Psychological Trauma: Theory, Research, Practice, and Policy
2017, Vol. 9, No. 3, 282–291

1942-9681/17/$12.00 http://dx.doi.org/10.1037/tra0000197

Feasibility and Effectiveness of Narrative Exposure Therapy and Cognitive Behavioral Therapy in a Context of Ongoing Violence in South Africa

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Objective: In an observer-blinded intervention trial, we tested the reduction of posttraumatic stress symptoms, aggressive attitude, and behavior in young males living in a context of ongoing community and gang violence by means of (a) forensic offender rehabilitation narrative exposure therapy (FORNET), and (b) the cognitive-behavioral intervention "Thinking for a Change" (TFAC). A waiting list served as the control condition. ***Method:*** A total of 39 young men were included in the data analysis: 15 completed FORNET, 11 underwent cognitive-behavioral therapy (CBT), and 13 were on a waiting list for later treatment. The primary efficacy endpoints were the PTSD Symptom Scale-Interview (PSS-I) severity score, the Appetitive Aggression Scale (AAS) score, and the number of perpetrated violent event types 8 months (on average) after treatment. ***Results:*** Only in the sample receiving FORNET were posttraumatic stress disorder (PTSD) scores significantly reduced at the first follow-up (Cohen's $d = -0.97$) and significantly different from those of the control group (Cohen's $d = -1.03$). The changes in scores for appetitive aggression and perpetrated events were not significant for any of the treatment conditions. ***Conclusions:*** The study shows that trauma-focused treatment can reduce the psychological symptoms of posttraumatic stress even for individuals living under unsafe conditions in low-income urban communities. However, achieving changes in violent behavior within a context of ongoing violence may require more than the treatment of trauma-related suffering, confrontation with one's offenses, or cognitive-behavioral interventions.

Keywords: gang violence, community violence, continuous stress, PTSD, CBT

Low-income urban areas such as the so-called "townships" in South Africa, the favelas in Brazil, and inner-city ghettos in the United States are "hotspots of crime and violence" (United Nations Human Settlements Programme, 2007; Weisburd, Lum, & Yang, 2004). Children living in such disadvantaged socioeconomic conditions are likely to encounter violence both within and outside the family and are frequently exposed to a range of traumatic stressors (Finkelhor, Turner, Hamby, & Ormrod, 2011; Williams et al.,

This article was published Online First October 6, 2016.

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All authors have made substantial contributions to the conception of the study. Martina Hinsberger drafted the paper and performed the data analysis and interpretation under the supervision of Roland Weierstall and Thomas Elbert. All authors were involved in critically revising the manuscript and have approved the final version of the paper for submission. This research was supported by the European Research Council (ERC). Clinical trials registration ID: NCT02012738. We are deeply grateful to all the participants, interpreters, interviewers, supervisors, and cooperating institutions that have supported our research project.

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2007). Children's exposure to violence can lead to short- and long-term outcomes involving the internalization and externalization of behavior problems during adolescence, including posttraumatic stress (Catani et al., 2009) and the perpetration of violence (Maas, Herrenkohl, & Sousa, 2008; Smith & Thornberry, 1995; Stouthamer-Loeber, Loeber, Homish, & Wei, 2001; Widom, 1989). The group most severely impacted by serious violent crime in low-income urban communities consists of young males who both assault and are the victims of assault (Moffitt, 1993; Seedat, Van Niekerk, Jewkes, Suffla, & Ratele, 2009; Truman & Langton, 2015) and may thus be referred to as "victim-perpetrators" (Roach, 2013, p. 157). In attempting to interrupt the cycle of violence, it is important to overcome the victim-offender dichotomy (Hecker, Hermenau, Crombach, & Elbert, 2015) and to ensure the timely supply of trauma and aggression treatment.

A growing number of studies have successfully tested early interventions in areas of ongoing threat. Results from the Jerusalem Trauma Outreach and Prevention Study (Shalev et al., 2012) demonstrate that both prolonged exposure and cognitive therapy significantly reduced posttraumatic stress disorder (PTSD) prevalence 5 and 9 months after treatment compared with a control group. Cohen, Mannarino, and Iyengar (2011) are conducting a promising series of trauma-focused cognitive-behavioral therapy (CBT) treatment studies on children in the United States and Zambia. Cigrang, Peterson, and Schobitz (2005) tested a brief exposure-based treatment for members of the military in Iraq that included in vivo and in sensu exposure in four therapy sessions over a 5-week period; symptoms were reduced by an average of 56%. Köbach, Hecker, Schaal, and Elbert (2015) successfully reduced PTSD symptoms by means of forensic offender rehabilitation narrative exposure therapy (FORNET) in a group of Congolese ex-combatants in comparison with a control group.

Working with traumatized perpetrators, Stenmark, Guzey, Elbert, and Holen (2014) found that violent offenders with PTSD fail to respond to narrative exposure therapy (NET) more often when their own offenses are not addressed in the course of the therapy. An explanation for this finding could be that an offender's "worst event" – that is, the most psychologically damaging—is a self-perpetrated offense. In a sample of 290 South African males recruited for cross-sectional analysis, 225 had committed a serious crime (such as a severe physical assault, a murder, or a rape), and 18% reported one of their own offenses as their worst traumatic event (Hinsberger et al., 2016, unpublished data). This number is comparable to the 23% rate documented by Kilvinger, Rossegger, Arnold, Urbaniok, and Endrass (2011) in a study of 35 Swiss prisoners. In order to account for the impact of self-perpetrated violent acts and to address the specific needs of violent offenders, NET has been extended to include in sensu exposure sessions for self-committed crimes.

