

# The Effect of Cognitive Therapy on Structural Social Capital: Results From a Randomized Controlled Trial Among Sexual Violence Survivors in the Democratic Republic of the Congo

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Women who experience sexual violence have an increased risk of mental health problems,<sup>1</sup> including posttraumatic stress disorder (PTSD), depression, anxiety, and social maladjustment.<sup>2</sup> In the Democratic Republic of the Congo (DRC), studies show that upward of 40% of women experience sexual violence.<sup>3</sup> Many of these women are rejected by their husbands and family, experience poor standing within their communities,<sup>4,5</sup> and suffer what Kleinman<sup>6</sup> refers to as *social death*—exclusion from social and community life. This community reaction is in part a product of existing dynamics of gender inequality and harmful gender attitudes that blame sexual violence survivors.<sup>7</sup> In community contexts where interpersonal trauma rates are high, healing needs to involve social factors in addition to addressing psychological effects of these traumas. Studies show that losses to social resources occur following rape,<sup>8</sup> but the literature has yet to focus on whether these resources can be restored or improved.

Within low-resource settings that lack adequate health infrastructure, people may rely on less-formal community social ties to meet their mental health needs. Within this context, the effects of sexual violence on the relationship between mental health and social resources can be partially explained by utilizing a social causation or social drift framework.<sup>9</sup> Social causation suggests that losses to social resources are associated with increased mental health problems. In DRC, negative reactions of others close to the survivor in response to sexual violence can affect women's ability to function socially within their communities; this in turn could exacerbate or lead to mental health problems.<sup>10</sup> Social drift involves mental

*Objectives.* We evaluated changes in social capital following group-based cognitive processing therapy (CPT) for female survivors of sexual violence.

*Methods.* We compared CPT with individual support in a cluster-randomized trial in villages in South Kivu province, Democratic Republic of the Congo. Local psychosocial assistants delivered the interventions from April through July 2011. We evaluated differences between CPT and individual support conditions for structural social capital (i.e., time spent with nonkin social network, group membership and participation, and the size of financial and instrumental support networks) and emotional support seeking. We analyzed intervention effects with longitudinal random effects models.

*Results.* We obtained small to medium effect size differences for 2 study outcomes. Women in the CPT villages increased group membership and participation at 6-month follow-up and emotional support seeking after the intervention compared with women in the individual support villages.

*Conclusions.* Results support the efficacy of group CPT to increase dimensions of social capital among survivors of sexual violence in a low-income conflict-affected context. (*Am J Public Health.* 2014;104:1680–1686. doi:10.2105/AJPH.2014.301981)

health problems leading to decreased social resources. High levels of distress after sexual violence can lead to social withdrawal because of feelings of distrust, shame, and loss of self-esteem inhibiting social functioning. This framework suggests that reducing mental health problems would lead to increases in social resources and that increasing these resources would lead to reductions in mental health problems.

Social capital is a multidimensional concept that is useful when one is investigating attributes of the social environment that may positively contribute to mental health. Grounded in sociology, social capital was defined as resources available to an individual through group membership and social networks<sup>11</sup> and through norms of reciprocity.<sup>12</sup> Following these earlier definitions, social capital is formally delineated into cognitive (e.g., perceptions of trust) and structural (e.g., group membership) domains<sup>13,14</sup> and whether the concept is measured at the

level of the individual (as is the case in our study), or as an aggregated community asset.<sup>15</sup>

Individuals endowed with greater social capital have better health<sup>16</sup> and mental health outcomes.<sup>17</sup> In a systematic review, greater structural social capital was protective against common mental disorders.<sup>18</sup> Taking an individual-level perspective,<sup>19</sup> people with greater structural social capital would have greater access to social support. Greater social support is implicated in recovery from sexual violence<sup>20</sup> and, across contexts, lacking this support is the most robust predictor of PTSD.<sup>21,22</sup> Increasing access to social support by broadening structural social capital within communities suffering from widespread trauma could provide critical recovery resources and enhance the posttreatment recovery environment. Therefore, interventions need to be evaluated with regard to their ability to enhance structural social capital and social resource engagement in low-resource settings.

