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# Long-Term Effects of Conflict-Related Sexual Violence Compared with Non-Sexual War Trauma in Female World War II Survivors: A Matched Pairs Study

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**Abstract** The aim of the study was to compare the long-term effects of conflict-related sexual violence experienced at the end of World War II (WWII) with non-sexual WWII trauma (e.g., being exposed to shell shock or physical violence). A total of 27 elderly wartime rape survivors were compared to age- and gender-matched control subjects who were drawn from a larger sample of subjects over 70 years of age who had experienced WWII-related trauma. A modified version of the Posttraumatic Diagnostic Scale was used to assess trauma characteristics and posttraumatic stress disorder (PTSD) symptoms and the Brief Symptom Inventory-18 was used to assess current psychopathology. Additionally, measures of posttraumatic growth (Posttraumatic Growth Inventory) and social acknowledgement as a trauma survivor (Social Acknowledgement Questionnaire) were used to assess two mediating variables in post-trauma conditions of rape victims. Women exposed to conflict-related sexual violence reported greater severity of PTSD-related avoid-

ance and hyperarousal symptoms, as well as anxiety, compared with female long-term survivors of non-sexual WWII trauma. The vast majority (80.9 %) of these women also reported severe sexual problems during their lifetimes relative to 19.0 % of women who experienced non-sexual war trauma. Women exposed to conflict-related sexual violence also reported greater posttraumatic growth, but less social acknowledgement as trauma survivors, compared to survivors of non-sexual war trauma. The results were consistent with emerging neurobiological research, which suggests that different traumas may be differentially associated with long-term posttraumatic sequelae in sexual assault survivors than in other survivor groups and highlights the need to treat (or better prevent) deleterious effects of conflict-related sexual violence in current worldwide crisis zones.

**Keywords** Trauma · PTSD · Wartime rape · War · Sexual violence

## Introduction

Conflict-related sexual violence occurs in nearly all war zones worldwide. Most researchers emphasize the timeless ubiquity of wartime rape, which has even been documented in the Bible and in the *Odyssey* (Gottschall, 2004). There is some research on the different theories about the factors which might contribute to the phenomena from the *perpetrator's* perspective; however, little research has examined the survivor's perspective. A Croatian study group documented elevated rates of posttraumatic stress disorder (PTSD) and other psychopathology in raped women of the 1991–1995 war (Loncar, Medved, Jovanovic, & Hotujac, 2006). In a random sample of Liberian women, 50 % of the participants reported war trauma and 15 % reported being raped, subjected to attempted rape, or sexually coerced (Swiss et al., 1998). A population-based survey showed that 41.1 % of Eastern

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Congolese women reported conflict-related sexual violence (Johnson et al., 2010). A German study documented 49 % clinically relevant posttraumatic symptomatology in raped women of World War II (WWII) (Kuwert et al., 2010). While trauma and mental health effects of conflict-related sexual violence are albeit scarcely documented in the research literature, the comparison of its impact on mental health outcomes compared with other severe and common traumatic events during war is lacking.

In civilian samples, rape is a trauma associated with one of the highest risks of developing PTSD and related psychiatric conditions (Campbell & Wasco, 2005). Moreover, studies documented significant difficulties in sexual functioning post-rape, including dyspareunia, menstrual irregularities, and chronic pelvic pain (Weaver, 2009). Researchers also found evidence for diminished sexual satisfaction and inhibited arousal and desire dysfunctions (van Berlo & Ensink, 2000). To our knowledge, there is no study so far evaluating the level of sexual functioning in women who have been exposed to conflict-related violence.

Nevertheless, non-sexual war trauma may also have a severe and long-lasting impact on mental health outcomes (Glaesmer, Kaiser, Braehler, Freyberger, & Kuwert, 2012). However, it is not clear whether these outcomes differ as a function of having experienced sexual relative to non-sexual war trauma. Traumatic experiences are not only associated with psychopathology, but may also be related to positive psychological changes after trauma, which is referred to as posttraumatic growth (PTG) (Linley & Joseph, 2004; Tedeschi & Calhoun, 2004; Zoellner & Maercker, 2006). PTG, which has been defined as “the experience of significant positive change arising from the struggle with a major life crisis” (Zoellner & Maercker, 2006), includes increased appreciation of life, setting of new life priorities, a sense of increased personal strength, identification of new possibilities, improved closeness of intimate relationships, or positive spiritual change (Tedeschi & Calhoun, 2004). In addition to PTG, exposure to trauma may also be associated with differences in perceived social acknowledgement as a survivor (Maercker & Müller, 2004; Powell, Rosner, Butollo, Tedeschi, & Calhoun, 2003). To date, however, no study of which we are aware has examined posttraumatic growth and social acknowledgement in survivors of wartime rape.

