternately to treatment or waiting-list groups and 35 were excluded from analysis due to very high scores on the Inconsistent Response sub-scale, suggesting invalid responses (Briere, 1995) leaving a final sample of 164. A different group of community members received two-day training in TFT. All participants completed pre-treatment MPSS and TSI questionnaires. As all but one of the participants had problems with literacy even in their own language, the questionnaires were completed by individual interviews by the Rwandan therapists. Two days later, the treatment group then received treatment with TFT from the newly trained therapists. Both groups were assessed after one week and two days later, the waiting-list group received treatment and were re-assessed after a further week. Both groups showed a further improvement in scores, even without treatment, but in addition there was a strong treatment effect. Our current study explores further the contribution of TFT delivered by lay people to treat PTSD in western Uganda, where there had been intermittent conflict since Uganda gained independence in 1963. Initially many were killed during fighting between neighboring kingdoms. The situation subsequently improved, although there remained low-level factional conflict. By 1995, remnants of previous revolutionary organizations apparently supported by local states, created a significant military movement, the Allied Democratic Forces. Attacks on civilians peaked around 1998, when many civilians were kidnapped or murdered, especially in villages, causing their inhabitants to spend the nights in the bush for safety. The District has been largely pacified since 2005, but many still suffer posttraumatic stress and related symptoms such as anger, fear, shame and anxiety. Ongoing issues such as grief due to bereavement, physical pain, specific medical problems and domestic issues particularly finance, domestic violence, infidelity and alcohol abuse add to the peoples' problems. Our study was designed to assess any benefit in symptoms of PTSD, measured by PCL-C scores, one week and 19 months after treatment with TFT. Participant volunteers from the Kasese District of Uganda, presenting with symptoms suggestive of

PTSD, were treated by newly trained community workers, in a randomized, controlled trial.

Method

Participants

Ugandan Therapists

The Catholic Diocese selected 36 Catechists to be trained in TFT at the elementary (algorithm) level. They were lay assistants to the clergy, for which they had received special training. They were well educated and were respected as leaders within their communities. They attended a two-day training course in TFT at the algorithm level, specifically to address PTSD. TFT algorithms are specific tapping sequences, previously shown to be effective for particular symptoms (Callahan and Trubo, 2001). There are separate sequences for trauma, anxiety, anger, guilt, shame, embarrassment and pain, whilst the client is thinking about the problem and emotion. For trauma, the client reflects how they feel when recalling the original trauma. If there is more than one event, they may have to be addressed separately. For PTSD, the trauma sequence is used (inner eyebrow, under eye, under arm then collarbone). If other symptoms are apparent, as they often are with PTSD, the sequences for these can be added, or introduced later. Additional sessions may be needed and other symptoms might become apparent at these times. Before and after the sequence, clients score the intensity of the problem they are concentrating on, using a 0 to 10 linear scale (0 being none, 10 the worst ever) called the Subjective Units of Distress (SUD). Provided that there has been a reduction in the SUD of two points or more, they follow a sequence of right and left brain activation activities and including an eye movement protocol, followed by a repeat of the original sequence (the TFT "sandwich"). Failure to improve sufficiently requires treating psychological reversal by other specific tapping sequences (Callahan and Callahan, 2000). If the SUD has fallen to 0 or 1, treatment is completed by a brief eye movement reinforcement protocol. The trainees were taught these procedures by lectures and demonstrations, then by supervised group work and finally small group work with feedback. The importance of client consent and confidentiality were stressed to the trainees during the training.

Volunteer Participants

Brief information regarding the trial was promulgated throughout the Diocese, although any faith was welcome and also on local radio, including features of PTSD and invitations were extended to those with suggestive symptoms. Age of volunteers was restricted to 18 or older. Volunteers were recruited one month prior to

commencing the trial. A formal written invitation was offered, describing the purpose of the study, the protocol and a brief description of TFT. Information regarding consent, confidentiality and availability of limited travel and catering support, was included. It was necessary for this information to be translated into the local language for potential volunteers. No inducements were offered, except that a meal would be provided on the days that they attended and limited help with transport would be available. Volunteers were informed of their allocated time and date to attend the center where the study was taking place. They were screened to ensure that they met the age criteria. Any who could not be accommodated in the study, due to there being an excess of the pre-requisite number at any one time, were offered TFT by the visiting study team or newly trained therapists after they had completed their work on the study for the day. The volunteers were provided with duplicate consent forms in Lhukonzo, the local language. Translators were available for the many who could not read, in addition to the details being orally presented to all the volunteers, including the right to withdraw at any time without prejudice.

