Post Traumatic Stress Disorder and co-morbid depression treatment: A Rumination Focused Cognitive and Behavioral Therapy in a randomized controlled trial

Vincent Sezibera, PhD
Department of Clinical Psychology
Faculty of Medicine and Health Sciences
National University of Rwanda

Abstract

The present study replicates results of a previous pilot intervention (Sezibera et al., 2009). The objectives consist in evaluating the effectiveness of a Rumination Focused Cognitive and Behavioural Therapy (RFCBT) in treating PTSD and comorbid depression in a randomized controlled trial (RCT) conducted with young multitraumatized from the 1994 genocide against Tutsi in Rwanda. Participants (N=38) were randomly assigned to treatment group (n=19) and control group (n=19). Treatment protocol included exposure monitoring and challenging negative rumination exercises, stress management skills, and social sharing exercises. Results demonstrate significant decrease in PTSD and depression symptoms in the treatment group at posttreatment, while no changes were observed in the control group. Improvement in PTSD is a function of the improvement in rumination, social sharing and loneliness. Regarding rumination mode, decrease in analytic "WHY" thinking rumination is the best predictor of the improvement in PTSD. Depression improvement is positively associated with loneliness. The findings suggest that an intervention affecting rumination mode, lowering loneliness and increasing social sharing is with beneficial effects on PTSD and comorbid depression symptoms.

Key words: *children; adolescents; genocide; PTSD; intervention; Rwanda*

Intoduction

The study consisted in a Rumination Focused Cognitive and Behavioural Therapy (RFCBT) targeting rumination as key psychological process governing persistent PTSD symptoms. This rationale is based on our previous results on PTSD mediating factors and on existing literature demonstrating that rumination predicts persistent PTSD (Ehlers, Mayou, & Bryant, 2003). Moreover, the protocol refers to the cognitive model of PTSD suggesting that the persistence of PTSD symptoms is related to the ways people process the trauma leading to a sense of current threat (Ehlers & Clark, 2000). In that perspective, the sense of current threat is a consequence of excessive negative appraisals of the trauma and/or its sequelae, the individual ruminating about its causes and consequences. Thus, the treatment

aimed at modifying the excessively negative appraisals by promoting counter-acting cognitive and behavioural strategies.

As demonstrated in our previous pilot study in a population of young survivors of the 1994 genocide perpetrated against Tutsi in Rwanda(Sezibera et al, 2009), RFCBT is effective in treating PTSD. Whereas PTSD symptoms have increased over two years (from intake to the pre-treatment session), the post-treatment evaluation demonstrated significant symptoms decrease as an effect of the treatment.

Therefore, these findings inspired further steps to ascertain how valuable the rumination based treatment protocol is. Firstly, it seemed important to establish the active ingredients involved in the potential changes in rumination mode. Secondly, the preliminary study lacked a control group to validate the observed effects. Addressing these two issues, the present study aimed at evaluating RFCBT effect in a randomized controlled trial. It was expected that the treatment group would improve better than the control group (untreated). Also, it was expected that improvements in PTSD and depression symptoms would be mediated by changes in rumination mode, loneliness, and social sharing.

1. Method

1.1. Recruitment

In January 2008, young survivors of the 1994 genocide perpetrated against Tutsi in Rwanda were recruited from their secondary school. Inclusion criteria included (a) being a survivor of the genocide; (b) freely agreeing to take part in the research and (c) meeting PTSD diagnostic criteria (DSM IV; APA, 1994). Participants with actual or past experience of extreme and invalidating episodes of PTSD symptoms, causing durable impairments, were excluded. Supposedly such people would not be able to get through exposure exercise and to deal with their emotions in recalling traumatic events.

1.2. Participants

As presented in the recruitment flow (see *Figure 1*), 70 volunteers (55.1% boys), aged between 15 and 25 years at the assessment (*M*=17.68, *SD*=1.78), had filled in the questionnaire screening for PTSD (UCLA PTSD Scale), a prior inclusion criteria. Following data analysis, 39 participants (55.71%, N=70), slightly more boys (52.6 %) and aged between 15 and 21 years (M=17.57, SD=1.23), met all the criteria of PTSD diagnosis (DSM IV; APA, 1994) and were recruited to participate in the study. From the 39 subjects, one respondent was excluded from the sample because he regularly experienced acute post-traumatic crises.

