



Efficacy of Teaching Recovery Techniques (TRT) on Psychological Functioning of Flood Affected Girls in Pakistan

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ABSTRACT

The current experimental study investigated the efficacy of Teaching Recovery Techniques (TRT) on the psychological functioning of the adolescent girls who witnessed September 2014 flood in Central Punjab (Hafizabad and Jhang districts), Pakistan. The adolescent girls ($M = 14.27$, $SD = .98$) were selected from government schools of flood affected areas and assigned randomly to the experimental and wait control groups. The measures included Urdu translated scales of

Children's Revised Impact of Event Scale-13, Depression Self Rating Scale, Post-trauma Cognitions Inventory-Children, Trauma Memory Quality Questionnaire. The experimental and wait control groups were pre-assessed on the mentioned scales. The groups which met criteria of posttraumatic stress symptoms severity (cut off $= >30$), were subsequently randomly assigned to experimental and control groups. Then experimental groups in both districts were given TRT separately by trained professional and a facilitator, however, control group was kept waiting till the treatments ended and post assessment was done. Independent sample t-test and paired sample t-test revealed significant differences existed across the groups for pre and post measures of the study variables. Experimental group had reduced post-trauma memory, decreased negative cognitions and PTSS severity as compared to wait control group after TRT. Findings are implicated for counseling and psychological rehabilitation of the flood affected adolescents.

Key words: Teaching Recovery Techniques, Trauma Memory, Trauma Cognitions, Post-traumatic Stress Symptoms.

1. INTRODUCTION

Children experience adverse situations and are stressed in response to trauma. It threatens their emotional and physical health [1]. PTSD diagnosis is mainly divided into five categories: trauma exposure, intrusion symptoms; avoidance; negative changes in cognitions and mood; and heightened arousal. All these were associated with the traumatic event and worsened after the traumatic event(s) [2].

1.1 Teaching Recovery Techniques

There are different therapeutic and counseling programs for management of posttraumatic stress symptoms (PTSS) severity in children. These include trauma focused cognitive behavior therapy, exposure based therapies, teaching recovery techniques etc. Different researches provide evidence of Teaching Recovery Therapy and related techniques similar to other therapeutic interventions on the psychological functioning of the trauma affected population.

Teaching Recovery Techniques (TRT) was developed by Smith, Dyregrov, & Yule in 2000 [3] developed by the Children and War Foundation. It focuses on secondary prevention of posttraumatic stress reactions as well as recovery following trauma. TRT was proposed for school children who experienced trauma of either war/conflict or natural disaster. And it is used in group setting (e.g., Giannopoulou, Dikaiakou, & Yule, 2006). However, TRT may be used for children who exposed to sexual abuse (Pekkarinen, Punamaki, & Poijula, 2007) [4]. It mainly focuses at managing and reducing children's posttraumatic stress reactions i.e. intrusion, avoidance and arousal. The manual has guidelines for five sessions i.e. two sessions deal with intrusive memories, thoughts, and feelings, one session deals with psychological over-arousal and the final two sessions manage symptoms of avoidance. TRT works on cognitive and behavioral level of trauma survivors [4].

2. LITERATURE

Newman et al. (2014) identified the scarcity of experimental research on post-disaster interventions for children/adolescent survivors of disaster and terrorism. They conducted the meta-analysis on PTSD outcomes among adolescent survivors of natural and man-made disasters receiving psychological interventions. The synthesis of 24 studies indicated that adolescents who received psychological treatment had significantly low PTSS as compared to control or waitlist groups. Meta-analysis included several interventions EMDR, Exposure, Eclectic with CBT. Exposure and CBT were effective for disaster ridden adolescents [5].

Shooshtary, Panaghi, and Moghadam (2008) evaluated the efficacy of CBT in adolescents who experienced earthquake of 2004 in Iran. PTSS were compared

between treatment group of CBT and control groups following a severe natural disaster. Pre and post-test comparisons were also identified. The findings demonstrated an effectiveness of CBT in relieving PTSS [6].