To our knowledge, no previous studies have examined whether an evidence-based psychotherapy implemented to improve sexual violence–related distress increases structural social capital in a low-resource, conflict-affected context. We obtained data for this study from a randomized controlled trial of a group version of cognitive processing therapy (CPT) for female survivors of sexual violence conducted in DRC, which demonstrated efficacy for the treatment of mental health problems.<sup>23</sup>

Cognitive processing therapy targets unhelpful beliefs and avoidance behavior<sup>24–26</sup> that could lead to or maintain losses in social resources. Many survivors of sexual assault report unhelpful beliefs about trust, the dangerousness of individuals and the world, power, esteem, safety, and intimacy.<sup>27–29</sup> Survivors commonly avoid people, places, and situations that remind them of their trauma.<sup>30–32</sup> Decreasing negative beliefs and avoidance could increase structural social capital, as survivors may be more able and willing to seek relationships.<sup>33,34</sup> Apart from the possible treatment effect based on CPT techniques, we would expect that a group treatment format may increase structural social capital by supplementing social capital lost following rape.<sup>35</sup>

We hypothesized that, on average, women in the CPT condition would demonstrate greater increases in structural social capital compared with women in an individual support (IS) condition. We further expected that women in the CPT condition would engage in greater emotional support seeking than women in the IS condition.

## METHODS

For complete information about the study design, recruitment, and randomization, refer to Bass et al.<sup>36</sup> In brief, Bass et al. selected 14 rural villages in South Kivu province and 2 on the border in North Kivu province in eastern DRC for inclusion in the trial. They grouped villages into 3 or 4 villages on the basis of proximity and shared language. Randomization into treatment and control arms occurred at the level of village within each grouping. Locally based psychosocial assistants, who were experienced in providing case management and individual support for sexual violence survivors, provided services in both conditions.

Before initiation of the trial, the study team dropped 1 CPT study village because of concerns about psychosocial assistant competence resulting in 7 CPT and 8 IS study villages.

Trial recruitment occurred in December 2010. Congolese research assistants obtained oral consent and administered questionnaires. Study follow-up occurred within 1 month and at 6 months after intervention.

## Intervention Conditions

Cognitive processing therapy is an effective protocol-based therapy for the treatment of depression, anxiety, and PTSD among survivors of sexual violence.<sup>37–40</sup> Psychosocial assistants implemented a locally adapted group format of CPT in this study. Women received a 1-hour individual session and 11 weekly 2-hour group sessions with 6 to 8 women. The cognitive-only model was used, which is similar to the full treatment but without a trauma narrative.<sup>39</sup> The psychosocial assistants who were implementing CPT received 2 weeks of in-person training with US-based expert CPT trainers and weekly ongoing supervision.<sup>41</sup>

In the IS villages, International Rescue Committee (IRC) staff invited women to access existing psychosocial services, which included active listening, action planning, referral to other services, and support provision. International Rescue Committee supervisors provided supervision.

## Instruments

We used a mixed-methods approach to select, adapt, and validate study measures (see Bass et al.<sup>42</sup> for a description). For demographic characteristics, participants reported marital status, age, language, the length of time lived in village, number of people living in their home, and number of children for whom they were responsible.

We assessed depression and anxiety symptoms with the Hopkins Symptom Checklist-25<sup>43,44</sup> and PTSD symptoms with the 16-item Harvard Trauma Questionnaire.<sup>45</sup> We identified a total of 15 unique locally relevant symptoms during the formative study phase. Sample items included “lacking peace” and “feeling shame.” For each measure, participants rated how often they experienced each symptom in the previous 4 weeks with a Likert-type scale ranging from 0 (not at all) to 3 (a lot). We summed

and averaged the 55 items (we measured loss of interest, occurring on the Hopkins Symptom Checklist and Harvard Trauma Questionnaire, with 1 item) to create a composite total symptom score. The Cronbach  $\alpha$  was 0.97.

We selected items from the Integrated Questionnaire for the Measurement of Social Capital<sup>46</sup> based on the study formative phase to assess 2 locally relevant domains of social capital (social inclusion, groups and networks).

Questions asked how often a woman (1) had people visit her in her home and (2) visited people in their home. Participants responded on a 4-point Likert-type scale with 0 (never), to 3 (often). We summed and averaged the items. Higher scores indicated greater visitation. The Cronbach  $\alpha$  was 0.71.