The aim of FORNET is to mitigate the psychological consequences of chronic trauma exposure (such as intrusions, hypervigilance, and avoidance) as well as to reduce violent and criminal behavior through the dissolution of feelings of reward upon committing violence. Repeat perpetrators rarely experience or express feelings of guilt, shame, or pity for their victims, but such feelings are often still found to be associated with their first committed events. Consequently, the focus in FORNET is the first violent assault, killing, or rape. The effectiveness of FORNET (compared with standard treatment) in the reduction of committed offenses and physical health complaints has been demonstrated in a randomized controlled trial with a sample of former Burundian street children (Crombach & Elbert, 2015). Although participants continued to rate violent acts as appealing irrespective of the treatment condition, those who received FORNET treatment did not commit violent offenses as often as those in the control condition. Randomized controlled trials in the Eastern DRC (Hermenau, Hecker, Schaal, Maedl, & Elbert, 2013; Köbach, Schaal, Hecker, et al., 2015) with former members of armed groups provided evidence that in comparison with the standard treatment, FORNET led to a reduction in PTSD severity. The level of attraction to aggressive behavior was also markedly reduced, but in both therapy and control conditions; in this case, however, the change in attitude might be associated with the participants' beneficial change in living conditions (from a militia setting to a civilian population; Hermenau et al., 2013).

Other promising offender-oriented programs include those that address the offenders' habits and the moral content of their thinking, such as CBT (Wikström & Treiber, 2008). The aim of CBT is to correct deficient, dysfunctional, or distorted cognitions that may lead to offending. This is accomplished by increasing an offender's awareness of the link between his or her thought processes and offensive behavior, and by strengthening the individual's ability to alter such processes in a positive direction. A meta-analysis of CBT programs by Landenberger and Lipsey (2005) examined several different cognitive-behavioral curricula, including five evaluations of Thinking for a Change (TFAC). They found that TFAC was just as effective as other CBT interventions in reducing recidivism. In investigating the effects of TFAC on a sample of probationers, Golden, Gatchel, and Cahill (2006) found that, compared with the control group, participants who completed the program showed a 33% reduction in the rate of new criminal offenses and improved their social and interpersonal problem-solving skills. Lowenkamp, Hubbard, Makarios, and Latessa (2009) evaluated the TFAC program in a community corrections agency at a later follow-up time (2 years) than all former studies. Their results indicate that recidivism rates (new arrests) were still lower at that point in time in group-completers in comparison with similar offenders that were not exposed to the intervention. Bickle (2013) explored in a nonrandom, quasi-experimental design whether the TFAC program influences participants' self-assessment of their social problem-solving approaches and skills and their acceptance of criminal attitudes. Compared with a waiting list group, TFAC group-completers did significantly better in demonstrating an understanding of social problem-solving skills and approaches; in addition, TFAC participants appeared to have a reduced acceptance of criminal attitudes when compared with nonparticipants.

The objective of this study was first to investigate whether FORNET—compared with a waiting list group and over time—successfully reduces PTSD symptom scores in a sample of South African men living under conditions of continuous stress due to community and gang violence. In order to explore whether any such reduction can be ascribed to the trauma-specific approach of FORNET or "only" to the undivided attention of a therapist, the FORNET results for PTSD symptom

reduction are contrasted with the results of the CBT intervention "Thinking for a Change" and a waiting list. Second, this study aims to examine whether FORNET and TFAC significantly reduce the attraction to violence in intervention participants as well as the number of perpetrated violent event types compared with a waiting list and over time.

Method

Participants

An initial sample of 89 male study participants was chosen from a larger sample of 405 male isiXhosa from low-income urban communities in Cape Town, South Africa (Gugulethu and Kayeltisha). Participants suffering from acute psychosis were excluded from the intervention study. The inclusion criteria were a minimum of 8 points on the PTSD Symptom Scale-Interview (PSS-I) and a minimum of 9 points on the Appetitive Aggression Scale (AAS), which are comparable to the requirements implemented by Köbach, Schaal, Hecker, et al., (2015) and Hermenau et al. (2013). Because both criteria had to be fulfilled (PTSD symptoms as well as appetitive aggression), the cutoffs had to be set at a low level in order to identify enough participants for the study. Eighty-nine participants met the combined cutoff requirement. The final sample (after study drop-outs and absentees at the follow-up interviews were excluded) that served as the basis for the data analysis consisted of 39 male participants, ranging in age from 16 to 40 years (M = 22.95, Mdn = 22, SD = 4.85). Most of the participants were between 18 and 26, with three outliers over 30, which largely represents the age distribution in gang structures. Seventy-two percent were currently or had previously participated in a reintegration program; 28% had never taken part in a reintegration program. The average number of formal years of education was 10.33 (SD = 2.12, range = 1–16), but 87.2% of the sample had dropped out of school before graduating. 56.4% of the final sample had a PTSD diagnosis; the mean score for the severity of posttraumatic stress was 19.15 (SD = 8.32, range = 8–37). The average score for appetitive aggression was 27.72 (SD = 11.44, range = 9–52), and the average number of offense types was 7.77 (SD = 4.96, *range* = 1–17).