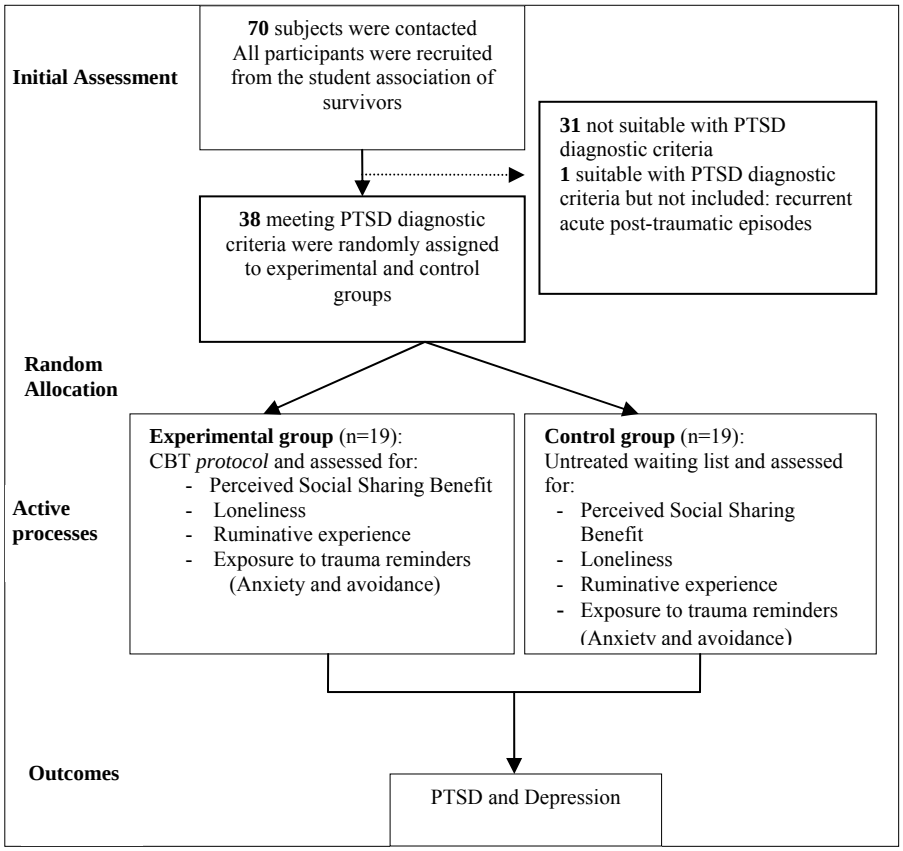

Figure 1 *Recruitment flow and randomization assignments to the study. CBT indicates Cognitive and Behavioural Therapy; PTSD indicates Posttraumatic Stress Disorder*

1.3. Sample assignment

The 38 participants meeting all the inclusion criteria were randomly allocated to the experimental group (n=19; 52.6 % boys) or to the untreated control group (n=19; 57.9 % boys). With regard to the total score on PTSD scale at the recruitment, the two groups didn't differ, $t(36)=-.10$, $p>.05$. No case of drop-out was registered in the two groups. Figure 1 is presenting the flow chart of recruitment assignment.

1.4. Treatment protocol

Comprising 8 weekly sessions, the protocol included psychoeducation on PTSD and rumination, identification of negative pathogenic rumination and promoting alternative to pathogenic rumination, narrative exposure (emotions, situations), and social sharing (emotions, events). Weekly

exercises were given to the participants such as (1) monitoring rumination, anxiety and depression signals; (2) exercising healthy alternatives to pathogenic rumination [e.g. "how" rumination (Watkins, 2008), distraction]; (3) exposure to trauma reminders; (4) challenging negative trauma memories by recalling positive memories in the past lifespan.

On a weekly frequency, therapeutic sessions were organized in subgroups of 9 and 10 individuals. Whereas treatment group underwent treatment sessions, the control group was assigned to an untreated list. For both groups, measures were taken at pre- and post-treatment by an independent trained psychologist; a student completing undergraduate degree in Clinical Psychology. The assessor was briefed on the tools and guided about the assessment procedure.

1.4. Measures

All measures were taken for both groups at the two times of the intervention.

1.4.1. Perceived Social Sharing Benefit scale

The *Perceived Social Sharing Benefit Scale (20 items, α=0.90)* was used to assess how beneficial is the disclosure of negative experience and emotions associated to genocide and how this can impact the post-traumatic outcome. Responding to the question: "*Talking with other people about this negative event of the genocide helped me…*" participants were assessed on a scale from 0 (not at all) – 6 (extremely) and asked how social sharing is helpful. With regard to previous studies (Gasparre, Bellelli, & Curci, 2006), the scale involves two dimensions: (a) the cognitive benefits (12 items, α=0.86) including restructuring and cognitive reorganization and (b) the socio-emotional benefits (8 items, α=0.78) including social comparison and socio-emotional support.