Protocol

The 256 participants attended in cohorts of 32, in the mornings and afternoons of four consecutive days and were randomly allocated to a treatment group or a wait-list (control) group, who were treated one week later. Although a different treatment modality could have been incorporated as a comparison, rather than a waitlist control, we felt that it would have been more prone to bias, due to the practicalities of maintaining a blind study. Allocation ratio was 1:1. Cohort allocation was by local individuals unconnected with the trial and at available times convenient to participants. Allocation to treatment or control groups was by block randomization (to achieve 16 in each treatment group for every cohort), using computer generated random number sequences previously prepared by a non-trialist, which were kept in sealed envelopes and unknown to the trialists. Participants attended sequentially in no particular order to collect their allocation card and were then provided with a folder appropriate to their allocation, odd numbers for treatment, even numbers for control. The folder contained forms for consent, a demographic questionnaire and PCL-C forms. Consent was explained to the cohort of 32 and the consent forms were completed individually with the help of Ugandan translators, due to problems with literacy. Participants were then split into their respective groups to complete their demographic and PCL-C questionnaires. Participants were not informed at this stage whether they were in the treatment or wait-list group. The PCL was developed for the United States

military and subsequently adapted for civilian use, to assess PTSD (Weathers *et al.*, 1991). The civilian version is not targeted for a specific event and can assess the consequences of multiple events. It addresses three main domains of PTSD, namely intrusive imagery of events, hyperarousal and avoidance (Reed *et al.*, 2012). There are 17 questions, with answers graded from 1 to 5, the minimum score being 17. A severity score is obtained by adding the scores for each question, which was done in this study. A variety of cut-offs have been suggested for different circumstances, varying from a cut-off of 30 for screening a low-prevalence community, to 50 for traumatized populations providing a more specific score for diagnostic purposes (Blanchard *et al.*, 1996; USDVA, 2012).

The questionnaire had been professionally translated into the local Lhukonzo language and then back translated into English to ensure reliable translation. Although the questionnaire is for self-completion, most participants required help from Ugandan translators, due to poor literacy and cultural differences in interpreting one particular question. Translators were unaware of the participant's allocation.

The control group left after completing the questionnaire, the treatment group remained to be treated individually with TFT by one of the recently trained Ugandan therapists. Participants were intentionally not treated by the same therapist who assisted with translation. The two groups were free to leave therefore at different times and there was a period between one cohort finishing and the next arriving, to minimize contamination. The newly trained therapists administered the treatment without interference from the supervising team. Treatment took from 30-60 min. A local trainee who had received previous similar training in addition to the present training was available as a supernumerary to assist with any difficulties the trainees might experience. The trainees enquired about other symptoms that their client might suffer from, or be indicated by a SUD failing to respond adequately to the trauma algorithm. These were treated by additional algorithms that they had been taught, which could be added to the trauma algorithm. Additional symptoms were treated in the same session, either with the trauma algorithm, or following it. Although this often took longer, all treatments were completed within the hour. They recorded the symptoms that they treated, in addition to trauma and the algorithms used. Two trialists ensured that the trainees were using TFT and not attempting other approaches, but did not otherwise interfere with the treatment. Two assistants otherwise unconnected to the study, collected the questionnaires, checked that a score had been recorded for each question and entered the data onto the results spreadsheet. The participants were invited to return exactly one week after their first attendance.