Murray et al. (2015) found effectiveness of trauma-focused cognitive behavioral therapy (TF-CBT) for stress-related symptoms [7]. Barron, Abdallah & Smith (2012) assessed TRT as trauma recovery program for individuals exposed to trauma of violence. Utilizing a randomized control trial ($N = 133$) students within age range of 11 to 14 years in Nablus, Palestine were allocated by class to intervention or wait-list control conditions. Intervention students reported significant decrease in PTSD, grief and depression. TRT was effective in decreasing post-trauma symptoms in children following trauma of violence [8].

TRT manual was first used in 1999 in Greece and Turkey following earthquake of 1999. Giannopolou identified that TRT is effective in working with children in small groups and resultantly increased improvement regarding post-trauma symptoms [9].

TRT has already been used in a number of contexts, and has been found effective in reducing PTSS in children affected by natural disasters and war [10, 11]. TRT not only has potential to manages posttraumatic stress but also reduce depressive symptoms in children following earthquake. Its impact was persisted till four years on follow ups [10].

TRT has been effectively used for management of post-trauma mental health issues across many countries i.e. China, Finland, Iran and Pakistan. TRT was tested in Turkey on 300 children and found significantly effective for mental health.

In Finland, Pekkarinen et al. (2007) have used it with sexually abused boys and found significant reduction of posttraumatic symptoms. TRT has been used following the earthquake in China in 2008 and in various other disaster and war situations, including 2004 tsunami and in Sri Lanka during the warfare [11].

The best use of the manual is reported with reference to earthquake in Iran. Kalantari, Yule, Dyregrov, Neshatdoost & Ahmadi (2012) explored the effectiveness of evidence-based intervention of Writing for Recovery for traumatic bereavement after natural disaster. This technique is also part of TRT which found to be effective [12].

Overall, literature indicated that TRT is effective for adolescents who are exposed to trauma of flood, earthquake, terrorism, tsunami etc.

3. METHODOLOGY

This is an experimental study (between group design) carried out in order to investigate the efficacy of TRT on psychological functioning (post-trauma symptoms, depressive symptoms, post-trauma negative cognitions, post-trauma memory) of adolescent girls who experienced flood in Central Punjab (Hafizabad and Jhang districts), Pakistan. The pre- and post-assessments of different dimensions of psychological functioning of both groups experimental and wait control were carried out before and after treatment.

3.1 Sampling

The adolescent girls were recruited from government schools in Central Punjab and the criteria was flood exposure of September 2014 as well as scoring equal or above 30 cut off scores on CRIES-13 for post-trauma symptoms severity in Study-I were recruited for experimental and control groups. They were pre and post assessed after the implementation of TRT. However, the control group was used as a wait-control group and ethically they were provided TRT after post-assessment. The identified scorers were randomly assigned to experimental and control groups. Each group was comprised of 15 in number. Total sample included 60 girls (Hafizabad: 15 in experimental, 15 in control group; Jhang: 15 in experimental, 15 in control group). Inclusion/exclusion criteria included participants with cut off score 30 or above on CRIES-13 was considered for inclusion, individuals with no learning difficulty and severe psychological problem were considered and it was verified by the teacher.

3.2 Measures

Different outcome measures were used to assess psychological functioning and post-trauma symptoms severity.

- **The Children's Revised Impact of Event Scale-13 [13]:** Post-traumatic stress symptoms severity was assessed by using Children's Revised Impact of Event Scale-13 (CRIES-13). The CRIES-13 consisted of 13 items with three cluster of symptoms of post-traumatic symptoms i.e. intrusion, avoidance and arousal.
- **Depression Self-Rating Scale for Children [14]:** This scale is used for children with age of 8 to 14 years to assess depressive symptoms. The test-retest reliability of the Scale on an independent sample showed satisfactory stability (.80).
- **Post-trauma Cognitions Inventory –Child Version:** The items for the CPTCI were drawn primarily from the 33-item adult PTCI [15]. The CPTCI

has been validated as a measure of negative trauma-related appraisals suitable for use with children/adolescents exposed to trauma. This measure comprises two sub-scales, 'permanent and disturbing change' and 'fragile person in a scary world', which suggests that appraisals pertaining to both personal integrity and physical threat are involved in maintaining PTSD [16].