We measured group membership and participation by asking whether women were a member of any of 9 locally relevant groups (i.e., farming or production, folkloric dance, religious or spiritual, cultural, health, solidarity, education or literacy, community-based organization or nongovernmental organization, women’s group) and, if so, to quantify the frequency that they participated in meetings related to each of these groups. For each group type, the participants answered membership as yes or no and recorded frequency responses on a 4-point Likert-type scale (0 = not at all; 1 = sometimes, but not often; 2 = most of the meetings; 3 = every meeting). To capture the degree to which women were engaged in group participation incorporating both the number of groups and degree of participation in groups, we created a summary measure. For each of the 9 group types, we coded nonmembership as 0, group membership with no participation as 0.25, group membership with sometimes but not often participation as 0.50, group membership with participation in most of the meetings as 0.75, and group membership with participation in all of the meetings as 1. The range for the index is 0 to 9.

We measured financial social network size by asking “If you suddenly needed a small amount of money—for example, enough to support your household for 1 week—how many people could you turn to who would be *willing* to provide this money?”

We measured instrumental support network size by asking “If you suddenly faced a long-term emergency, such as a family death or

harvest failure, how many people could you turn to who would be willing to assist you?" Responses were the specific number of people the respondent reported.

We evaluated emotional support seeking by asking how often they (1) "talk about problems with friends or family members," and (2) "talk about problems with women who have experienced similar traumas." Responses were on a 4-point Likert-type scale ranging from 0 (not at all) to 3 (often). We summed and averaged items to create a score with a range from 0 to 3.

### Data Analysis

We compared baseline demographic differences across study arms by using the Pearson  $\chi^2$  and student *t* tests. We explored baseline predictors of loss to follow-up by using logistic regression, and we used factors for which  $P < .2$  to generate a probability-weighting variable for loss to follow-up adjustment. We used 5 linear random effects models with maximum likelihood estimation and robust standard errors to test our study hypotheses (Stata XT MIXED, version 12.1, StataCorp LP, College Station, TX)<sup>47</sup>; models evaluated whether participation in CPT compared with access to IS resulted in improvements in each of the 4 social capital domains and emotional support seeking. We adjusted analyses for potential confounders that were significantly related to inclusion in the treatment groups and empirically or theoretically associated with social capital: age, language, marital status, number of children for whom the woman was responsible, length of time lived in village, number of people in the home, range of traumas personally experienced and witnessed, and total baseline psychological distress symptoms.

The longitudinal models contained 3 random effects (village, treatment group, and participant) using all observations available for each participant while accounting for within-level correlations. We included time and treatment condition and the interaction between time and treatment condition as fixed effects. We calculated effect sizes by using Cohen *d* with small effects defined as 0.10; medium effects, 0.50; and large effects, 0.80.<sup>48</sup> We set a *P* value of less than .05 for statistical significance. We conducted analyses with Stata version 12.1.

## RESULTS

Of the 494 women screened for study eligibility, 434 (88%) met inclusion criteria (at least 18 years old, had ever witnessed or experienced sexual violence, and showed elevated symptoms of distress and functional impairment) and 402 (93%) agreed to participate in the study. Four additional women were included in one of the CPT villages who did not meet symptom cut-off criteria and 1 CPT participant was dropped from the analysis owing to paperwork errors, leaving a final study population of 405 women. In total, 87% of the women completed at least 1 follow-up assessment and 57% completed both. Factors associated with loss to follow-up are specified elsewhere.<sup>36</sup>

We observed significant baseline differences between the CPT and IS participants for age (37 vs 34 years), marital status (59% vs 43% married), number of people living in the household (7.4 vs 6.8 individuals), number of types of traumatic events experienced (3.36 vs 3.91) and witnessed (4.06 vs 5.19), and baseline psychological distress. Compared with

women with access to IS, women in the CPT group reported greater baseline emotional support seeking and higher baseline levels of each of the social capital outcomes except contact with nonkin social networks (Table 1).