Table 1. Participant flow diagram. All participants were assessed by the PCL-C at Time 1, group A then received TFT immediately after and were re-assessed one week later (Time 2). Group B were assessed at Time 1, re-assessed at Time 2, then received TFT immediately afterwards. Following their treatment, Group B were assessed again after a further week (Time 3). All participants were invited to re-attend for further assessment at 19 months and were analyzed as a whole group compared to initial assessment and as separate Groups A and B

Stage/Time	Treatment group (Group A)	Both groups (A+B)	Waiting-list group (Group B)
Enrollment		Assessed (257) Excluded (1) Did not meet inclusion criteria (1) Randomized (256)	
Allocation (Time 1)	Allocated to treatment (128) Received assessment + treatment (128)		Allocated to wait list (128) Received assessment (128)
Follow-up (Time 2)	Failed to attend assessment (14)		Failed to attend assessment + treatment (6)
Analysis (Time 2)	Analyzed (114)		Analyzed (122)
Follow-up (Time 3, Group B only)			Failed to attend assessment (15)
Analysis (Time 3)			Analyzed (107)
Follow-up (19 months)	Failed to attend (76)		Failed to attend (64)
Analysis (19 months)	Analyzed (52)		Analyzed (64)

On this occasion both groups were again assessed by the PCL-C, following which, the control group was treated for their traumas by TFT. A further week later, the control group attended for another PCL-C assessment as shown in Table 1. Nineteen months after the original study, we returned to repeat an assessment of the original participants. They were given the PCL-C to complete with the help of interpreters, who were not aware of the original scores. Lunch was provided as before. The Ugandan therapists offered further treatment to the volunteer participants following the closure of the follow-up.

Outcomes

Primary Outcome

Changes in PTSD scores (measured by PCL-C) following TFT.

Secondary Outcomes

Comparison of scores between treatment and control groups at Time 1 and Time 2.

Changes in control group scores pre- and post-treatment.

Change in proportion of PCL-C scores more than 50, following treatment and 19 months later.

Sample Size

A previous similar study in Rwanda (Connolly and Sakai, 2011) had recruited an adequate sample, commencing with 171 participants. To allow for any cultural differences between Uganda and Rwanda, that might affect the study, a more generous recruitment of 256 volunteers for this study was considered to be adequate.

Statistical Methods

The PCL-C scores for individual questions were summated and checked by an assistant not otherwise

involved in the trial, before entering the data onto a spreadsheet. The data was subsequently forwarded to the statistician for analysis. Between- and within-subjects comparisons were made with pre- and post-treatment outcomes, including the assessment at 19 months. Changes in the proportion of PCL-C scores greater than 50 before and after treatment were analyzed to assess any effect of TFT on the prevalence of PTSD.

SPSS version 19 was used for statistical analysis. Independent measures *t* tests were used to compare mean PCL-C scores between groups, apart from Time 1 (due to significantly different variances, when a Mann-Whitney U test was used) and age at entry. Repeated measures *t* tests and ANOVA were used for comparisons between times but within groups. Gender differences at entry and comparisons of proportions with PCL-C scores more than 50 were compared using Pearson's Chi-squared test. Effect sizes were calculated using Cohen's *d* (Cohen, 1988). The protocol was reviewed and approved by Thought Field Therapy Foundation Ethics Committee, Mbarara University Institutional Review Committee and the Uganda National Council for Science and Technology.

Results

Demographics

Of the 256 participants allocated to either the treatment or wait-list group, 236 returned for the second assessment. Of these returners, the majority of the participants were female (81.3%) and the average age was 46. Groups did not significantly differ in terms of gender, $\chi^2(1, N = 236) = 3.363, p = 0.186$; age, $t(236) = -0.388, p = 0.699$; or baseline PCL-C score, $U = 5960, p = 0.073$. Demographics are summarized in Table 2. Two participants in the treatment group had scores less than 30 making it unlikely that they had PTSD and two others had scores equal to 30, but all were included in the trial, as this

had not been a predetermined exclusion. However, despite this, both groups at baseline had similar mean values, M (treated) = 58.0 (SD = 12.6) and M (wait-list) = 61.2 (SD = 10.1), mean difference 2.72 (SEM = 1.58, $t(236) = 1.72$, $p = 0.09$, 95% CI [-5.84, 0.4]). consistent with a significant prevalence of PTSD (PCL-C score greater than 50) in both groups prior to treatment.