1.4.2. Anxiety intensity and avoidance at the exposure to trauma reminders scale

Two 26-item scales were designed to assess the current anxiety induced by the exposure to trauma reminders (26 items, α=.81) and the resulting avoidance (26 items, α=.83). These two scales were generated by asking Rwandese students in Clinical Psychology to list all the proximal and distal trauma indices that survivors avoid because of the associated anxiety and distress.

1.4.3. Loneliness scale

To determine the level of loneliness, the 10-items revised version of the UCLA Loneliness Scale(Russell, Peplau, & Cutrona, 1980) was used on a scale from 1 (not at all) to 6 level. The scale comprises 10 negatively worded items that assess the companionship, closeness with others or withdrawal.

1.4.4. Ruminative thoughts scale

The Cognitive Experiential and Ruminative Thoughts Scale (CERTS, 16-item) was used to assess the nature and the content of ruminative and experiential thinking. Referring to the authors (Barnard, Watkins, Mackintosh, & Nimmo-Smith, 2006), the scale comprises 4 components with each four items: (1) abstract comparative-evaluative thinking; (2) analytic "Why" thinking, (3) open, loose divergent, creative thinking and (4) concrete, experiential thinking. The scale was rated on a 0-4 scale and the scoring consisted in summing the items for each subscales.

1.4.5. PTSD assessment

A shortened version of the UCLA PTSD Reaction Index for DSM IV (17 items) was used to assess the prevalence of the PTSD symptoms in the selected sample.

1.4.6. Depression

A 13-item short form of BDI Scale (Groth-Marnat, 1990) was used and checked for attitudes and symptoms of depression like sadness, pessimism, sense of failure, social withdrawal, loss of appetite, etc.

2. Results

2.1. Preliminary analyses

A series of statistical analyses were conducted to examine whether there were any differences between groups at pre-treatment. Table 1 presents comparisons statistics.

Table 1 Considered variables Mean (M) and Standard deviation (SD at pre-treatment (N=38)

	Experimental group (n=19)		Control group (n=19)				
	M	SD	M	SD	*t*	df	*p*
Perceived Social Sharing Benefit	59.79	9.77	60.84	9.13	-.34	36	.73
Cognitive/Restructuring Social/Emotional Benefit	35.68	7.93	36.84	5.95	-.50	36	.61
Situational/Emotional Exposure	1.60	.45	1.55	.35	.35	36	.72
Anxiety to reminders							
Avoidance of reminders	1.12	.53	1.25	.43	-.83	36	.41
Loneliness	37.79	14.44	38.58	13.07	-.17	36	.86
Ruminative thoughts							
Abstract Comparative	9.37	3.23	9.84	2.73	-.48	36	.62
Analytic 'WHY'	10.16	2.79	9.84	2.34	.37	36	.74
Creative thinking	10.00	3.30	10.74	3.81	-.63	36	.52
Concrete/Experiential Thinking	7.11	2.84	7.37	2.75	-.29	36	.77

PTSD total score	2.22	.42	2.24	.54	-.15	36	.87
Depression	10.74	8.27	12.74	8.21	-.74	36	.46

As presented in Table 1, treatment and control groups were identical and didn't differ on any considered variable. At pre-treatment, participants in both groups were equally meeting all DSM IV (APA, 1994) criteria for PTSD diagnosis. Compared on their scores on PTSD and depression scales at the pre-treatment, the two groups didn't differ on their symptoms severity either on PTSD or on Depression, $t(36)=-.15$, $p=.87$ and $t(36)=-.74$, $p=.46$ respectively. Further, we tested PTSD and depression correlation. PTSD and depression are strongly associated, $r(38)=.49$, $p<.01$.

2.2. Treatment effect

2.2.1. Mixed ANOVA analysis

The two groups were compared at the two times of measurement, i.e. pre-treatment (Time1) and post-treatment (Time 2). As compared to control group, it was expected that the participants who attended RFCBT sessions would present less PTSD and depression symptoms at Time 2 as compared to the Time 1. Mixed design ANOVAs with time (pre- and post-treatment) and group (treatment vs. control) were conducted on PTSD and depression scores.