The intervention results and effect size differences obtained from the mixed effects regression models are summarized in Table 2. At 6-month follow-up, CPT participation was significantly associated with improvements in group membership and participation compared with IS ( $P < .05$ ;  $d = 0.22$ ; Figure 1). We observed no significant differences between CPT and IS for contact with nonkin social networks, instrumental support network size, or financial network size. Although we did not observe between-group differences, financial and support network size increased for both groups between baseline and 1-month follow-up. At within 1 month after the intervention, women in CPT reported statistically significantly higher emotional support seeking compared with women in the IS condition ( $P < .05$ ;  $d = 0.37$ ), which was not maintained at 6 months (Figure 2).

Because of the between-group differences in study outcomes observed at baseline, we

**TABLE 1—Study Sample Characteristics at Trial Baseline Among Female Survivors of Sexual Violence: Democratic Republic of the Congo April 2011**

Variable	CPT (n = 157), No. (%) or Mean $\pm$ SD	Individual Support (n = 248), No. (%) or Mean $\pm$ SD
Age, y*	36.89 $\pm$ 13.44	33.77 $\pm$ 12.43
Years of education completed	1.76 $\pm$ 2.76	2.25 $\pm$ 3.14
Number of people living in home*	7.41 $\pm$ 3.15	6.81 $\pm$ 3.32
No. of children responsible for	3.96 $\pm$ 2.67	4.06 $\pm$ 2.76
Marital status*		
Single	20 (12.74)	35 (14.11)
Married	93 (59.24)	107 (43.15)
Divorced	1 (0.64)	11 (4.44)
Separated	19 (12.10)	43 (17.34)
Widowed	24 (15.29)	52 (20.97)
Living in territory of origin	130 (82.80)	194 (78.23)
Total psychological distress symptoms*	1.90 (0.50)	2.19 (0.44)
Contact with nonkin social network	1.20 (0.88)	1.14 (0.83)
Group participation*	2.34 (1.75)	2.01 (1.45)
Social network: financial*	1.21 (1.67)	0.91 (1.40)
Social network: instrumental*	2.50 (4.32)	1.00 (1.92)
Emotional support seeking: total*	1.59 (0.86)	1.40 (0.80)

Note. CPT = group-based cognitive processing therapy. The sample size was n = 405.

\* $P < .05$  for between-arm difference.

**TABLE 2—Results of Mixed Effects Regression Showing Effects of Treatment Condition (Group-Based Cognitive Processing Therapy Vs Individual Support) on Social Capital Among Female Survivors of Sexual Violence: Democratic Republic of the Congo, April 2011–February 2012**

Variable	B (95% CI)	SE	P	Cohen <i>d</i>
Contact with nonkin social network				
Change at postintervention (CPT vs IS)	0.15 (-0.23, 0.53)	0.19	.43	0.10
Change at 6-mo follow-up (CPT vs IS)	0.28 (-0.28, 0.84)	0.29	.331	0.25
Group participation				
Change at postintervention (CPT vs IS)	0.36 (-0.38, 1.10)	0.38	.34	0.08
Change at 6-mo follow-up (CPT vs IS)	1.11 (0.16, 2.05)	0.48	.021	0.22
Social network: financial				
Change at postintervention (CPT vs IS)	-0.10 (-0.83, 0.64)	0.38	.795	0.02
Change at 6-mo follow-up (CPT vs IS)	-0.09 (-0.92, 0.74)	0.42	.837	0.04
Social network: instrumental				
Change at postintervention (CPT vs IS)	0.83 (-3.63, 5.29)	2.27	.716	0.07
Change at 6-mo follow-up (CPT vs IS)	1.08 (-2.98, 5.14)	2.07	.604	0.13
Emotional support seeking				
Change at postintervention (CPT vs IS)	0.31 (0.02, 0.61)	0.152	.039	0.37
Change at 6-mo follow-up (CPT vs IS)	0.18 (-0.12, 0.48)	0.154	.235	0.22
Emotional support seeking: friends and family				
Change at postintervention (CPT vs IS)	0.27 (-0.16, 0.69)	0.218	.223	0.32
Change at 6-mo follow-up (CPT vs IS)	0.19 (-0.21, 0.60)	0.207	.348	0.25
Emotional support seeking: similar women				
Change at postintervention (CPT vs IS)	0.36 (0.10, 0.62)	0.134	.007	0.34
Change at 6-mo follow-up (CPT vs IS)	0.15 (-0.18, 0.47)	0.165	.373	0.12