Symptoms

In addition to PTSD, as assessed by the PCL-C, other psychological symptoms sometimes presented and were treated, principally anxiety usually due to poverty and domestic strife, physical pain (most were small scale subsistence farmers) and grief due to bereavements (Table 3). They were identified by the client noting an elevated SUD whilst thinking about the problem. Whilst SUDs were recorded for these symptoms and on repeating as an indication of improvement or need for further treatment, the SUD is not considered robust enough for research.

Participation

After initial enrollment and allocation to groups, 20 participants did not attend the second assessment, 14 in the treatment group (post-treatment) and six in the wait-list group (pre-treatment). A further 15 of the wait-list group did not attend for assessment after treatment. We were unable to undertake an intention to treat analysis, as we had no follow-up data on non-attenders and these were excluded from analysis. Their characteristics and PCL-C scores at baseline were not dissimilar to those who continued in the trial. For the 19 month follow-up, 127 participants attended, 52 from the original treatment group and 71 from the wait-list group (however only 64 of the 71 wait-list group returners were present at Time 3 and thus non-attenders at Time 3 were excluded from further analysis). A summary flow chart of attendance is shown in Table 1.

Main Effects

At the second assessment (Time 2), after only the treatment group had received TFT therapy, scores had fallen significantly in both groups, from a mean of 58.0 (SD = 12.6) to a mean score of 26.1 (SD = 8.2), for the

treatment group, $t(114) = 22.45$, $p < 0.001$, 95% CI [29.08, 34.71] and from a mean of 61.2 (SD = 10.1) to a mean of 47.0 (SD = 13.8) for the wait-list group, $t(122) = 9.94$, $p < 0.001$, 95% CI [11.41, 17.09]. However, the reduction in scores was significantly greater for the treatment group, $F(1,254) = 65.452$, $p < 0.001$. The effect size of the intervention for the treatment group was large ($d = 0.83$), compared to a medium effect for the control group ($d = 0.44$) the mean difference between the treated and untreated groups at Time 2 was 20.9. The effect size for the reduction of scores for the treatment group compared to the control group score reduction from Times 1 to 2 was very large ($d = 1.14$). A further week later and following treatment, the control group had additional significant improvement, their mean score was 26.4 (SD = 8.2). The significant mean improvement for the control group from Time 2 to Time 3 after treatment was 20.6, $t(107) = 14.46$, $p < 0.001$, 95% CI [17.09, 22.52]. The scores of both groups after treatment, were almost identical with a mean difference of 0.28, $t(219) = -0.251$, $p = 0.802$, 95% CI [-2.46, 1.90]. These results are summarized in Table 4 and Fig. 1. Analysis of secondary outcomes by Pearson's χ^2 revealed a similar trend, with a significant reduction in the percentage of participants scoring more than 50 on the PCL-C for both groups from Time 1 to Time 2, however, more dramatically for the treated group, summarized in Table 5. The treatment group's proportion of PCL-C scores over 50 reduced significantly from 67.5% at Time 1 (pre-treatment) to 1.8% (post-treatment) at Time 2, $\chi^2(1, N = 114) = 108.95$, $p < 0.001$. The wait-list group's proportion of PCL-C scores over 50 also reduced significantly from 82.8% at Time 1 to 41.8% at Time 2, $\chi^2(1, N = 122) = 108.95$, $p < 0.001$, with both assessments taken before treatment and to 1.9% following treatment at Time 3, $\chi^2(1, N = 107) = 51.11$, $p < 0.001$. Two participants developed functional symptoms during therapy, one with a pseudo-seizure and a previous history, who recovered rapidly and another with prolonged hyperventilation. They were both assessed by a physician and emergency trained nurse who were members of our team and were considered fit to continue. Both recovered completely with improvements in their scores as TFT was continued.