- **Trauma Memory Quality Questionnaire [17]:** Trauma Memory Quality Questionnaire was developed as a brief measure (14 items) that could be easily comprehended and timely completed by children.

4. PROCEDURE

The permission to use and translate different scales (PTCI-Child Version and TMQQ) into Urdu language was obtained from respective authors. In phase-I of the study, these tools were Urdu translated. Afterwards, the school authorities were accessed to get permission for assessment and implementation of intervention on screened adolescents. The screened flood affected adolescents in study-I were accessed for the formation of the experimental (intervention) and wait control groups for study-II. Total 133 girls from Hafizabad and 150 girls from Jhang districts were assessed on first level who were exposed to trauma of flood September 2014 and out of which 68 girls from Hafizabad and 75 girls from Jhang were selected as they scored equal and above 30 on CRIES-13. Then 30 girls from Hafizabad and 30 girls from Jhang were selected for experimental and control group. 38 girls from Hafizabad and 45 girls from Jhang who were not taken for treatment were identified as groups for later treatment. However, these girls were moved to colleges in other cities and few refused due to study pressure and their extracurricular activities. 37 girls in Hafizabad were promoted and moved to colleges, 1 girl left study. In Jhang, 12 refused due to study pressure and extracurricular activities and 27 girls moved to colleges.

The selected groups of boys and girls were selected from Central Punjab (both districts i.e. Jhang and Hafizabad). However, the available participants who met the criteria of score equal or above 30 on post-trauma stress symptoms were further recruited to either experimental and control groups. Two groups in each district of Jhang and Hafizabad were formed i.e. experimental and control group. Total four groups formed. The experimental and control groups of girls in Hafizabad district were pre assessed on different dimensions of psychological functioning i.e. post-traumatic stress symptoms, trauma-exposed negative cognitions, and depressive symptoms, post-trauma memory intensity.

The researcher and one facilitator (or psychologist – both trained in this TRT for children in disaster) conducted Teaching Recovery Techniques sessions separately for

experimental groups. They followed manual guided preventive counseling plan i.e. TRT. Total five sessions were conducted for each group consisting of one session of almost one and a half hour in a day for each group of girls alternatively. The sessions were planned with one day gap in between so that the participants might practice techniques learnt in sessions. The sessions were conducted in a very comfortable noise free room. The main focus of the group was actively learning coping strategies to handle their post-trauma reactions, being optimistic and positive. The control groups kept waiting for their treatment turn for almost two weeks until they were post assessed on above mentioned different dimensions of psychological functioning along with experimental groups who had undergone therapeutic interventions training i.e. TRT. During the period of TRT for experimental group, wait control group were met three times by the researcher and asked about their activities and study. They were busy in preparing for the competition of extracurricular activities with other schools. The wait control groups were ethically debriefed delivered same intervention. The integrity of the recorded counseling sessions was established by researcher and one expert trained in Teaching Recovery Techniques (TRT). The integrity was established considering the guidelines in manual of TRT.

5. RESULTS

Independent Sample t-test was used to identify differences in psychological functioning across experimental and control groups after implementing TRT was done. However, Paired sample t-test was used to identify the mean differences between pre and post assessment of different dimensions of psychological functioning of the adolescent girls was done. Results are shown in the following tables.

The table shows that adolescents of experimental and control group significantly differ in post trauma memory, post-trauma negative cognitions (disturbing and feeble), post-traumatic symptoms and its subscale including intrusion, avoidance and arousal as well as depression. Experimental group which received TRT have reduced post trauma memory, post-trauma negative cognitions (disturbing and feeble), low post-traumatic symptoms and its subscale including intrusion, avoidance and arousal as well as depressive symptoms as compared to wait control group of girls adolescents. The values of Cohen's d also indicate large size effect.

