

Research

Open Access

Traumatic events, PTSD, and psychiatric comorbidity in forensic patients – assessed by questionnaires and diagnostic interview

Samia Sirag Garieballa, Maggie Schauer, Frank Neuner, Evangelia Saleptsi, Tilman Kluttig, Thomas Elbert, Klaus Hoffmann and Brigitte S Rockstroh*

Address: Department of Psychology, University of Konstanz, and Centre for Psychiatry Reichenau, Germany

Email: Samia Sirag Garieballa - garieballasamia@yahoo.com; Maggie Schauer - Margarete.Schauer@uni-konstanz.de; Frank Neuner - Frank.Neuner@uni-konstanz.de; Evangelia Saleptsi - Evangelia.Saleptsi@uni-konstanz.de; Tilman Kluttig - T.Kluttig@zfp-reichenau.de; Thomas Elbert - Thomas.Elbert@Uni-Konstanz.de; Klaus Hoffmann - K.Hoffmann@zfp-reichenau.de; Brigitte S Rockstroh* - Brigitte.Rockstroh@uni-konstanz.de

* Corresponding author

Published: 04 April 2006

Received: 03 October 2005

Accepted: 04 April 2006

Clinical Practice and Epidemiology in Mental Health 2006, **2**:7 doi:10.1186/1745-0179-2-7

This article is available from: <http://www.cpejournal.com/content/2/1/7>

© 2006 Garieballa et al; licensee BioMed Central Ltd.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/2.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Background: Relationships between posttraumatic stress disorder (PTSD), comorbid illness and experiences of traumatic stressors have been reported for large and different groups. The present study investigated this relationship specifically for patients with psychiatric disorders admitted to a forensic ward because of criminal behavior.

Methods: In sixteen German and fifteen Sudanese forensic patients the prevalence of PTSD and comorbid symptoms of anxiety and depression were assessed and related to traumatic experiences, emotional distress, and stressful life events over four developmental periods.

Results: In the total sample, subjects had experienced an average of five traumatic events, the first one occurring early in childhood, and 39% met criteria of current, 55% of lifetime PTSD, the diagnosis being more likely in patients with a greater number of reported traumatic experiences. Neglect and emotional abuse in childhood were associated with current PTSD diagnosis. As reported for other populations, comorbid symptoms were frequent with 60% of the sample displaying comorbid anxiety symptoms and 64% comorbid depression. PTSD and comorbidity did not differ between cultures.

Conclusion: Results suggest that forensic patients experience multiple traumatic events, usually beginning early in development, so that the assessment of PTSD and comorbid anxiety and depression is recommended for the clinical evaluation. Further studies have to substantiate, whether traumatic stress during developmental stages interact with other factors leading to routes of forensic psychopathology.

Background

Mental illness as a consequence of traumatic experiences, like posttraumatic stress disorder (PTSD), has been reported for large and varied populations [1-4]. However,

evidence for forensic patients, that is individuals who committed a crime but were assigned to psychiatric treatment because of psychiatric or personality disorders, is less extensive though of particular interest. Forensic

patients are often admitted because of crimes including violence, so that evidence of a relationship between earlier traumatic experience of, for instance, violence and crime, and PTSD might improve our understanding of forensic development. Traumatic experience and violence might be connected in a vicious circle, in which experience of violence might promote PTSD, and symptoms of PTSD like hyperarousal, the readiness for attack, anger outbursts, flashbacks triggered by conditions similar to those of the traumatic experience, might pose a risk factor for uncontrolled violence and criminal acts [5,6]. Indeed, the rate of traumatic experiences and PTSD has been reported to be higher in samples of delinquent subjects and prison inmates than in the general population [7-12]. Moreover, criminal offenses have been linked to negative or traumatic experiences in childhood, the trauma including the witnessing of interpersonal violence [8], and personality disorders are discussed as mediators between childhood experiences and adult delinquency [13-16].

Over the last decade, interest in the study of traumatic events and PTSD in forensic patients has increased: For instance, Stone [17] concluded from the biographies of 42 serial murderers that low socio-economic status, broken home, parental neglect, brutality, or alcoholism were common experiences in 90% of the sample. Similarly, Lewis and colleagues [18] reported a history of severe physical and/or sexual abuse during childhood in 12 murderers with dissociative identity disorder. Timmerman and Emmelkamp [19] examined the relationship between traumatic experiences, dissociation, and borderline personality disorder in 39 male forensic patients and 192 male prisoners; they found at least one traumatic event in 28% of the forensic sample, and more experiences of emotional and sexual abuse among forensic patients (>40%) than among prisoners (<29%). Similarly, Spitzer and colleagues [20] reported at least one traumatic event in 75% of 53 German forensic patients, 17% of them met the criteria for current PTSD and 56% met the criteria for a lifetime diagnosis of the same disorder. Regarding comorbid mental disorders, lifetime and current rates of anxiety disorders were found to be higher in prison inmates with than without PTSD [12]. In forensic patients, however, knowledge about comorbid psychopathology seems insufficient so far.