Analysing PTSD measures, the main effect of group was significant, $F(1,36)=7.86$, $p=.008$, partial $\eta^2=.17$. The direction of the effect shows that treatment group had lower scores on PTSD scale (M=1.29, SD=.69) as compared to control group (M=2.19, SD=2.19. Likewise, there were a group main effect on depression, $F(1,36)=4.10$, $p=.050$, partial $\eta^2=.10$. The time effect was significant for both PTSD and depression, $F(1,36)=32.41$, $p<.001$ and $F(1,36)=20$, $p<.001$, partial $\eta^2=.35$. All these main effects were qualified by significant Time x Group interactions for both PTSD and depression, $F(1,36)=26.49$, $p<.001$, partial $\eta^2=.42$ and $F(1,36)=13.81$, $p=.001$, partial $\eta^2=.27$. Table 2 and Figures 2-3 show that participants who were assigned to the treatment condition improve from their PTSD and comorbid depression symptoms compared to the untreated group for which no differences are observed between the two times of measurement.

Moreover, the analysis reported significant time main effects and interactions for some postulated active processes. These are the analytic "WHY" ruminative thinking, the social and emotional benefits, the anxiety to reminders, and loneliness (see Table 5).

2.2.2. Treatment effect on PTSD symptoms

Figure 2 presents the improvement in PTSD symptoms at post-treatment for both groups. Consistent with the figure, participants in treatment group

reported significant decrease in PTSD symptoms severity at post-treatment. Similarly, participants were assessed for the satisfaction on DSM IV criteria for PTSD diagnosis at post-treatment. Whereas all participants met PTSD diagnosis at pre-treatment, only 36.8 %(n=7) met the full range of PTSD criteria in the treatment group against 94.7%(n=18) in the control group.

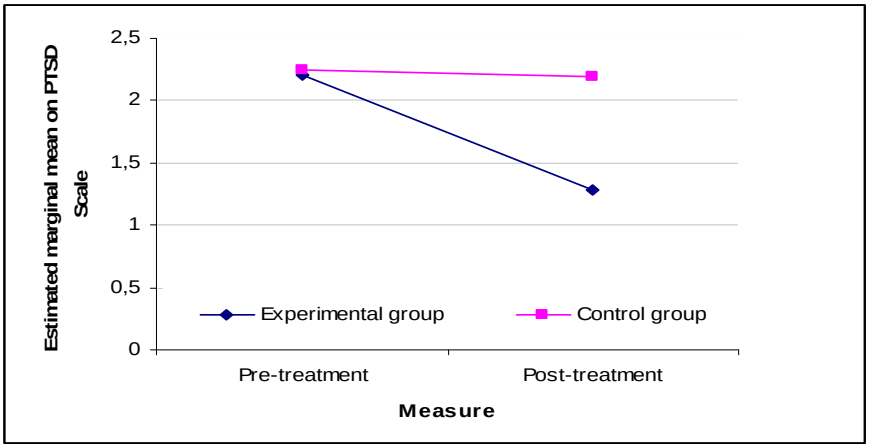

Figure 2 PTSD symptoms recovery as function of the interaction

Table 2
Means(M) and Standard Deviations (SD) of considered variables and the Results of Repeated Measures ANOVA testing differences between CBT and Control groups at Time 1 and Time 2 measurement, the interaction Time x Group and their effect size (N=38)

	CBT Group		Control Group							
	Time 1	Time 2	Time 1	Time 2	Time		Group		Time x Group	
	M(SD)	M(SD)	M (SD)	M(SD)	*F*	Eta^2	*F*	Eta^2		Eta^2
Perceived Social Sharing Benefit :										
Cognitive/Restructuring	59.79 (9.77)	62.12(8.05)	60.84(9.13)	59.47(9.16)	.18	.00	.09	.00	2.63	.06
Social/Emotional Benefit	35.68 (7.93)	39.84(6.67)	36.84(5.95)	36.21(6.23)	2.92	.07	.41	.01	5.39*	.13
Situational/Emotional Exposure										
Anxiety to reminders	1.60 (.45)	1.23(0.61)	1.55(.35)	1.50(.50)	12.01***	.25	.56	.01	6.76*	.15
Avoidance of reminders	1.12 (.53)	.87(0.63)	1.25(.43)	1.32(.52)	1.00	.02	3.73	.09	3.15	.08
Loneliness	37.79 (14.44)	25.95 (12.54)	38.58 (13.07)	36.32 (14.81)	12.49***	.25	1.94	.05	5.75*	.13
Ruminative thoughts										
Abstract Comparative	9.37 (3.23)	7.79 (2.93)	9.84 (2.73)	9.84 (3.18)	1.95	.05	2.46	.06	1.95	.05
Analytic 'WHY'	10.16 (2.79)	8.95 (3.35)	9.84 (2.34)	10.63 (2.87)	.21	.00	.71	.01	4.95*	.12
Creative thinking	10.00 (3.30)	8.47 (2.61)	10.74 (3.81)	9.05 (2.61)	6.21*	.14	.70	.01	.01	.00
Concrete/Experiential Thinking	7.11 (2.84)	6.95 (3.30)	7.37 (2.75)	8.05 (2.74)	.31	.00	.68	.01	.80	.02
PTSD										
Intrusion	2.35 (.45)	1.57 (.71)	2.27 (.65)	2.31 (.58)	13.25***	.26	3.87	.09	15.58***	.30
Avoidance	2.13 (.72)	1.29 (.74)	2.32 (.64)	2.14 (.78)	23.21***	.39	6.16*	.14	9.36**	.20
Arousal	2.19 (.51)	1.01 (.78)	2.07 (.62)	2.15 (.84)	22.89***	.39	6.71*	.15	29.40***	.45
PTSD total score	2.22 (.42)	1.29 (.69)	2.24 (.54)	2.19 (.64)	32.41***	.47	7.86**	.17	26.49***	.42
Depression	10.74 (8.27)	3.89 (6 .19)	12.74 (8.21)	12.11 (9.66)	20.00***	.35	4.10*	.10	13.81***	.27