Note. CI = confidence interval; CPT = group-based cognitive processing therapy; IS = individual support. All models are adjusted for age, language, marital status, number of children for whom the woman was responsible, length of time lived in village, number of people in the home, range of traumas personally experienced and witnessed, and total baseline psychological distress symptoms, and account for loss to follow-up and clustering.

conducted a limited sensitivity analysis. We restricted each of our analyses to only those who had at least moderate levels of the outcome measured at baseline. Because each of our outcomes is measured differently, we followed this rubric: participants would on average report at least “sometimes” spending time with nonkin social networks, attending fully at least 1 group, had at least 1 person to rely on for financial and instrumental support, and at least “sometimes” spoke about problems with friends or family members or with women who experienced similar trauma. These analyses showed no qualitative differences between these analyses and when the entire range of scores is used (i.e., when groups are analyzed with low levels of social capital). This leads us to conclude that the intervention, and not potential baseline differences, accounted for the observed effects.

## DISCUSSION

With few exceptions, the literature evaluating outcomes of mental health treatment for rape survivors is focused on reductions in mental health symptoms.<sup>24,25</sup> Although an important outcome, social functioning is also critical to evaluate.<sup>25</sup> In this article we sought to determine whether participation in a group psychotherapy treatment (CPT) compared with access to IS could increase individual-level structural social capital and emotional support seeking.

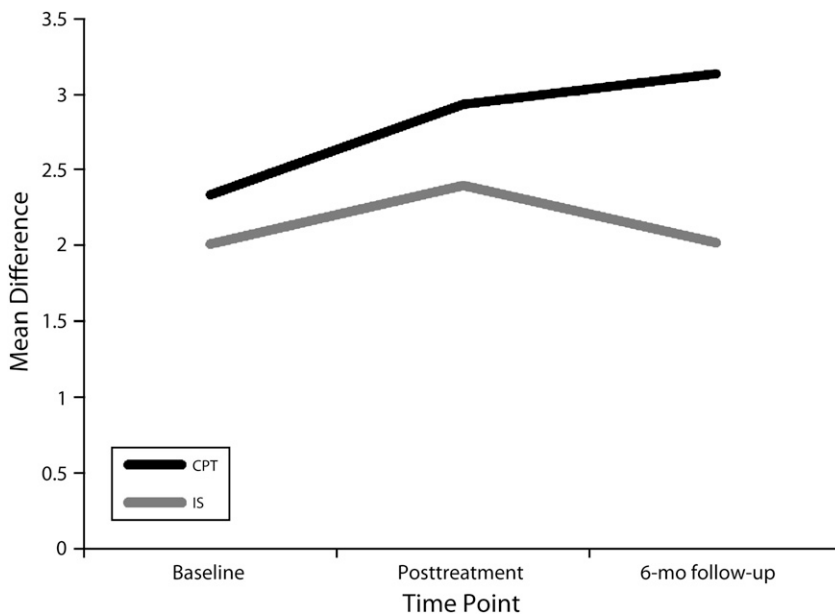
In support of our first hypothesis, women in the CPT condition demonstrated a greater increase in group membership and participation than women in the IS condition. The psycho-social assistants and IRC supervisors reported that, even after the therapy had concluded,

women formed other groups together, wherein they participated in meaningful community activities such as cultivating community fields, independent of any IRC-led intervention. Groups such as these existed in some of the IS sites as well, but to a lesser extent, and this was substantiated by our statistical analysis.

In support of our second hypothesis, emotional support seeking increased more among women in CPT than in IS. One possible reason for this outcome is that CPT may have modified thoughts that inhibit women from relying on others for support. Another possibility is that talking about problems with other survivors (e.g., thoughts and feelings about sexual assault) is one of the main activities during CPT sessions. Thus, seeking emotional support is a behavior that the women practice in CPT groups, which may increase emotional support seeking. However, it is also possible that the increase in emotional support seeking may only reflect participation in the CPT groups themselves. We conducted sensitivity analyses to tease apart whether emotional support seeking from friends and family increased along with support seeking from other survivors. The results indicated that emotional and instrumental support seeking improved; however, the intervention effect was only significant for seeking support from other survivors, suggesting that this is likely attributable to CPT group participation (Table 2).