The present study aimed at extending evidence by assessing traumatic experiences across life together with related disorders in forensic patients. Two cultural settings were compared, a German and a Sudanese sample, in order to examine whether and how social conditions might affect symptom profiles. The prevalence of PTSD was related to (1) type and frequency of traumatic and aversive experiences across developmental periods, and (2) comorbid symptoms of anxiety and depression.

Methods

Subjects

Subjects were recruited from the forensic unit of the Center for Psychiatry Reichenau, Germany, and from the forensic unit of the Hospital Center for Psychiatry, Khartoum, Sudan. Both hospitals receive the majority of patients from the district they provide with psychiatric community care. Patients were included in the sample, if they (1) were between 18 and 65 years of age, (2) showed adequate mental capacity to engage in an interview and self-report questionnaires, and (3) gave informed consent confirming willingness to participate.

The sample included 16 German subjects (12 males and 4 females; mean age 39.3 ± 9.3 years, range 21–64 years) who were admitted to the forensic unit at the Center for Psychiatry Reichenau, and 15 Sudanese male subjects (mean age 32.6 ± 8.0 years, range 21–52 years) who were admitted to the forensic unit of the Hospital Center for Psychiatry Khartoum. From the German sample, 56% had completed elementary school, which held true for 40% of the Sudanese group, and 31.2% of the German group along with 27% of the Sudanese group had completed secondary school. Patients were admitted to the forensic units with one of the following DSM-IV diagnoses: (1) a personality disorder (German: 56%, Sudanese: 13%), (2) schizophrenia (German: 19%, Sudanese: 47%), and (3) major depressive disorder (German: 13%, Sudanese: 20%). Interestingly, a PTSD diagnosis was not given to any subject by the diagnosing psychiatrist upon admission to the forensic unit. About 50% of the total sample had been convicted of violent offences against other persons.

Assessment of PTSD, traumatic experiences and comorbid symptoms

PTSD was assessed by means of section P of the semi-structured Clinical Interview for the DSM-IV (SCID). Interviews were applied by experienced psychologists and psychiatrists, who were particularly trained in administering the SCID. All interviewers had considerable experience with diagnosing patients with trauma-spectrum disorders in different countries. In addition to the questions screening for type and frequency of traumatic events and worst event, experiences across lifespan were assessed with the Traumatic Antecedents Questionnaire, TAQ [21-26]. The TAQ asks for the frequency (never, rarely, commonly) of experiences assigned to 11 domains (ranging from positive experiences like competence and safety, to negative experiences such as neglect, physical, emotional, sexual abuse, and witnessing trauma), separately assessed for four developmental periods including early childhood (0–6), middle childhood, (7–12), adolescence (13–18), and adults (19+).

Comorbid symptoms of anxiety and depression were assessed with the Hopkins Symptoms Checklist-25 (HSCL-25) [27] and the Beck Depression Inventory [28]. German versions BDI and HSCL were available. The TAQ was translated from the original English version into German and Arabic by the authors. For the Sudanese sample, the questions used started from earlier work with Sudanese samples [29]. In this earlier project, bilingual translators were trained in the concepts of PTSD and depression. Then translation and blind back translation was performed for core questions of the semi-structured PTSD interview, the BDI and the HSCL. Questions for which the outcome of the back translation was unsatisfactory were submitted to further discussions and then to the same procedure of translation and back translation. Where necessary, questions were adjusted to the local version of Arabic by SG (whose native language is Arabic and who is fluent in English). Sudanese participants were interviewed by SG in Arabic language.

Procedure

Subjects were recruited by the therapists of the respective units. Prior to the assessment, subjects were informed by the investigators about the purpose of the study and signed an informed consent. Then, patients filled in the TAQ, HSCL-25 and BDI, while the diagnostic interview (SCID-P) was scheduled on a different day. In the German sample, the TAQ was re-administered after 3–6 months to confirm its reliability for the forensic sample.

Data analyses

Chi square analysis served to compare the frequency of PTSD diagnoses determined from the SCID-P between the German and the Sudanese subsamples to compare comorbid anxiety, depression and emotional distress of clinical significance (HSCL-scores above 1.75 as suggested by 27) between subjects with and without PTSD. Comparisons of the German and the Sudanese subsamples were restricted to male subjects, as there were no female patients in the Sudanese sample. Differences in type and frequency of experienced events between subgroups with and without PTSD were verified by analyses of variance (ANOVA).

In the German sample, the stability of the TAQ was evaluated by re-test over a 3–6 month interval. For the total score (sum across all domains and developmental periods), for each of the 11 event domains, and each of the four developmental periods, scores were correlated between the first and the second measurement.