Note: *** = p≤.001, **=p≤.01, p≤.05, Eta2= Partial Eta Squared. For all *F*-ratio, df (1, 2) = (1, 36).

2.2.3. Treatment effect on Depression symptoms

Considering PTSD and depression strong association, we tested whether any PTSD improvement is associated with depression relief. Entered in the analysis model, PTSD and depression improvements are strongly associated, $r(38)=.74$, $p<.001$. As a result of the treatment, a decrease in PTSD symptoms severity is significantly associated with low depression.

With regard to the cut-off score in assessing depression (Groth-Marnat, 1990[7]), the experimental group demonstrated an overall reduction in depressive symptoms over the time when comparing pre-versus post-treatment outcomes: non depression 52.6 % versus 84.2 %, mild to moderate depression 21.1% versus 10.5 % and severe depression 26.3% versus 5.3 %. The findings indicate that at least 31.6 % recovered from depressive symptomatology at post-treatment.

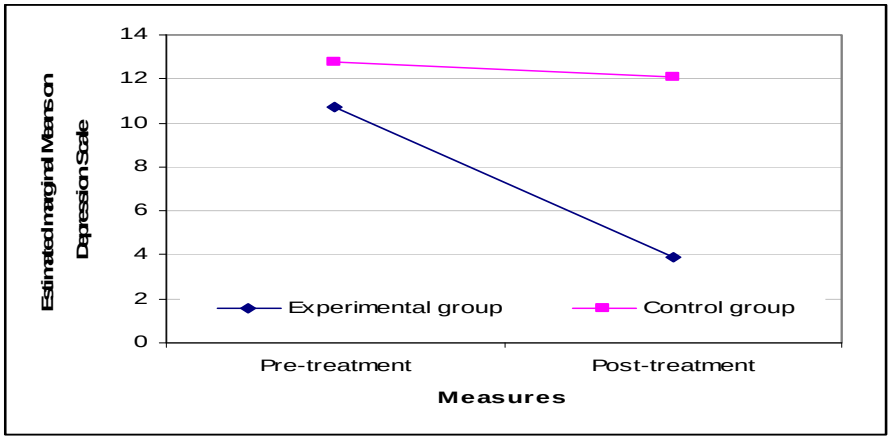

Figure 3 Depression symptoms recovery as function of the interaction of the intervention and the group (N=36)

2.3. PTSD and depression improvement predictors

2.3.1. Correlates of PTSD and depression at post-treatment

As presented in Table 3, PTSD and depression improvements are related to improvements in active processes. Table 3 presents correlations of considered variables at post-treatment.

[7] Total score levels of depression: 05-09=these ups and downs are considered normal; 10-18=Mild to moderate depression; 19-29= Moderate to severe depression; 30-above=severe depression.