Sampling Procedure

A total of 405 young men were preassessed at the beginning of the study. This sample was recruited with the support of a locally operating institution for offender reintegration (Rebuilding and Life-skills Training Centre [REALISTIC]), a community-based organization in Cape Town that supports ex-prisoners and at-risk youth through a 6-month training program in life skills intended to prevent recidivism and relapses into drug addiction. All participants gave informed and written consent. In the case of underaged participants, parents or caretakers were additionally asked to give their written consent. The study protocol including these consent forms was approved by the Ethical Review Boards of Stellenbosch University, South Africa; the University of Cape Town, South Africa; and the University of Konstanz, Germany. The assessments took 2 hr on average, and interviewees were reimbursed for their participation in each interview with ZAR100, the equivalent of about USD8.50.

Primary Outcome Measures

The data was collected by means of structured interviews. Back-and-forth translations of the questionnaires were used to generate bilingual surveys, starting with a translation from English to isiXhosa, followed by back-translation into English by a different translator. These translations were discussed with the translators in a multiprofessional team until there was consensus on each item. A team of three South African counselors and four German clinical psychologists carried out the initial assessments. Interviewees were encouraged to speak in either English or isiXhosa based on their personal preference. Trained interpreters (native isiXhosa speakers who were fluent in English) accompanied English-speaking interviewers. The counselors received 25 hr of training from two clinical psychologists on the theoretical concepts of mental disorders, trauma, and clinical diagnosis. Regular individual and team supervision ensured cross-interview consistency and mental hygiene (self-care). Five German clinical psychologists and a trained South African counselor conducted the follow-up interviews.

Posttraumatic stress symptom severity. The severity of PTSD symptoms and the diagnosis of PTSD were assessed with Foa and Tolin's PSS-I (Foa & Tolin, 2000), which asks participants about 17 PTSD symptoms experienced during the previous two weeks in accordance with *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; American Psychiatric Association, 2000) criteria. This measure has also been used in previous African samples (e.g., Ertl et al., 2010; Jacob, Neuner, Maedl, Schaal, & Elbert, 2014; Köbach, Schaal, & Elbert, 2015). The PTSD assessment was keyed to the most traumatic event in the participants' past that was still troublesome to them in the present. Experienced events from a trauma-event type list, as well as from the self-committed violence event type list (see the subsection titled "Perpetrated violence" below), were counted as possible index traumata. All symptoms were rated from 0 (*not at all/only once*) to 3 (*five or more times per week/almost always*). The frequencies of all 17 PTSD symptoms were summed up to represent the severity of PTSD (maximum score: 51 points). Change scores resulted from the subtraction of the posttherapy score from the pretherapy score, such that a positive score represents an improvement (decrease) in terms of PTSD severity and a negative score represents the worsening of (increase in) PTSD symptoms. The PSS-I scores exhibited excellent internal consistency (Cronbach's alpha = 0.86) and high interrater reliability (intraclass correlation coefficient = 0.93; Foa & Tolin, 2000). In this study, the Cronbach's alpha was 0.88.

Appetitive aggression. The propensity for violent behavior was measured with the AAS (Weierstall & Elbert, 2011), which consists of 15 questions on attraction to violence ("Do you enjoy inciting your fellows to fight?"), addiction-specific questions ("Once fighting has started, do you get carried away by the violence?") that address the reward-driven aspect of appetitive aggression, and questions about the desire to cause harm ("Once you got used to being cruel, did you want to be crueler and crueler?"). Responses were rated on a 5-point Likert scale (0 = *disagree completely* to 4 = *agree completely*) and summed up, with a maximum score of 60 points. Change scores resulted from the subtraction of the posttherapy score from the pretherapy score, such that a positive score represents an improvement (reduction)

and a negative score represents the intensification of (increase in) attraction to violence. The AAS has demonstrated good psychometric properties in various violent populations. The internal consistency for the AAS is sufficient with a Cronbach's alpha coefficient of 0.85 (Weierstall & Elbert, 2011). For this study, the Cronbach's alpha was 0.86.

Perpetrated violence. The score for perpetrated violence was calculated on the basis of 21 different violent event types. The list of these self-committed offense types was adapted from the AAS and has previously been successfully administered in a population of South African juvenile offenders (Weierstall et al., 2013). The items reflect a range of violence, starting with event types of little impact ("Have you shouted at someone?"; "Have you slapped someone?") and progressing to severe criminal acts ("Have you killed someone?"; "Have you raped someone?"). Possible sum scores for the measure range from 0 to 21. Change scores resulted from the subtraction of the posttherapy score from the pretherapy score, such that a positive score indicates a decrease in offenses and a negative score an increase. In the current study, the Kuder–Richardson's alpha was 0.90 (Hinsberger et al., 2016).