The results of this study demonstrated modest improvements in group membership and participation and emotional support seeking among women who participated in CPT compared with women who had access to IS. These improvements are promising when one considers that CPT was not designed specifically to have an impact on these outcomes. Instrumental and financial support networks grew in size for both groups, which can be attributable to the provision of CPT or IS, or to factors unrelated to these interventions.

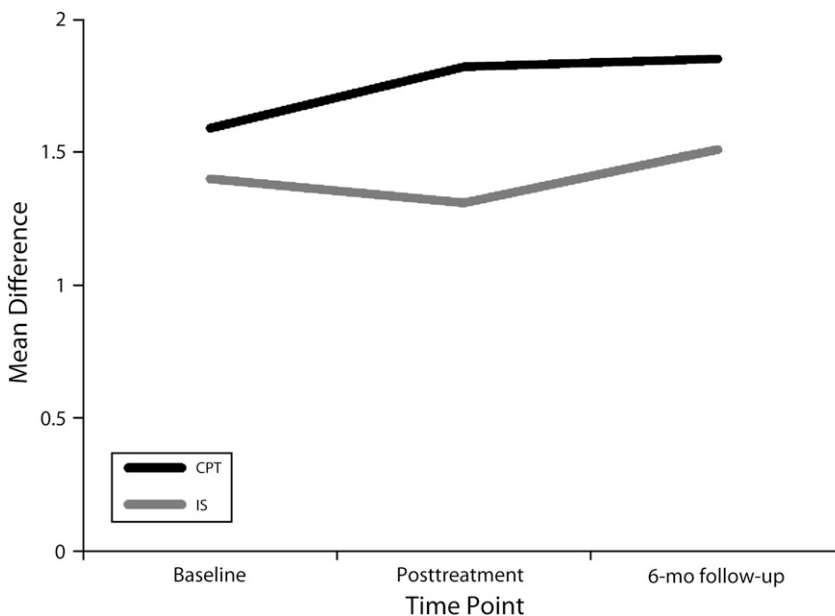
In DRC, it follows that this group-based psychotherapy may not be sufficient to improve all these outcomes. Improvements and losses to these structural social capital domains might be more strongly mediated through external forces outside individual control. These factors might include the negative reaction of others toward the survivor, abandonment by husbands and families, and



**FIGURE 1—Mean differences in group participation between group-based cognitive processing therapy (CPT) and individual support (IS) among female survivors of sexual violence: Democratic Republic of the Congo, April 2011–February 2012.**

stigmatization by community members.<sup>4</sup> Connecting with other members in the CPT group may help survivors rebuild social ties, and may change negative thoughts and avoidance

behaviors that hinder survivors from engaging with potential support networks, but no impact would be expected on the negative reaction of other community members toward sexual



**FIGURE 2—Mean differences in emotional support seeking between group-based cognitive processing therapy (CPT) and individual support (IS) among female survivors of sexual violence: Democratic Republic of the Congo, April 2011–February 2012.**

violence survivors, nor the underlying cultural norms that reinforce them.

In this article we take the approach that increases to structural social capital are positive on the basis of the known associations between greater social capital and fewer mental health problems. However, within the DRC context and the known gendered dynamics of social exclusion for survivors of rape, greater connectedness to a community that stigmatizes and excludes survivors may not lead to health-promoting outcomes. A previous study linked increased structural social capital to higher prevalence and incidence of HIV among women in South Africa.<sup>49</sup> Some studies suggest that larger network ties may overwhelm an individual's capacity to provide support.<sup>50,51</sup> Mitchell and LaGory's<sup>51</sup> study of depression and anxiety symptoms among urban poor demonstrated that greater structural social capital was associated with greater distress. The authors suggested that ties with suffering others may influence one's own self-perceptions of being in dire circumstances and mutual coping demands and obligations of support giving could exacerbate distress.