Table 1: Mean Differences in Different Dimensions of Psychological Functioning in Girls across Different Groups: Experimental and Control Group (N=60)

Variables	Experimental (n=30)		Control (n=30)		t(58)	P	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
Pre Trauma Memory	33.67	5.98	29.90	7.16	2.21	.03	.355	7.17	0.57

Post Trauma Memory	21.87	4.36	25.27	5.51	-2.64	.01	-5.97	-.83	0.68
Pre Disturbing of CPTCI	30.57	8.50	30.07	8.03	.23	.81	-3.77	4.77	-
Post Disturbing of CPTCI	21.33	5.32	25.43	5.48	-2.94	.005	-6.89	-1.30	0.76
Pre Feeble Person of CPTCI	27.87	7.16	28.77	6.32	-.52	.60	-4.39	2.59	-
Post Feeble Person of CPTCI	21.77	4.60	26.83	5.35	-3.93	.000	-7.64	-2.48	1.01
Pre Intrusion Subscale of CRIES	12.27	4.80	14.60	2.43	-2.37	.02	-4.30	-.36	0.61
Post Intrusion Scale of CRIES	2.57	1.47	4.93	3.08	-3.79	.000	-3.61	-1.12	0.97
Pre Avoidance Subscale of CRIES	14.87	4.19	15.07	2.94	-.21	.83	-2.07	1.67	-
Post Avoidance Subscale of CRIES	2.17	1.39	5.37	3.66	-4.48	.000	-4.63	-1.77	1.15
Pre Arousal Subscale of CRIES	16.33	4.30	17.27	3.15	-.96	.34	-2.88	1.01	-
Post Arousal Subscale of CRIES	2.83	1.36	5.73	3.72	-4.01	.000	-4.35	-1.45	1.03
Pre PTSS Severity/CRIES	43.47	8.90	46.93	6.08	-1.76	.084	-7.41	-.47	-
Post PTSS Severity/CRIES	7.57	3.78	16.03	9.82	-4.41	.000	-12.31	-4.62	1.14
Pre Depressive Symptoms	10.33	3.28	11.70	2.89	-1.71	.092	-2.96	-.23	-
Post Depressive Symptoms	9.93	3.30	12.63	3.43	-3.10	.00	-4.44	-.95	0.80

Note. M=Mean, SD=Standard Deviation, CI=Confidence Interval, LL=Lower Limit, UP=Upper Limit, CPTCI=Children Post-trauma Negative Cognitions Inventory, CRIES=Children Revised Impact of Event Scale,

Table 2: Mean Differences in Pre and Post Measures of Different Dimensions of Psychological Functioning in Girls (N=60)

Variables	Pre-test (n=30)		Post-test (n=30)		t(59)	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
Trauma Memory	31.78	6.81	23.57	5.22	7.53	.00	6.03	10.39	1.35
Disturbing of CPTCI	30.32	8.20	23.38	5.74	6.52	.00	4.80	9.05	0.98
Feeble Person of CPTCI	28.32	6.71	24.30	5.57	4.03	.00	2.02	6.01	0.65
Intrusion Subscale of CRIES	13.43	3.95	3.75	2.67	17.9	.00	8.60	10.76	2.87
Avoidance Subscale of CRIES	14.97	3.59	3.77	3.18	17.2	.00	9.89	12.50	3.30
Arousal Subscale of CRIES	16.80	3.76	4.28	3.14	20.6	.00	11.30	13.73	3.61
PTSS Severity/CRIES	45.20	7.76	11.80	8.52	24.09	.00	30.62	36.17	4.09
Depressive Symptoms Severity	11.02	3.14	11.28	3.60	-.93	.35	-.837	.304	-

Note. M=Mean, SD=Standard Deviation, CI=Confidence Interval, LL=Lower Limit, UP=Upper Limit, CPTCI=Children Post-trauma Negative Cognitions Inventory, CRIES=Children Revised Impact of Event Scale,

The results show that there are significant differences in the pre-test and post-test scores of all dimensions of psychological functioning in girls except in depressive symptoms. Post-test scores reveal that after psychological intervention girls have low trauma memory, low disturbing and feeble post-trauma negative cognitions, low post-traumatic symptoms including intrusion, avoidance as well as arousal. The values of Cohen's d also indicate large effect size.