Study Design

Eighty-nine participants were invited to take part in the subsequent treatment period. Thirty-five of them were unable to participate due to multifarious reasons (e.g., work or school attendance). In order to preserve these participants for data analysis, they were placed on a second waiting list ("no camp") so that they could still be contacted for further follow-ups. The remaining participants were randomly assigned to one of the three treatment conditions (FORNET, CBT, and the "camp" waiting list). Attendees were matched first in terms of posttraumatic stress symptom severity, second in their level of appetitive aggression, and third in the severity of their suicidality.

Treatment Conditions

The therapy program was conducted in several 3-week camps in order to provide participants a safe and drug-free environment, nutrition, and shelter, ensuring that therapy motivation would not be undermined by any of these factors. Each camp included 12 to 14 study participants as well as various staff (social workers, facilitators, cooks, security). Sessions took place in separate rooms on the camp premises, thereby guaranteeing confidentiality and privacy. All camp participants (from all three treatment conditions) were able to participate in the free-time activities offered by the camp facilitators. The activities that were offered (soccer games, beach walks, etc.) were invariably nonpsychotherapeutic in nature. Four German and five South African health experts conducted the therapy sessions. All experts took part in an extended theoretical and practical training on either FORNET or CBT that was conducted by narrative exposure therapists and behavior modification therapists. Therapy sessions were conducted in English. The pairing of therapists and interpreters was continuously rotated among participants, but each participant had the same interpreter over the entire course of therapy.

FORNET. FORNET has been adapted for trauma victims from the evidence-based field intervention NET (Schauer, Neuner, & Elbert, 2011). In order to account for the specific behavioral difficulties of violent offenders, exposure sessions are extended to also include perpetrator events. The second adaptation involves the abandonment of the narration to facilitate the clients' trust and openness. This manual-based intervention (further details in Hecker et al., 2015) consists of eight individual sessions of about two hours each. Participants had a therapy session every second working day.

The first session of FORNET begins with psychoeducation about posttraumatic stress symptoms and the purpose and procedure of the intervention. In the same session, therapy starts by chronologically reconstructing the participant's biography. This is done by means of stones, candles, flowers, and sticks that are placed along a rope (the participant's life-line): stones represent traumatic incidents, a candle indicates the death of a loved one, flowers stand for positive events or helpful people, and sticks denote violent offenses committed by the participant. It is possible to combine symbols to reflect the complexity of certain incidents, and the participant decides which symbols best represent his or her experiences. The therapist does not judge or interpret the participant's views. This development of a life-line supports the structuring of events in the participant's life, an aspect that is generally distorted in the case of participants experiencing posttraumatic stress (Krystal, Southwick, Charney, & Schacter, 1995). It also helps the therapist to determine which events will be chosen for the six exposure sessions that follow. In the exposure sessions, the most traumatic experiences and the most violent incidents are reexperienced in sensu. Participants are often troubled by numerous traumatic and violent incidents, not all of which can or need be selected for therapy. The guiding principle of the selection is the fear network, which consists of interconnected perceptions, strong averse feelings, and distressing thoughts related to each traumatic incident; the network grows larger with every new context or environment that becomes unsafe. Thus, in therapy, it is important to cover as many different contexts as possible—for example, physical violence in the family, in the community/school, and at the hands of police/wardens; one's own violent acts; accidents and natural catastrophes/fires; and the experience of being raped or committing rape. The focus is on the worst events and/or the first events, since emotions are often heightened during first events in comparison to events that the participant has "gotten used to" and for which coping mechanisms (such as dissociation or detachment) have already been developed. During exposure sessions, the therapist guides the participant through an incident by continually asking for the participant's context-specific information/sensory perceptions, cognitions, feelings, and physiological responses. This emotional reexperiencing is supported and maintained on a level that is still manageable for the participant. A final body check at the end helps to determine whether there is still anything to talk through before the termination of the session. In concluding the session, the therapist encourages the participant to articulate his or her current thoughts and feelings about the incident. In the last session, the participant creates another life-line display in order to correct any memory errors from the first session. The therapy ends with an outlook of the future and the participant's expression of his or her hopes.

The efficacy of FORNET is based on the process of finding words and expressing what has happened. This process leads to memory reorganization and inhibition, cognitive restructuring, and reevaluation (especially of emotions such as guilt and shame); it

also provides the participant with recognition (by the therapist) of personal trauma.

CBT. CBT is a system of psychotherapy that attempts to reduce excessive emotional reactions and self-defeating behavior by modifying the faulty or erroneous thinking and maladaptive beliefs that underlie these reactions (Beck, 1976, 1983). CBT is constructed around the concept that cognition affects behavior and that individuals have the capacity to monitor and adapt their modes of thinking and thus the way they act (Hollin, 1990).

This study made use of a structured cognitive-behavioral intervention entitled "Thinking for a Change" (Bush, Glick, & Taymans, 1997/2011). The program's curriculum focuses on cognitive restructuring of the thoughts and attitudes that put one at risk of engaging in harmful or criminal behavior, and on improving problem-solving and social skills. "Thinking for a Change" consists of 22 short sessions, which were condensed to seven sessions of two hours, on average, so that the time frame for FORNET and the CBT program would be comparable. Each session was formatted and conveyed with the intent of maximizing consistency across participants. The therapy began with a summary and rationale section in which the scope and breadth of the program and the reasons behind it were provided by the facilitator. Sessions 2 and 3 focused on cognitive self-change (understanding how thinking determines behavior, raising awareness of thinking and one's emotions, finding new ways to think), Session 4 included instruction in certain social skills (understanding and responding to the feelings of others, especially anger, and dealing with accusations), and Sessions 5 and 6 dealt with problem-solving behavior (interruption of impulsive behavior, problem description, gathering information, goal setting, evaluation of plans). All sessions involved homework that the participant was supposed to complete in between sessions; a review of the homework started every session. The final session evaluated and concluded the therapy.