The purpose of the current study was to compare the effect of exposure to conflict-related sexual violence on late-life mental health outcomes of elderly female German survivors of WWII. Specifically, we compared women exposed to conflict-related sexual violence to women exposed to conflict-related non-sexual trauma on measures of posttraumatic stress and other psychopathology symptoms, sexual functioning, posttraumatic growth, and social acknowledgement. We hypothesized that: (1) survivors of wartime rape would report greater severity of posttraumatic stress and other psychopathology than the matched controls; (2) that they would report a higher level of sexual dysfunction during their life course, and (3) that survivors of

wartime rape would report less social acknowledgement as survivors, as sex-related war crime was more “hidden” and tabooed in society than non-sexual traumas in the post-war decades in Germany. Additionally, we compared posttraumatic growth in the two groups from an exploratory view, as it has not previously been investigated in this particular group of war trauma survivors.

## Method

### Participants

Two groups of female WWII survivors were studied: a sample of women who were raped in WWII and an age-matched sample of women of the same age who survived other, non-sexual types of war trauma during the same time period. The study was approved by the ethical committee of the University of Greifswald and all participants gave informed consent. The call for participation in the study was disseminated by German and international media in October 2009. In this call, reporting on wartime rape was the primary focus. Among the 300 persons who answered the call, 33 women and 1 man were directly involved in a rape episode. A face-to-face interview was arranged with these victims either in their home environment or in a neutral place of their choice. Two women refused to participate during the interview, four persons who had called back were later not accessible by phone for the interview, and one woman died. Thus, 27 women comprised the study sample.

The mean age of these participants was 80.4 years ( $SD = 3.2$ ; range 76–89). A total of 17 (63 %) women were widowed, 5 (18 %) were married, 4 (15 %) had never married, and 1 (4 %) was divorced. Most of the participants lived in the new federal countries of Germany; 17 (63 %) had escaped or were deported from their homes in the former Eastern German territories (i.e., Silesia, Pommerania, East Prussia) at the end of WWII; 2 (7 %) were later subject to deportation to Russia. According to the participants, age at the first rape experience ranged from 12 to 26 years ( $M = 16.1$  years,  $SD = 3.3$ ). Most participants (89.9 %) reported having been multiply raped by Russian allies; three women also reported having been raped by Polish soldiers. The number of rape events reported ranged between one (three participants) and 71 ( $M = 12.48$ ,  $SD = 15.92$ ).

Rape victims were compared to age-matched control subjects who were drawn from a larger sample of subjects ( $n = 102$ ) over 70 years of age who had experienced WWII-related trauma, which was the index trauma for the assessment. These participants were recruited from Northern Germany by telephone via personal presentations in nursing homes and newspaper articles in cooperation with the largest German expellee organization, “Bund der Vertriebenen.” When contacting the potential participants, every person was informed that the research team sought participants who were suffering from their war experience as

well as those who were not. All women in the control sample had not been victim of sexual assault during WWII or at any point in their lives as confirmed by a questionnaire item, but they experienced other types of WWII-related trauma (e.g., forced displacement, looting, being eyewitness of extreme violence such as the killing of relatives, air raid experience). Among the women in the control sample, 18 (66.7 %) were widowed, 6 (22.2 %) were married, 2 (7.4 %) had never married, and 1 (3.7 %) was divorced. Although the distribution of marital status in the control sample was very similar to the sample of rape victims, this variable could not be considered in matching the samples as a criterion. A perfect age match between the samples could also not be obtained: The largest age difference between the matched pairs was 3 years (in four of the pairs).