Table 2. Participant characteristics. Non-attenders at Time 2 are excluded. The Mann-Whitney test was used, as in the treatment group initial PCL-C scores were skewed due to two participants with low scores. There were no significant differences in the demographics or PCL-C scores between the two groups

Measure	Treatment group			Wait-list Group			Test	p
	N	M	SD	N	M	SD		
Participants	114			122				
Female (%)	87.5			83.2			Pearson's χ^2	0.186
Male (%)	12.5			16.8				
Age		44.3	16		45.1	14.4	t test	0.699
PCL-C score		58.5	12.0		61.3	10.5	Mann-Whitney U test	0.073

Table 3. Additional psychological symptoms. This lists the number of individuals with the above symptoms in addition to their presenting trauma. Some had more than one additional symptom

Symptoms	Treatment group	Control group
Anxiety	63	75
Pain	26	35
Anger	17	14
Grief (bereavement)	5	7
Guilt	7	3
Shame	4	3
Embarrassment	3	1
Addiction	1	0
Rage	0	1

Table 4. Mean PCL-C scores for treatment and wait-list groups at Time 1 and Time 2. Mean scores at baseline were not significantly different. There was a significant in reduction in PCL-C scores from Time 1 to Time 2 for both Group A and Group B. However, Group A had a significantly greater reduction in PCL-C at Time 2 (following treatment) than Group B (waitlisted)

Group	N	Time 1		Time 2		PCL-C Reduction from Time 1 to Time 2	
		Mean	SD	Mean	SD	Mean Diff	p
Treatment (Group A)	114	58.0	12.6	26.1	8.2	32.4	<0.001
Wait-list (Group B)	122	61.2	10.1	47.0	13.8	12.4	<0.001

Table 5. Proportion of participants with PCL-C scores more than 50 at times 1 and 2. PCL-C scores more than 50 are very suggestive of PTSD and were greatly reduced in the treated group, compared to control. The wait-list group also showed a significant reduction from immediately before treatment (41.8%) to post-treatment (1.9%; $p < 0.001$)

Group	N	% with PCL-C > 50		p
		Time 1	Time 2	
Treatment (group A)	114	67.5	1.8	<0.001
Wait-list (group B)	122	82.8	41.8	<0.001

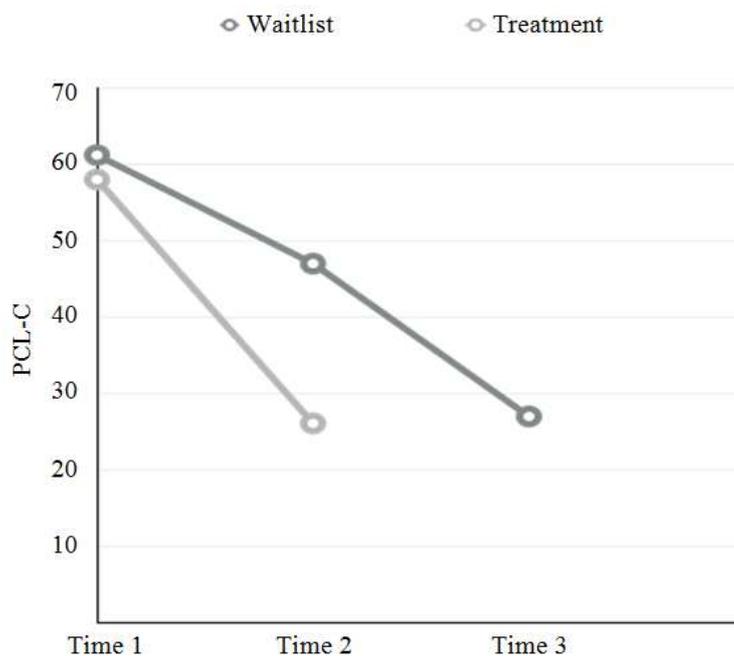


Fig. 1. Mean PCL-C scores of treated and wait-listed groups, at Time 1 (pre-treatment), Time 2 (post-treatment for treatment group and second pre-treatment assessment for wait-listed group) and Time 3 (post-treatment for wait-listed group). Post-treatment scorers were 26.1 (SD = 8.2) for the treated group (Time 2) and 26.4 (SD = 8.2) for the wait-listed group at Time 3

19-Month Follow-Up

Only half of the original cohort attended the nineteen-month follow-up, as shown in Table 1 and only those who attended at nineteen months were analyzed, although their composition was similar to the original groups. One of the non-attenders had died in the interim, cause unknown. The mean score of those who attended at 19 months was 43.6 (SD = 13.1), which was significantly more than their score one week after treatment of 25.8 (SD = 7.8), $t(115) = 13.43$, $p < 0.001$, 95% CI [15.22, 20.49].