In contrast to FORNET, the cognitive restructuring that CBT employs as a means to improve a participant's situation concentrates on currently important events, not necessarily events from the past that were traumatizing. The focus is on dealing with life and problems in the here and now, and thus the therapy also includes training in important social skills.

Waiting lists. Participants who stayed at the camp but did not receive therapy (*waiting list "camp"*) took part in the nontherapeutic free-time activities that the REALISTIC staff offered to all camp participants (e.g., soccer games, trips to the beach). Participants who chose to not take part in the camp (*waiting list "no camp"*) did not receive any intervention or take part in any activities.

Results

Participant Flow

Two hundred ninety assessments were conducted from October 2013 to March 2014, and a further 115 screenings were completed from October to November 2014. Therapies ran from December 2013 until March 2014, and in November 2014. The largest drop-out of participants occurred during the third camp, when weapons were found despite clear explanation of the rules in advance and written agreements to keep the camp weapon- (and drug-) free. The team of social workers and therapists decided to terminate the camp; participants had the option of joining the REALISTIC program instead. The remaining drop-outs were due to motivational or behavioral problems (e.g., disagreements with the social workers who ran the camp and monitored compliance with camp rules). The first follow-up was conducted, on average, 10.6 months (range: 9 to 12) after the initial assessment and 8.1 month (range: 7 to 11) posttherapy. All interviewers were blind to the treatment condition of the interviewees. The reasons for nonparticipation in the follow-up sessions are shown in the flowchart in Figure 1. The reason "could not be found" encompasses a variety of issues—for example, one participant was homeless and thus could not be tracked down, two participants had moved, and two others were not at home every time the researchers attempted to visit. The majority of participants who could not be found were most likely untraceable because they had given false names at the initial interviews. One participant in the CBT group passed away over the course of the study due to a serious medical condition.

For the analyses, all participants assigned to the two waiting lists had to be combined into one group, irrespective of whether they had participated in a camp ($n = 5$) or not ($n = 8$). The final sample consisted of 15 FORNET, 11 CBT, and 13 waiting list participants. The groups did not differ significantly in terms of years of formal education ($H(2) = 0.862$; $p = .65$), number of participants that had taken part in a reintegration program (Fisher-Freeman-Halton test; $p = .185$; two-sided), the level of trauma exposure before ($H(2) = 1.33$; $p = .514$) or after therapy ($H(2) = 1.05$; $p = .591$), posttraumatic stress symptom severity ($H(2) = 3.50$; $p = .174$), suicidal ideation ($H(2) = 3.06$; $p = .217$), attraction to aggressive behavior ($H(2) = 0.57$; $p = .751$), or offenses committed during one's lifetime ($H(2) = 0.57$; $p = .75$) or in the past 6 months ($H(2) = 0.482$; $p = .79$).

Data Analysis

All analyses were conducted using SPSS version 21, and all statistical methods employed were nonparametric (since the outcome variables violate the assumptions for parametric analysis in terms of normal distribution and homogeneity of variance). Group comparisons were assessed with the Mann–Whitney U test and Wilcoxon signed-rank test. Bonferroni adjustment of 5% significance levels specifies the p value at $p < .017$ for between-groups comparisons and $p < .025$ for within-group comparisons. Cohen's d effect sizes between 0.2 and 0.49 indicate a small effect, 0.5 to 0.79 a medium effect, and >0.79 a large effect (Cohen, 1988).

Reduction of PTSD Symptoms

The graph in Figure 2 demonstrates the course of PTSD symptom severity from preassessment to the first follow-up. The intersecting line separates the cases whose symptoms improved (above the line) from those exhibiting worse symptoms (below the line) after the treatment period. Most of the therapy participants (FORNET as well as CBT) appear above the separating line, indicating that their PTSD symptoms improved. The majority of participants in the comparison group appear below the intersecting line, thus exhibiting a further worsening of symptoms.

Figure 3 presents the change scores for PTSD symptom severity from preassessment to follow-up for each treatment group. We conducted a Wilcoxon signed-rank test to investigate whether the