Table 3: Bivariate correlation (2-tailed) of PTSD and Depression associated to active processes at the post-treatment (N=38)

		1	2	3	4	5	6	7	8	9	10	11
1	**Perceived Social Sharing Benefit** Cognitive/Restructuring	-	.72***	-.32*	-.45**	-.35*	-.01	-.01	.12	-.17	-.33*	-.45**
2	Social/Emotional support		-	-.25	-.43**	-.27	-.18	-.09	.04	-.19	-.22	-.32*
3	**Situational/Emotional Exposure** Anxiety to reminders			-	.86***	.33*	.26	.43**	.24	.48**	.43**	.46**
4	Avoidance of reminders				-	.55***	.29	.45**	.12	.49**	.57***	.54***
5	**Loneliness**					-	.19	.62***	.00	.32*	.70**	.47**
6	**Ruminative thoughts** Abstract Comparative						-	.47**	.31	.55***	.29	.05
7	Analytic 'WHY' thinking							-	.39*	.58***	.56***	.37*
8	Creative thinking								-	.25	-.00	-.12
9	Concrete/Experiential Thinking									-	.37*	.45**
10	**PTSD**										-	.74**
11	**Depression**											-

Note: ***$p \leq .001$; **$p \leq .01$; *$p \leq .05$.

Consistent with the correlations, PTSD and depression symptoms correlated with most predictors. Perceived social sharing benefits, i.e. cognitive restructuring and social/emotional support, are negatively associated with depression. Similarly, PTSD is negatively associated with cognitive restructuring. Impressively, PTSD and depression improvement is function of anxiety and avoidance towards reminders, and loneliness feelings improvement. Changes in these active processes are related to the rumination content improvement, especially to the analytic "Why" and concrete/ experiential thinking.

2.3.2. Improvement scores

As reported in Table 2, in addition to PTSD and depression, specific active processes were improved as an effect of the treatment. The analysis demonstrated significant Time x Group interactions for analytic WHY ruminative thinking, social/emotional support, level of anxiety towards trauma reminders, and loneliness feeling. The direction of these interactions indicates improvement of these active processes in treatment group in comparison to control group.

To assess improvement level in these active processes, and their effect on PTSD and depression improvements, we calculated improvement scores on variables with significant interaction (see Table 2) by subtracting Time 2 from Time 1. Table 4 presents correlations between the different improvement scores. Increased social and emotional benefit is related to a positive impact on PTSD. Similarly, decrease in loneliness and analytic "Why" thinking is associated with reduced PTSD. Also, depression is

positively associated with anxiety to reminders, loneliness feelings and PTSD prevalence.

Table 4 PTSD and depression outcome correlating with active processes improvement (N=38)

Correlations							
Variable		1	2	3	4	5	6
1.	Social and Emotional Benefit	-	$-.44^{**}$	$-.33^{*}$	$-.41^{**}$	$-.35^{*}$	$-.21^{ns}$
2.	Anxiety to reminders		-	$.12^{ns}$	$.07^{ns}$	$.31^{ns}$	$.33^{*}$
3.	Loneliness			-	$.47^{**}$	$.44^{**}$	$.39^{*}$
4.	Analytic Why ruminative thinking				-	$.58^{***}$	$.14^{ns}$
5.	PTSD					-	$.40^{*}$
6.	Depression						-

Note: ***p<.001, **p<.01, *p<.05, ^{ns} p>.05

Finally, a hierarchical multiple regression was conducted to assess the significant unique contributions of predictors. PTSD and depression improvement scores were entered in the model as dependent variables, and the improvement scores for analytic WHY ruminative thinking, social/emotional support, level of anxiety towards trauma reminders, and loneliness feeling were entered as predictors. The overall model was significant in predicting PTSD (R^2 change= .40, $F(4,33)=5.56$, $p<.01$) and depression (R^2change=.25, $F(4,33)=2.86$, $p<.05$). Improvement in analytic "Why" thinking, (β=.42, p<.05), social and emotion benefit (β=-.35, p<.05) and loneliness (β=.37, p<.05) affect significantly PTSD symptoms. Likewise, a decrease in loneliness affected positively depression (β=.37, $p<.05$).

Interestingly, testing the best predictor of the observed improvement, a regression analysis (Stepwise model) regressed PTSD and depression improvement scores over active processes improvement scores. The equation model yielded a significant unique effect of the analytic *Why* ruminative thinking (R^2change=.34, $F(1,36)=18.64$, $p<.001$) and loneliness (R^2change=.15,$F(1,36)=6.73$, $p<.05$) in predicting respectively the relief in PTSD and depression. Such data indicated that the more the treatment changed positively the content the abstract rumination component, i.e. the analytic "Why" thinking, the best PTSD symptoms are improved. Likewise, reduction in loneliness feelings predicts a lower depression.