The mechanisms underlying the creation of social capital involve complex social, cultural, and political processes.<sup>46</sup> Factors that increase social capital in contexts affected by long-standing violence have not been previously explored. This current study offers several possible mechanisms for future research. First, the main outcomes report of this randomized controlled trial<sup>36</sup> demonstrated that women in the CPT condition evidenced greater reductions in mental health problems and impairment in functioning compared with women who received IS. From the social drift and social causation framework, as mental health problems decrease, social capital would be expected to increase, and this may account for increased social capital in the current study. Alternatively, improved mental health could be mediated through improved social capital. This mechanism, although it is possible, is not supported by the theory of change in CPT.

Decreases in unhelpful cognitions about oneself and the world, directly targeted by CPT, could improve the perception of structural social capital shown in this study. Furthermore, as avoidance is reduced, women begin to reengage in social activities. However,

improvements in social capital may not be specific to CPT treatment mechanisms. The group-based modality could itself account for changes in the social landscape of participants. Exposure to women who experienced similar events may normalize women's reactions and provide them evidence that they are not suffering alone. Although these are all plausible explanations accounting for the improvements shown in this study, future research is needed to explore these mechanisms further.

### Limitations

The current study included a sample of treatment-seeking women with high trauma symptoms who were known to the participating service providers; the findings may not be generalizable to other sexual violence survivors in the region. Optimal randomization was likely not obtained because of the small numbers of villages randomized, which may account for baseline differences between groups. For the measure of group membership and participation, psychosocial assistants noted that there are limits on the number of different types of groups that existed; each village may not have all 9 group types available. We cannot rule out the possibility that gains in group memberships reported are related to membership in the CPT group itself. However, even if this were true, this outcome is still desirable if one considers that broadening social networks and improving structural social capital likely increases the availability of resources provided to women who are members of these groups.

For our financial and instrumental network size outcomes, IRC supervisors noted that, in very poor areas, the available number of people with the capacity to provide financial or material support during a period of hardship may be limited, and therefore unable to be affected by intervention. It is unknown whether the social capital of other members within the community is affected by changes evidenced within this treatment group. We would expect that if women in a community participate in a greater number of groups, this may increase the social capital of other community members as well, but we did not measure this. It is also plausible that the groups these women joined were composed of sexual assault survivors, thereby creating alternatives to participation in the wider community. It was also not possible

in this study to evaluate the quality and depth of the social network ties provided by group participation.

Our measure of social capital was necessarily limited to structural aspects. The literature suggests that cognitive social capital is also related to better mental health,<sup>18</sup> so an opportunity to evaluate improvements in other facets of social capital may have been missed. Our unit of analysis was restricted to individual level, rather than the ecological or community level, which some argue is a more valid level of analysis,<sup>52</sup> and is associated differently with mental health.<sup>18</sup>

### Conclusions

Increased involvement in community groups and greater support seeking are potentially important improvements in the lives of sexual violence survivors. Participation in a group psychotherapy such as CPT may work by changing negative thoughts and avoidance behaviors, providing a safe space that encourages survivors to open up to each other, and providing a foundation from which social networks for survivors can be expanded. To bridge social capital to the broader community, additional interventions beyond CPT may be needed. ■

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This article was accepted March 1, 2014.

### Contributors

B. J. Hall conceptualized the present study and wrote the first draft of the article. J. K. Bass, P. A. Bolton, J. Annan, and K. Wachter conceptualized the parent randomized controlled trial with T. Cetinoglu involved in study design. J. K. Bass, J. Annan, and T. Cetinoglu oversaw the data collection. D. Kaysen was responsible for clinical

oversight. B. J. Hall and J. K. Bass were responsible for conducting analyses. K. Robinette contributed to the discussion. All authors contributed to the drafting and editing of the article.

### Acknowledgments

This research was made possible by a grant from the US Agency for International Development Victims of Torture Fund and the World Bank along with programming support provided by the Swedish International Development Cooperation Agency, the US Agency for International Development Mission in the Democratic Republic of Congo, the Open Square Foundation, and the European Community Humanitarian Office. B. J. Hall was supported by the National Institute of Mental Health T32 in Psychiatric Epidemiology T32MH014592-35 and through the National Institutes of Health Fogarty Center Global Health Fellows Program 1R25TW009340-01.

### Human Participant Protection

Human participants approval was obtained from the institutional review boards at Johns Hopkins School of Public Health and Kinshasa School of Public Health.

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