Although the nineteen-month score for the wait-list group was very similar to their control Time 2 score, that is before treatment, there were considerably less participants with high PCL-C scores of more than 50 (26.6%) than at Time 2 (41.8%). For this particular analysis, only the waiting list group were analyzed since they had a score after a week's run-in which gave a more realistic control score than if both groups had been analyzed. This suggests that there was some persisting benefit even after 19 months, in that there were still less with diagnostic scores for PTSD than before treatment.

Discussion

This randomized parallel group study, has provided evidence that long-standing symptoms of PTSD can be alleviated by a single treatment of TFT, provided by selected local people who have received a focused two-day training program. Although the wait-list (control) group of participants improved considerably compared to their initial assessment, they only achieved the same level of benefit as the treatment group after receiving TFT. However, this does demonstrate the need for control groups in this type of study, due to a placebo effect. This effect is not surprising since just attending the trial meant that the participants were given a social opportunity and treated with dignity and respect and it is likely that this general feeling in well-being contributed to the somewhat surprising improvement in the waitlist group scores prior to receiving treatment.

When assessed 19 months later, the participants had returned to an average score for PTSD that was similar to that achieved by the waitlist group before treatment. As only the waitlist group, who had a more realistic control score at Time 2 were analyzed, the proportion with high scores (more than 50) for a diagnosis of PTSD were considerably less. Overall, the nineteen month data is not robust due to the high drop-out, but suggests that there has been a recurrence of PTSD symptoms which could have benefited by repeated treatment. Anecdotally, we understood that many did not re-attend at nineteen

months as they felt much better and travelling to the study was a significant undertaking for them, but we cannot confirm that explanation. Other studies in Rwanda had suggested that the initial benefits had been sustained at one year (Sakai *et al.*, 2010) and two years following initial treatment (Connolly and Sakai, 2011). There are cultural and other differences between these countries, in that Rwanda has had well-developed TFT services for some years and following the genocide there, the overall social structure has improved. Many of our participants had had repeated traumatization due to crime, accident, illness and grief and the consequences of gender inequality, all of which could well have encouraged a recurrence of their PTSD symptoms, also, ongoing treatment with TFT is not as readily available as in Rwanda. It is likely that some clients will require follow-up treatment for new or recurrent symptoms. There is therefore increasing evidence that TFT can be an effective and efficient means of treating the long-term effects of trauma (Dunnewold, 2014) like other accepted therapies, such as Cognitive Behavioral Therapy (CBT), exposure therapy and Eye Movement Desensitization and Reprocessing (EMDR) (Foa *et al.*, 2009; Bergman, 2010) and is more efficient in terms of speed of benefit and resources needed to implement. TFT can utilize the ability of local people, adept in their local languages to learn and administer. There were only two minor side effects noted, both resolved rapidly and might reflect cultural aspects of the population studied. There were no physical or psychological sequelae. There was no evidence during or after the treatment period to indicate that any of the participants were re-traumatized by the therapy. There is some evidence in other situations, that Emotional Freedom Therapy (EFT), a related technique, can produce similar benefits in a short time (Church *et al.*, 2013). Boath *et al.* (2014) in a pilot study with controls, reported a favorable response of Bosnian refugees with PTSD to EFT with matrix reimplanting. A recent systematic review of psychological treatments for PTSD, could only find evidence to support EMDR and trauma-focused CBT, although there were concerns about the strength of the evidence and studies were only short-term (Bisson *et al.*, 2013). In a meta-analysis, Watts *et al.* (2013) concluded that effective psychotherapies included cognitive therapy, exposure therapy and EMDR. Several pharmacotherapies were also effective, but less so. Energy psychology was not considered in these last two reviews. Energy psychology has advantages over other standard therapies by being less traumatic, quicker and requiring less client commitment (Church *et al.*, 2013). Metcalf *et al.* (2016) reviewed the evidence base for complementary therapies as treatments for PTSD and only acupuncture, EFT, mindfulness and yoga were considered to meet their