## Measures

### *Traumatic Events and Psychopathology*

A modified version of the Posttraumatic Diagnostic Scale (PDS) (Foa, Cashman, Jaycox, & Perry, 1997), a 49-item self-report instrument, was used to assess trauma characteristics and PTSD symptoms. The items correspond to Criteria A–F of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2000) and a diagnosis is very likely if all six criteria are met. Criterion A1 is covered by a checklist of 12 traumatic events. If participants reported more than one traumatic event, they were asked to refer to their most distressing event when completing the subsequent sections, including Criteria A2 (subjective response to the event), B (five intrusion symptoms), C (seven avoidance symptoms), and D (five arousal symptoms). The frequency of each symptom in the past month was rated on a 4-point scale ranging from 0 (not at all or only one time) to 3 (five or more times a week/almost always). Finally, the duration of PTSD and impairment in various life areas were assessed. Additionally, the scale allows symptom severity to be quantified by summing the individual's responses on the PTSD symptom clusters of intrusion, avoidance, and arousal. Cronbach's  $\alpha$  for the three symptom clusters in the current sample was 0.87, 0.77, and 0.78, respectively. To differentiate experienced war trauma in greater detail, the initial checklist was enhanced with additional trauma items from the Harvard Trauma Questionnaire (HTQ) (Mollica et al., 1992). The PTSD assessment itself was strictly conducted and evaluated according to the PDS, as described above.

### *Psychological Symptoms*

The Brief Symptom Inventory 18 (BSI-18) (Derogatis, 2000) was used to assess current psychopathology. This short form of the BSI includes 18 items measuring somatization, depression,

and anxiety (six items each) and a Global Severity Index (GSI) summary score. Participants were instructed to respond to items based on how they had felt in the past 7 days. The GSI correlates highly with analogous scores on the longer versions of the questionnaire.

### *Posttraumatic Growth*

The Posttraumatic Growth Inventory (PTGI) (Tedeschi & Calhoun, 1996) assessed the perceived positive outcomes that may occur following a traumatic event. It consists of the following subscales: personal strength, spiritual change, relating to others, appreciation of life, and new possibilities. We used a 5-item modified short form (PTGI-SF) (Cann et al., 2010), which is comprised of items with the highest power on each subscale in the German validation of the PTGI. Participants were asked to report for each of the five statements the degree to which they experienced a positive change on a 6-point Likert scale (0 = "I did not experience this change as a result of my crisis" to 5 = "I experienced this change to a very great degree as a result of my crisis").

### *Social Acknowledgement*

The Social Acknowledgment Questionnaire (SAQ) (Maercker & Müller, 2004) was used to assess the traumatized individual's perception of his or her recognition as a victim or a survivor and of social support from family, friends, acquaintances, and local authorities. The 16-item self-report was rated on a 4-point Likert scale ranging from 0 ("not at all") to 3 ("completely"). It provides sum scores for three subscales, i.e., Acknowledgement as a survivor by significant others, General Disapproval as a survivor, and Family Disapproval as a survivor. We refrained from calculating a total score because of problems of interpretability. A validation study revealed moderate negative intercorrelations between the first and the second scale and between the first and the third scale, and moderate positive intercorrelations between the second and the third scale (Maercker & Müller, 2004). Test-retest reliability over 2 months was good, with  $r = .74-.85$ .

### *Data Analysis*

A series of paired samples  $t$ -tests were conducted to compare women who experienced WW II-related sexual trauma to women who experienced non-sexual WWII-related trauma with respect to posttraumatic stress symptoms, psychological symptoms, posttraumatic growth, and social acknowledgement. Post hoc power analysis revealed that using a critical alpha level of .05 in one-tailed  $t$ -tests for paired samples, medium effects ( $d_z = .5$ ) can be detected with a power of .97 in this small sample (G\*Power 3.0) (Cohen, 1988; Faul, Erdfelder, Lang, & Buchner, 2007).