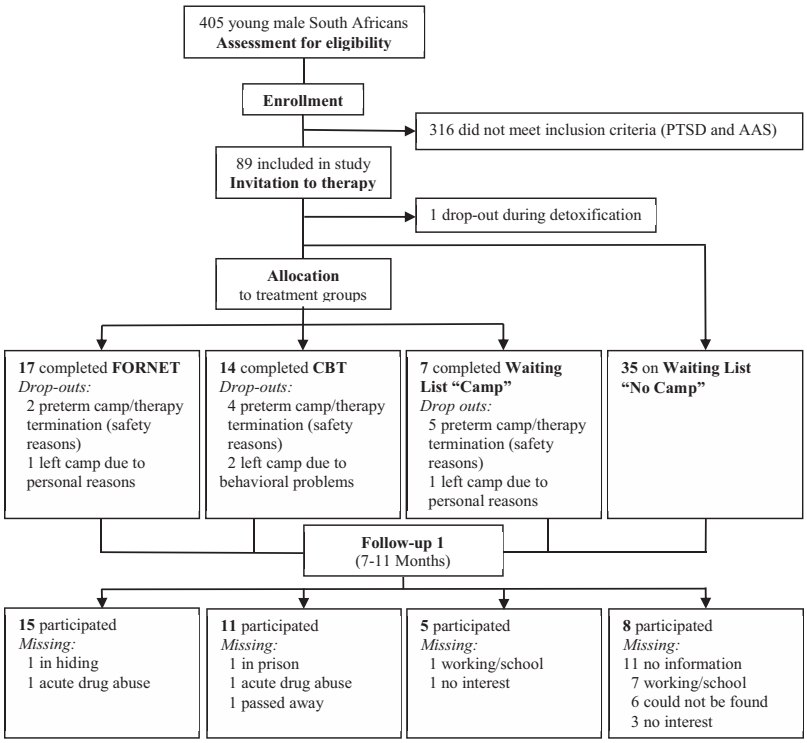

Figure 1. Flowchart of the participants over the course of the study. PTSD = posttraumatic stress disorder; AAS = Appetitive Aggression Scale; FORNET = forensic offender rehabilitation narrative exposure therapy; CBT = cognitive-behavioral therapy.

drop in PSS-I scores in the FORNET and CBT groups and the increase in PSS-I scores in the waiting list group reached statistical significance. Mean PTSD scores did not differ significantly at the first (pre) and second (Post 1) time points in participants who received no treatment ($z = -0.98$, $p = .327$). Although PTSD symptom severity apparently improved, on average, in the CBT group, the difference between the first and second assessment did not reach statistical significance ($z = -1.38$, $p = .169$). Only participants in the FORNET condition showed a significant drop in PTSD symptom scores upon comparison of mean scores pre- ($Mdn = 24$) and postassessment ($Mdn = 8$; $z = -2.5$, $p < .025$, $r = -0.46$, *Cohen's d* $= -0.97$).

A Mann–Whitney *U* test was conducted to look for significant differences in the reduction of PTSD symptoms across treatment conditions. The test identified a significant difference in the change score (pre to Post 1) between the FORNET group ($Mdn = 12.0$) and the waiting list group ($Mdn = -3.0$; $U = 42.0$, $z = -2.56$, $n_{\text{FORNET}} = 15$, $n_{\text{Waiting list}} = 13$, $p < .017$, $r = -0.48$, *Cohen's d* $= -1.03$).

Due to the low cutoff of 8 out of 51 points on the PSS-I Scale, we investigated by means of median split analysis the impact that the broad range in PTSD symptom severity within the sample (high vs. low PTSD scores) had on the outcome variables. Participants with a higher level of PTSD symptoms (median split, $z = -2.49$; $p < .05$) yielded better results in PTSD levels posttreatment than those participants with low levels of PTSD.

Reduction in Appetitive Aggression and Perpetrated Violence

The Kruskal-Wallis test did not indicate any significant group differences across treatment conditions in terms of changes in attraction to aggressive behavior ($H(2) = 3.93$; $p = .14$) or perpetrated violence in the previous six months ($H(2) = 1.44$; $p = .487$). Moreover, Wilcoxon signed-rank test did not find any significant differences between preassessment scores and follow-up scores for any of the treatment groups with regard to appetitive aggression (FORNET: $z = -0.50$, $p = .62$, CBT: $z = -1.65$, $p = .10$, waiting list: $z = -1.54$, $p = .12$) or offenses (FORNET: $z = -1.00$, $p = .32$, CBT: $z = -0.85$, $p = .40$, waiting list: $z = -0.36$, $p = .72$). Hence, there was neither a significant reduction nor an increase in committed offense event types or appetitive aggression for any treatment condition or over time. Figure 3 displays the results for all outcome variables.

Influence of Sociodemographic Conditions on Outcome Variables

None of the sociodemographic variables (e.g., age, years of formal education) showed a significant correlation with any of the outcome variables, although nonattendance in the REALISTIC program had a significant influence on appetitive aggression scores: the 11 participants who had never participated in the rehabilitation program exhibited a significantly higher reduction in appetitive aggression scores