6. DISCUSSION

Differences for the pre- and post-assessment of various measures of psychological functioning were observed across experimental and control groups of adolescent girls to determine the effectiveness of TRT.

The hypothesis, experimental group will likely to have less severe post-trauma stress symptoms, depressive symptoms, negative cognitions and less severe trauma memory as compared to the wait control group of girls, was found to be significant. Experimental group was found to have significantly low scores on all dimensions of psychological functioning as compared to control group.

The findings revealed that adolescents of experimental and control group significantly differ in post trauma memory, post-trauma negative cognitions (disturbing and feeble), post-traumatic symptoms and its subscale including intrusion, avoidance and arousal as well as depression. Adolescents of control group have high post trauma memory, post-trauma negative cognitions (disturbing and feeble), post-traumatic symptoms and its subscale including intrusion, avoidance and arousal as well as depression. Overall girls in experimental group had better psychological functioning. The hypothesis, post treatment scores on different dimensions of psychological functioning will be low in adolescent girls as compared to pre-treatment scores after implementation of TRT.

The results show that there are significant differences in the pre-test and post-test scores of all dimensions of psychological functioning in girls except in depression. Post-test scores reveal that after psychological intervention girls have low trauma memory, low disturbing and feeble post-trauma negative cognitions, low post-traumatic symptoms including intrusion, avoidance as well as arousal.

This highlighted the effectiveness of intervention given i.e. TRT. It was in line with previous researches which showed TRT to be an effective therapeutic intervention for adolescents exposed to disasters. It was also found that the effectiveness of TRT was maintained at follow-ups even after four years. This was helpful in making sure that the children were independent of obtaining further services in future and being able to function well [18]. Disasters of any nature can be a traumatic experience for anyone, especially children and adolescents. In addition to disrupting the whole system, it may affect the psychological functioning of the people, even leading to severe symptoms and disorders. Many go on to develop PTSS and PTSD, which is found to be prevalent in a higher percentage of people even months after the disaster has occurred [19]. In addition to the post-traumatic symptoms, individuals also developed other serious problems, including depression, which further aggravated the condition [20]. Children especially find it hard to express their thoughts and feelings due to which

they may keep suffering without asking for much needed help. It is then important to use such a therapeutic approach that may be tailored specifically to helping children overcome the after-effects of the traumatic experience. TRT has been shown to be quite effective with children of age 8 years or older by helping them deal with their intrusion feelings and thoughts that may include recurrent flashbacks, nightmares and invasive memories. It also dealt with reducing their arousal and helping them relax and concentrate on other tasks. Moreover, it effectively addressed the avoidance reaction that children engaged in to deal with the traumatic event [9]. Disasters usually require a large task force that is able to address the situation in a time efficient way. TRT has been found effective secondary prevention for trauma exposed population.

The effectiveness of TRT was high when compared with regular class lessons or even individuals not receiving any intervention [18].

7. CONCLUSION

It was found that the experimental group of adolescent girls in Central Punjab, Pakistan who were flood affected had better psychological functioning (decreased post-trauma symptoms, depressive symptoms, post-trauma negative cognitions as well as post-trauma memory) as compared to the wait control group after TRT was applied. The effectiveness was also observed for significantly improved post assessment following treatment. TRT has been shown to be an effective intervention program by other researches, with the positive effects lasting even years after the termination period. Clearly, this highlights the beneficial effect of using TRT to address the affected individuals that may face a disaster (such as flood, earthquake or war). It may also help in addressing the shortage of trained professionals in the present society since the manual can be used after certain level of training. Hence, for Pakistan, this may be a time and cost efficient intervention and secondary prevention program.

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Note: Researcher was trained in Teaching Recovery Techniques and she has provided training to Peshawar teachers of Army Public School and doctors in Peshawar in 2015 after terrorist attack on 16th December, 2014. You may see link below:

<https://www.thenews.com.pk/print/65739-participants-equipped-with-techniques-to-manage-post-trauma-situations>.

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