Table 5

Hierarchical regression analysis of predictors improvement in predicting PTSD and depression outcome (N=38)

		PTSD		Depression	
Predictors' model		R^2 change	β	R^2 change	β
1	Social and Emotional Benefit	.12*	$-.35^{*}$	$.04^{ns}$	$-.21^{ns}$
2	Anxiety to reminders	.03ns	$.19^{ns}$	$.07^{ns}$	$.30^{ns}$
3	Loneliness	.13*	$.37^{*}$	$.12^{*}$	$.37^{*}$
4	Analytic Why thinking	.12*	$.42^{*}$	$.01^{ns}$	$-.14^{ns}$

Note: *p<.05; ns= non significant at p<.05.

2. Discussion

The present findings support the growing evidence that CBT is efficient to help patients with PTSD and depression (Ehlers et al., 2003). The study was a randomized controlled trial assessing the effect of a Rumination focused Cognitive and Behavioural Therapy (RFCBT) on PTSD and co-morbid depression. Participants were recruited and allocated randomly in a RFCBT group (experimental group) and an untreated group (control group). We hypothesized that a RFCBT would have a positive impact on PTSD and co-morbid symptoms. We stated that (a) participants who underwent treatment should present less PTSD and depression symptoms at posttreatment than in the control group; (b) the improvement in depression should be strongly associated with the relief in PTSD and (c) the improvement in PTSD and depression should be a function of the treatment effect on predictor variables. These hypotheses were tested and confirmed by our data. PTSD scores showed significantly greater improvement in the RFCBT condition as compared to the untreated condition (significant group x time interaction, η_p^2=.42). Additionally, participants of the RFCBT condition showed significantly greater reduction in co-morbid depression than the control group (significant group x time interaction, η_p^2=.27).

The observed improvements in PTSD and depression depend largely on the effects of the treatment on the predictors considered as ingredients interacting in the development of both disorders. Specifically, the relief observed on the level of PTSD is predicted by the improvement in the feeling of loneliness (13% of the variance), the perceived social and emotional benefit (12% of the explained variance) and the analytic "Why" ruminative thinking (12% of the variance). For depression, its improvement is function of loneliness improvement (12%).

Analyzing for the best predictor of PTSD improvement when controlling for the effect of others, the output of the regression analysis revealed that PTSD is predicted by the analytic "Why" ruminative thinking change(significant

interaction time x group). Recent studies have evidenced that rumination is a powerful predictor of persistent PTSD (Michael, Halligan, Clark, & Ehlers, 2007). Certain characteristics of rumination, such as compulsion to continue ruminating, occurrence of unproductive thoughts, and "why" and "what if" type questions, as well as negative emotions before and after rumination, were significantly associated with PTSD, concurrently and prospectively In this way, respondents engaged in an analytic ruminative thinking (e.g "*Why* this happened to me ? *Why* am I feeling such strong and overwhelming emotions? *What if* the perpetrators of the genocide, or their relatives, attack me?) are to develop persistent PTSD. In-session and homework exercises targeted such abstract versus analytic ruminative thinking and encouraged participants to challenge such thinking and associated emotions. This was not possible unless the participants engaged in empirical experience: attempting exposure, tracking subtle rumination driven behaviors, disclosing one's emotions in session, monitoring on a weekly basis distressing situation and associated negative emotions, etc. With such exercises, participants learnt to identify, interpret and challenge intrusive thoughts differently, to consider alternatives to rumination, and to test the probability that the thoughts correspond to reality.

Surprisingly, the analytic "Why" ruminative thinking didn't predict depression in this sample as found elsewhere (Watkins et al., 2007). Otherwise, our results suggest that the perceived social sharing benefit may impact on depression. Contrary to PTSD, depression is associated with cognitive restructuring (r=-.52, p<.001) and perceived social-emotional support (r=.-35, p<.05) resulting from the social sharing. The present findings confirm the beneficial effects of social sharing, particularly its immediate positive impact on the level of emotion upheavals, the improvement in positive emotions, the reduction of the feeling of social isolation and loneliness. Therefore, there is a relation between social sharing of emotions and loneliness. Referring to Rimé (2005), besides that painful memory and associated emotions are activated; the social sharing re-creates a community of membership, with its values and its bonds. Considering the group setting of the treatment condition, we assumed that the group dynamic was supportive and helpful in decreasing the loneliness. In such, individuals benefited from peer experiences (cognitive restructuring) and interactions in sessions (emotional support).