## Results

### Posttraumatic Stress, Other Psychopathology, Posttraumatic Growth, and Social Acknowledgment

Results showed that rape victims reported, as a tendency, more psychological symptoms in general (BSI;  $d_z = 0.37$ ), more anxiety (BSI;  $d_z = 0.37$ ), more hyperarousal (PDS;  $d_z = 0.41$ ), and, as a tendency, more avoidance (PDS;  $d_z = 0.29$ ) than did controls (see Table 1). No significant difference between groups in the severity of posttraumatic symptoms (PDS total score) was observed. Rape victims perceived less positive acknowledgment as survivors in their personal environment ( $d_z = 0.62$ ) and more family disapproval ( $d_z = 0.50$ ) relative to controls. However, they scored higher on the posttraumatic growth scale than victims of non-sexual WWII-related trauma ( $d_z = 0.43$ ). Within the rape victim sample, Spearman correlations between number of rape events reported and symptom scales ranged between  $r_s = -.24$  and  $r_s = .16$ , indicating that the frequency of WWII sexual abuse experiences was not strongly associated with later psychopathology.

**Table 1** Differences between women raped in World War II and age-matched controls with other types of trauma on the psychological questionnaires

Subscales	Samples				Paired samples <i>t</i> test (1-sided)		
	Raped		Other trauma				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Posttraumatic stress symptoms (PDS)							
Intrusion	3.56	3.12	3.36	3.65	<1	24	ns
Avoidance	4.04	3.69	2.75	2.75	1.32	23	ns
Hyperarousal	3.88	3.65	2.25	2.21	1.75	23	.047
Total Score	11.38	8.80	8.46	7.05	1.09	23	ns
Psychological symptoms (BSI-18)							
Somatization	0.82	0.67	0.62	0.48	1.17	23	ns
Depression	0.54	0.59	0.38	0.41	1.09	23	ns
Anxiety	0.56	0.54	0.31	0.47	1.87	23	.037
GSI	0.63	0.44	0.43	0.36	1.62	23	.058
Posttraumatic growth							
PTGI score	3.52	1.00	2.91	1.17	2.04	23	.050 <sup>a</sup>
Social acknowledgment							
Acknowledgement	0.59	0.62	1.13	0.71	-2.58	22	.009
General disapproval	1.17	0.53	1.28	0.70	<1	22	ns
Family disapproval	1.03	0.52	0.74	0.38	2.22	22	.019

Scale ranges: intrusion, hyperarousal, 0–15; avoidance, 0–21; BSI-18, 0–4; PTGI, 0–5; social acknowledgment, 0–3

PDS Posttraumatic Diagnostic Scale, BSI-18 Brief Symptom Inventory-18, GSI Global Severity Index, PTGI Posttraumatic Growth Inventory

<sup>a</sup> Two-sided

**Table 2** Frequency of ongoing problems in various life domains due to wartime experiences (PDS)

Life domain	Raped		Non-sexual war trauma	
	<i>n</i>	%	<i>n</i>	%
Work and occupation	1	3.7	5	25.0
Household chore	0	0	7	33.3
Relationships with friends	4	14.8	3	14.3
Leisure and amusement	5	18.5	5	23.8
Education	2	7.4	3	15.0
Relationships with family members	7	25.9	2	10.0
Sexual functioning and eroticism	22	81.5	4	19.0
Life satisfaction (general)	3	11.1	5	23.8
Capacity in all life domains	3	11.1	3	14.3

### Sexual Functioning

The PDS also allows one to estimate the subjective impairment in different life domains, asking the participant: “Have the problems assessed above impaired the following life domains?” In nearly all of the life domains assessed by the PDS, current problems in functioning were only very rarely reported (less than five cases observed and expected in either group) so that between-group comparisons by Chi square tests could not be performed. A remarkable exception was the domain of “eroticism and sexuality,” in which 22 out of 26 rape victims reported persisting difficulties, while only 4 out of 21 control subjects who answered this question did so ( $\chi^2 = 18.55, p < .001$ ) (Table 2).

## Discussion

This matched-pairs study showed that women exposed to conflict-related sexual violence during WWII reported greater severity of PTSD-related avoidance and hyperarousal symptoms, as well as anxiety, compared to female long-term survivors of non-sexual WWII trauma. The vast majority (80.9%) of these women also reported severe sexual problems during their lifetime, relative to 19.0% of women who experienced non-sexual war trauma.

Although clinically and epidemiologically relevant, research is lacking on different PTSD profiles after wartime sexual compared with non-sexual trauma. Results of the current study revealed that rape survivors reported greater severity of avoidance and hyperarousal symptoms compared to survivors of other war-related traumas. This finding was partially consistent with a study of 136 individuals exposed to war-related trauma, which found that victims of rape presented with greater severity of avoidance symptoms, but less severity of hyperarousal symptoms (Henigsberg, Folnegovic-Smalc, & Moro, 2001). Recent contributions from the neurobiological perspective may help to develop a first hypothesis how to conceptualize these results.