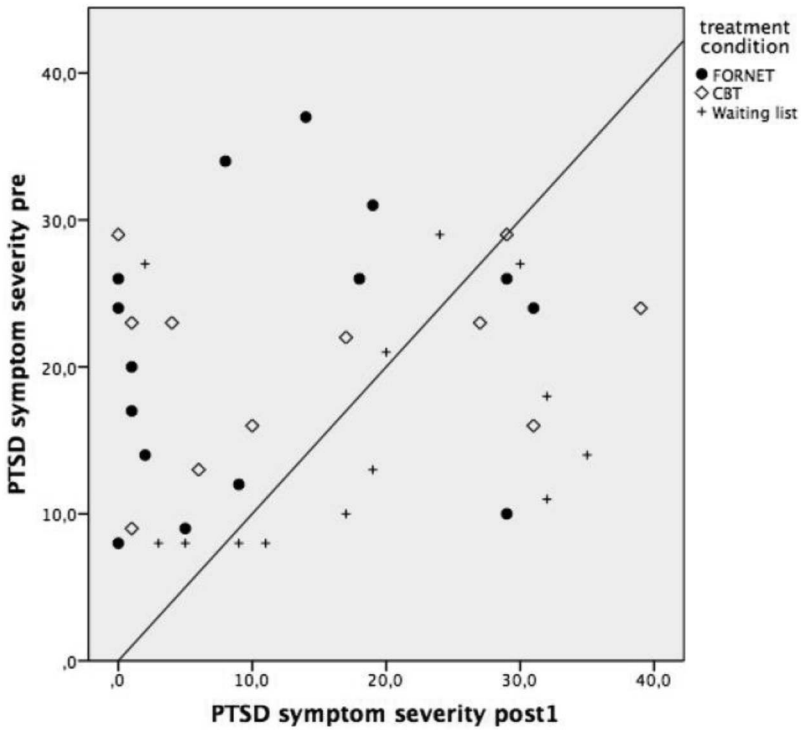

Figure 2. Scatter plot with PTSD symptom severity before (pre) and about 8 months after therapy (Post 1) for the three different treatment conditions. PTSD = posttraumatic stress disorder; FORNET = forensic offender rehabilitation narrative exposure therapy; CBT = cognitive-behavioral therapy.

than the 28 participants who had taken part in the REALISTIC program at any point in time ($z = -2.64$, $p < .01$). The 11 participants who had not taken part in the program showed a significant drop in appetitive aggression from pre- to postscores ($z = -2.45$, $p < .05$), a reduction not seen in our 28 other study participants ($z = -0.22$, $p = .829$).

Discussion

The results of this study indicate that FORNET is not only a potentially effective and feasible intervention for reducing PTSD symptoms in a context of ongoing exposure to military violence and conflict (Köbach, Schaal, Hecker, et al., 2015), but that it is also realizable and effective in a context of enduring gang and community violence. In follow-up assessments (conducted, on average, 8 months posttherapy), the reduction in PTSD symptom scores for the FORNET condition was significant in comparison with the waiting list (control group). The significant outcome of the Wilcoxon signed-rank test indicates that this difference between groups was not due to the worsening in PTSD symptoms of the untreated waiting list, but rather to the improvement of symptoms in the FORNET group.

PTSD change scores for the CBT group were not significantly higher than those of the waiting list, nor were they significantly lower than those of the FORNET group. The fact that this group's PTSD reduction was not significant in comparison with the waiting list indicates that a trauma focus in therapy is necessary to achieve a positive outcome in terms of posttraumatic stress reduction. However, given that the trauma-specific approach of FORNET did not achieve a significantly higher reduction in PTSD than the TFAC program, our results might suggest that there are additional active factors in trauma therapy beyond the specific trauma focus, such as the undivided attention of the therapist.

The association between PTSD scores at the preassessment and the success of PTSD reduction at the follow-up assessment indicates that the treatment effects might be watered down by the inclusion of participants with partial PTSD in the study; the effects of therapy might have been more clear-cut if only participants with high PTSD scores had been admitted to the study.

Attraction to cruelty and the number of committed offense event types could not be successfully reduced by any of the interventions in the study. In light of the FORNET studies on Burundian street children (Crombach & Elbert, 2015), in which perpetrated violence was successfully reduced, and those on former DRC combatants (Hermenau et al., 2013), where appetitive aggression was successfully reduced in both experimental and control groups, this result provides an important insight. The groups examined in these previous studies experienced a change in their environment (a move to a foster home or assistance in leaving the armed militia, respectively), differentiating them from our clientele, who had to remain in the same environment after treatment. Given that there are often multiple challenges in the lives of such individuals, therapeutic benefits are more likely to be effective and sustained with a set of interventions that address multiple targets. FORNET and CBT might only be effective for the treatment of offending