This study suggests that a therapeutic intervention aiming at rumination could have an effect in the treatment of PTSD. Our clinical observations during these sessions imply that promoting psychoeducation on trauma, rumination and PTSD, encouraging progressive exposure exercises,

developing anxiety management skills, reinforcing social sharing may impact on rumination and loneliness feeling which affect in turn PTSD and depression outcome. These tasks were tested through in-session and weekly exercises. On a weekly basis, participants were provided with a set of exercises related to exposure (in imago and in vivo) and monitoring their emotions states by noting all emotions felt and associated situations. In-sessions, participants where encouraged to share situations and emotions confronted during the week as well as decisions and behaviours adopted in such situations. Regarding social sharing, participants were educated to normalize their emotions and challenge the emotion driven behaviours. Through "*What if …"* types exercises, participants were educated to shift from an emotion-focused "What if….." and its automatic response such as "*I'm not capable or no one could help*" to the identification of surrounding resources.

Finally, this study evidenced that untreated survivors did not recover from PTSD and co-morbid disorders. A precedent pilot study reached the same conclusion.

Limitations

The findings of this study support the notion that a RFCBT intervention can improve PTSD and co-morbid depression symptoms. Yet, the evidences supporting treatment effect are with some limitations. The observed effects need a follow-up to ensure the maintenance of the treatment outcome. Future studies should also test the effectiveness of the treatment in comparing individual versus group setting.

Although some limitations are raised, this study demonstrated that focusing on rumination could have positive benefit in healing post-traumatic disorder in Rwanda. Yet, there are some initiatives taken countrywide to card for survivors with PTSD. However, there are too few studies assessing whether the treatments provided are efficient. In that respect, this study has proven that intervening on rumination is with great improvement for the patient with PTSD and co-morbid depression disorder.

References

APA. ,1994. *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.). Washington DC: American Psychiatric Association.

Barnard, P., Watkins, E., Mackintosh, B., & Nimmo-Smith, I., 2006. Cognitive and Experiential Ruminative Thoughts Scale (CERTS Process). *Unpublished*

Ehlers, A., Clark, D. M., Hackmann, A., McManus, F., Fennell, M., Herbert, C., et al., 2003. A randomized controlled trial of cognitive therapy, a self-help booklet, and repeated assessments as early interventions for posttraumatic stress disorder. *Archives of General Psychiatry, 60*(10), 1024-1032.

Ehlers, A., Mayou, R. A., & Bryant, B., 2003. Cognitive predictors of posttraumatic stress disorder in children: results of a prospective longitudinal study. *Behaviour Research and Therapy, 41*(1), 1-10.

Gasparre, A., Bellelli, G., & Curci, A., 2006. Benefits of Social Sharing of Negative Emotional events: Construction of a Scale. *Abstracts Book of the Second European Conference on emotion, Louvain-La-Neuve (Unpublished).*

Groth-Marnat, G., 1990. *The handbook of psychological assessment* (2nd ed.). New York: John Wiley & Sons.

Keane, T. M., Marshall, A. D., & Taft, C. T., 2006. Posttraumatic stress disorder: Etiology, epidemiology, and treatment outcome. *Annual Review of Clinical Psychology, 2*, 161-197.

Michael, T., Halligan, S. L., Clark, D. M., & Ehlers, A., 2007. Rumination in posttraumatic stress disorder. *Depression and Anxiety, 24*(5), 307-317.

Nills, D., 2003. *Le partage social des émotions : Déterminants interpersonnels de l'efficacité de la communication des épisodes émotionnels.* Unpublished Dissertation doctorale, Université Catholique de Louvain, Louvain, Belgique.

Pynoos, R., Rodriguez, N., Steinberg, A., Stuber, M., & Frederick, C. ,1998. *The UCLA PTSD Reaction Index for DSM IV (Adolescent version)*. Los Angeles: UCLA Trauma Psychiatry Service.

Rimé, B. ,2005. *Le partage social des émotions*. Paris: PUF.

Russell, D., Peplau, L. A., & Cutrona, C. E., 1980. The Revised UCCLA Loneliness Scale - Concurrent and Discriminant Validity Evidence. *Journal of Personality and Social Psychology, 39*(3), 472-480.

Sezibera, V., Van Broeck, N., & Philippot, P., 2009. Intervening on Persistent PTSD: Rumination Focused Cognitive and Behavioural Therapy (RFCBT) in a Population of Young Survivors of the 1994

Genocide in Rwanda. *Journal of Cognitive Psychotherapy, Vol. 23(2),* 107-113.

Watkins, E., Scott, J., Wingrove, J., Rimes, K., Bathurst, N., Steiner, H., et al. ,2007. Rumination-focused cognitive behaviour therapy for residual depression: A case series. *Behaviour Research and Therapy, 45*(9), 2144-2154.