criteria and even the evidence for these was considered weak. They did not identify sufficient evidence to support TFT and were concerned at the uncertainty of the mechanism of these therapies, although this does not mean that they are ineffective. As in our study, similar large effect sizes have been demonstrated for a variety of therapies including Cognitive Processing Therapy (CPT) (Bass *et al.*, 2013), narrative exposure therapy in children (Ertl *et al.*, 2011) where there was a moderate waitlist effect size associated with counseling. Reviews of treatment of established PTSD by Jonas *et al.* (2013) and Watts *et al.* (2013) generally demonstrate large effect sizes similar to those that we obtained. TFT does have the advantage that it is easy to teach and rapidly effective. These reviews have provided evidence for the effectiveness of pharmacotherapy, but often with smaller effect sizes. It has been difficult to compare effectiveness of therapies between trials, due to differences in clients, therapist skills and duration of the therapies. Uncertainty remains over the mechanism of action of TFT, which is cheap, simple, rapid and may have long-term benefit. This has been discussed by Feinstein (2012) and Church and Feinstein (2013). Acupuncture has been shown to decrease activity in the amygdala and hippocampus using functional Magnetic Resonance Imaging (fMRI) (Hui *et al.*, 2000) and the same authors have produced further evidence of deactivation of the amygdala and suppression of the stress response when a traumatic memory is re-activated at the same time, an effect which can be long-lasting (Fang *et al.*, 2009). Feinstein (2010) has also reviewed the compelling evidence that acupoint stimulation associated with brief psychological exposure sends deactivating signals to the amygdala that attenuates the threat response to innocuous stimuli, that is a feature of PTSD. Church *et al.* (2012) demonstrated a favorable hormonal response to EFT associated with improvements in PTSD symptoms.

Conclusion

In summary, we have provided further evidence to support the effectiveness of TFT at improving the symptoms of PTSD, with an effect size similar to other recommended treatments, but TFT can be delivered by community members after brief training and can be self-administered, enabling traumatized communities to be able to treat themselves. Although an alternative therapy comparison group was not used, due to risks of introducing bias, the placebo effect observed was likely due to a therapeutic effect of completing the PLC-C with trainees who were used to providing support to parishioners. This approach is effective, efficient (especially in a resource poor-environment), affordable and not culturally specific. We did not find that the initial marked improvement was sustained

long-term, although of the ones who returned for assessment after 19 months, there were still fewer fulfilling the criteria for PTSD. The possible reasons for the partial recurrence of symptoms have been discussed, but some individuals may require follow-up treatment for new or recurrent symptoms. There is a need however for more randomized controlled trials to clarify the contribution of TFT and similar modalities in the treatment of PTSD.

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Author's Contributions

All authors contributed to developing the protocol and undertook the training, study supervision, data collection and contributed to and approved the article.

Conflicts of Interest

There were no conflicts of interest and no personal gain, financial or otherwise. The views expressed in this article do not necessarily reflect those of the charities supporting this research. RL is a private practicing therapist, using TFT in addition to other therapies, RHR, PMR and CM only use the therapy in humanitarian work. CP is not a therapist. The Foundations support humanitarian work and research to confirm or otherwise the contribution of TFT to such work. The authors were mindful of the need to avoid bias during this project. During the trial, the researchers, ensured that any bias was minimized, especially with the collection and recording of scores. Daily reviews were held with the team to identify any concerns.

Ethics

The trial is registered at ClinicalTrials.gov as NCT01681628. Thought Field Therapy Foundation Ethics Committee, Mbarara University Institutional Review Committee and the Uganda National Council for Science and Technology approved the study.

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