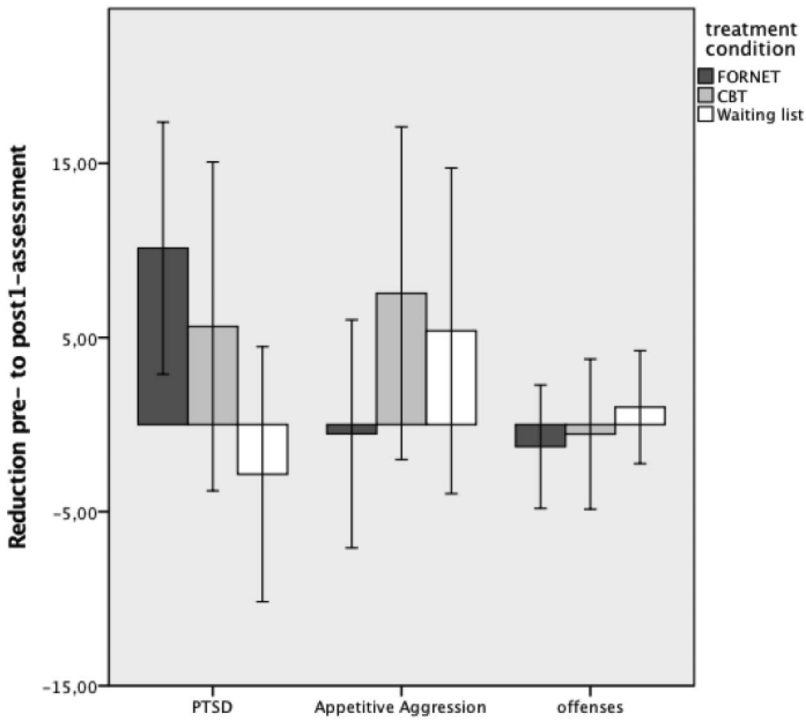

Figure 3. Median change scores for PTSD symptom severity, appetitive aggression, and committed offenses. Whiskers represent a confidence interval of 95%. PTSD = posttraumatic stress disorder; FORNET = forensic offender rehabilitation narrative exposure therapy; CBT = cognitive-behavioral therapy ("Thinking for a Change").

behavior if they are tied to benefits such as access to occupational training and employment in parallel with or immediately following therapy.

The result that only those participants who had never taken part in a reintegration program showed a reduction in appetitive aggression is not in line with the findings of Hermenau et al. (2013), where the reintegration program seemed to be the cause for the reduction in attraction to violence in participants independent of treatment condition. In light of the fact that the reintegration program in the DRC was embedded in a "new" (more peaceful) environmental context, one might conclude that this circumstance could be a precondition for reintegration programs to be effective in South Africa as well—that is, participants need a more peaceful home environment in order to succeed.

Limitations

The major limitation of this study is its small sample size, in part due to the difficult living situation in the townships (participants too deeply involved in gangs or drugs, unable to take time off from school or work, solely responsible for providing for their families, etc.). Robust statistical analyses can compensate for this limitation, but at the cost of reducing the study's power. Significant as well as nonsignificant results might therefore be established in an artifact. Furthermore, the small sample size reduces the generalizability of the study outcome to the male population of South African townships.

Moreover, the study relies on self-reported data. Highly sensitive information—for example, admitting to the commission of a rape or the enjoyment of aggressive behavior—was likely underreported (Kaminer, Hardy, Heath, Mosdell, & Bawa, 2013). Therapy requires trust to be built between the participant and therapist, and thus underreporting may have been greater prior to the intervention and in those who did not receive treatment. This could restrain the outcome for changes over time in offenses committed or attraction to violence in the treatment groups as well as between groups.

Therapy with offenders is known to face the challenge that patients are usually not experiencing a psychological strain that could represent a motivational factor for therapy compliance. If the therapy is mandatory for the participant (e.g., while in prison or on probation), therapy compliance can be maintained despite the lack of an inner motivation. Because participation was voluntary in our study and an inner motivation for therapy was not always present, our original approach, which involved conducting the therapy sessions in a normal office setting, was unsuccessful. The only practical way to conduct interventions with our clientele was to offer the therapy in a camp setting. This approach entails the disadvantage of higher costs and thus reduced feasibility on the part of the intervention provider.

Our drop-out rate of 29% falls in the middle of drop-out rates in studies with comparable samples (e.g., Golden et al., 2006: 38%; Bickle, 2013: 18%). Drop-outs occurred in all three treatment conditions and the majority of the drop-outs (12 out of 16) were

nonsystematic (camp termination due to security problems). Noncompleters were excluded from the analysis in order to maintain a preferably unclouded outcome for therapy efficacy. Due to dropouts and absenteeism at the follow-up sessions, the previously separate waiting lists "camp" ($n = 5$) and "no camp" ($n = 8$) had to be combined into one waiting list in order to achieve a sample size that would be large enough for the execution of the statistical analysis. Because these two samples differ in terms of the camp experience, it is possible that this resulted in a heterogeneous subsample. Due to the small subsample sizes, however, it was not possible to investigate potential differences. Importantly, the free-time camp program encompassed only nontherapeutic activities, suggesting that a confounding effect can be excluded.

In this study, we concentrated on the long-term effects of therapy outcomes with a first follow-up after an average of 8 months posttreatment. Long time intervals for follow-ups have the advantage of measuring the potential duration of therapy effects. The disadvantage of a delayed follow-up is that other factors may come into play, and it becomes more difficult to evaluate the acute efficacy of the therapy.

Conclusion

We conclude from this study that despite a context of ongoing gang and community violence, a trauma-specific intervention is not only feasible in the population under study, but also effective in reducing posttraumatic stress symptoms. However, in order to substantially and enduringly modify deviant behavior, a broader treatment approach might be needed, potentially encompassing trauma-focused psychotherapy, social-worker intervention, and support that addresses individual areas of deficiency or problematic behavior (e.g., encouraging staying in school through graduation, enhancing job opportunities). One step in the direction of a change in context could be the establishment of "peace zones" in townships in which criminal behavior and drug dealing are not tolerated. The requirement that former gang members undergo therapy in order to live in these zones would ensure the combination of intervention and change in environment that our study suggests is necessary for significant improvement.

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Received April 19, 2016
Revision received August 25, 2016
Accepted August 27, 2016 ■