One study found higher cortisol responses to trauma reminders in survivors of war-related sexual assault compared with those who experienced non-sexual war trauma (Gola et al., 2011). It was argued that the nearness of the perpetrator during a sexual assault might enhance peritraumatic physiologic responses as well as later cortisol responses to trauma reminders. Avoidance and hyperarousal symptoms, in turn, have also been linked to higher cortisol levels (Roelofs et al., 2009; Witteveen et al., 2010). Results of the current study accord with this neurobiological work and suggest that the expression of PTSD symptoms after sexual assault may be characterized by greater severity of avoidance and hyperarousal symptoms, even more than six decades after the war trauma. Longitudinal studies with larger samples are needed to confirm these findings and investigate the hypothesis that cortisol and related abnormalities may mediate the relation between sexual trauma and differential expression of PTSD symptoms. Our results were also in line with a recent psychotherapy study, which underscored the importance of addressing avoidance symptoms in sexual assault survivors (Leiner, Kearns, Jackson, Astin, & Rothbaum, 2012).

An important new social psychological result of the current study was that survivors of conflict-related sexual violence experienced less social acknowledgement than the survivors of non-sexual war trauma. This finding was consistent with our hypothesis that wartime rape was more tabooed in the post-war decades and hidden by most of the survivors (Kuwert & Freyberger, 2007). It also suggests that, among WWII rape survivors, social acknowledgement in post-war Germany was rarely obtained, even among family members, compared to survivors of other war trauma types. This bitter result for the survivors of the WWII mass rapes is extremely important in current post-conflict settings, as far as the integrative psychosocial healing process of different forms of war trauma is concerned. These findings underscore the need for tailored treatment interventions to address sexual and non-sexual types of war trauma equally.

An explorative result of the current study was that the survivors of wartime rape reported a higher extent of PTG. In a cross-sectional design, this result is difficult to interpret, as most cross-sectional studies investigating the relationship between PTSD symptoms and PTG did not find any systematic relationship (Forstmeier, Kuwert, Spitzer, Freyberger, & Maercker, 2009; Zoellner & Maercker, 2006). That said, some studies have found small positive (Lev-Wiesel & Amir, 2003) and negative correlations (Frazier, Conlon, & Glaser, 2001; Laufer & Solomon, 2006; McMillen, Smith, & Fisher, 1997). This equivocal evidence can be explained by the two-dimensional stress response perspective, which suggests that posttraumatic stress and growth may be two separate, independent dimensions of the posttraumatic experience (Linley & Joseph, 2004; Tedeschi & Calhoun, 2004).

Several methodological limitations of this study should be considered. First, the sample size was relatively small, so it is not clear whether results may generalize to the broader population of

female WWII survivors. Second, participants were recruited using press advertisements, which raises the question of possible participation bias. Women could have been interested in participating due to the awareness of their personal grief; on the other hand, there is evidence that highly traumatized subjects may have difficulties in participating in research, which could possibly undermine their defences (Newman & Kaloupek, 2004). This, of course, may have been true for both groups of participants in the current study. Third, due to the decades between the experience of the incident trauma and when the assessment was conducted, recall bias could be another important limitation. Fourth, measures were based on self-report instruments and were not validated by a structured clinical interview. Fifth, the study had no control group of women who were not exposed to any war trauma. Longitudinal studies with larger samples could better evaluate the effects of possible mediating variables concerning PTSD in survivors of conflict-related sexual violence.

Notwithstanding these limitations, the present study highlighted the long-lasting impact of conflict-related sexual violence on mental health and sexual functioning. The current efforts of the United Nations who declared wartime rape as “no more inevitable and acceptable than mass murder” (Casanas, 2010) have come far too late for the last living survivors exposed to mass rapes in WWII. The work presented herein may be among the last attempts to assess these very elderly women. This work highlights the importance of ethical, political, and medical efforts to prevent and treat this specific traumatization of women and, even more tabooed, men (Zawati, 2007) in the current conflict zones worldwide (Hargreaves, 2001).

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