Results

According to the SCID-P interview, all subjects had experienced at least one traumatic event in their lives. With a median of 8 years, the first traumatic incidence occurred early in life. The number of traumatic experiences was

somewhat lower in the Sudanese (mean $4.0 \pm .92$, range 3–6) than in the German (5.83 ± 2.6 , range 1–9) sample of male patients ($t(26) = 2.5$, $p < .05$). The number of traumatic events in the German female patients ranged from 7–11 (8.0 ± 2.0), with a dominance of sexual assault. Events such as physical abuse and assault during childhood, witnessing traumas experienced by others, serious illness or an operation, serious accident, physical attacks or weapon threats were reported by over 50% of the total sample. Physical abuse during childhood was reported significantly more often by German than by Sudanese men (83.3% vs. 26.7, $\chi^2 = 8.5$, $p < .01$) as was unwanted sexually offending behavior (50% vs. 6.7%, $\chi^2 = 6.5$, $p < .05$). Sudanese men reported significantly more natural disasters as a traumatic experience than Germans ($\chi^2 = 4.9$, $p < .05$).

Of the total sample, 17 patients met the criteria of lifetime and 12 of current PTSD, indicating prevalence rates of 54.8% and 38.7%, respectively. The German and Sudanese samples did not differ with respect to PTSD prevalence or the ratio of current and lifetime PTSD. Across the German and the Sudanese subsamples, patients with PTSD (compared to patients without PTSD) diagnoses were characterized by

a) a higher number of traumatic experiences reported in the SCID-P (6.25 ± 2.4 vs 4.6 ± 2.0 ; $F(1,29) = 4.3$, $p < .05$);

b) a higher frequency of sexual traumata (analyzed for male subjects only; $\chi^2 = 8.31$, $p < .01$; of the eleven subjects who reported sexual assault, eight were currently suffering from PTSD; The mean number of experiences differed significantly between patients with and without PTSD with respect to sexual abuse ($F(1,22) = 4.6$, $p < .05$).

c) a higher frequency of negative experiences across the life span as notified in the TAQ (see Figure 1). Compared to patients without PTSD, those with PTSD had experienced significantly more neglect in early childhood ($F(1,19) = 6.4$, $p < .05$) and emotional abuse in middle childhood ($F(1,19) = 4.7$, $p < .05$);

d) higher rates of comorbid symptoms of anxiety and depression (Figure 2). More patients with current PTSD, as opposed to those without, displayed scores above the cutoff of 1.75 on the HSCL-anxiety scale ($\chi^2 = 7.81$, $p < .01$), the HSCL-depression scale ($\chi^2 = 11.04$, $p < .001$), and the HSCL-emotional distress scale ($\chi^2 = 11.04$, $p < .001$). PTSD frequently occurred together with depression, as indicated by a high number of PTSD subjects with BDI score above a cutoff of 10 ($\chi^2 = 6.48$, $p < .05$; respective differences between patients with and without lifetime

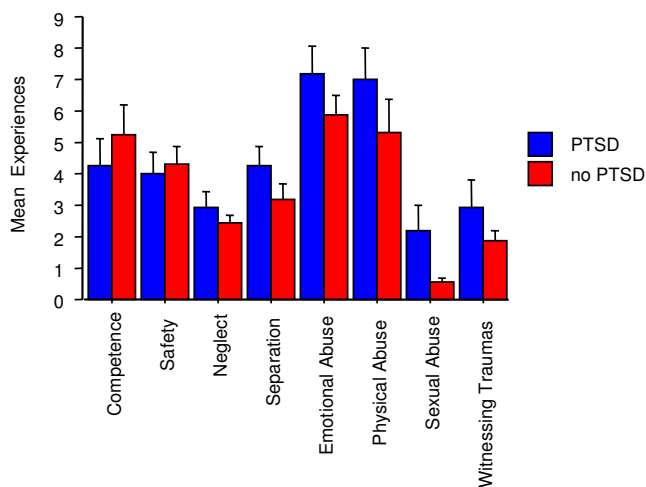


Figure 1
Average number of experiences separately for the 11 domains assessed by the TAQ and separately for patients with (blue) and without (red bars) current PTSD.

PTSD were $\chi^2 = 8.76$ (anxiety), 11.50 (depression), 11.50 (emotional distress), and 10.53 (BDI), all $p < .01$.

In the German sample, TAQ-reports of experiences across the life span were reliable, as indicated by the re-test correlation of $r = .80$ ($p < .01$) for the total score. Across developmental periods the correlation coefficients were higher for more severe events (emotional, physical abuse, other traumas, alcohol and drug abuse: $r = .85-.88$, $p < .05$), with the highest reliability found for witnessing trauma ($r = .95$, $p < .01$). In contrast, reliability of reports of sexual abuse and neglect during the early developmental periods failed to reach significance ($r = .32$ to $.77$).

Characteristics of subjects with and without PTSD did not differ between the German and the Sudanese samples, and PTSD diagnosis did not vary with the cultural setting.

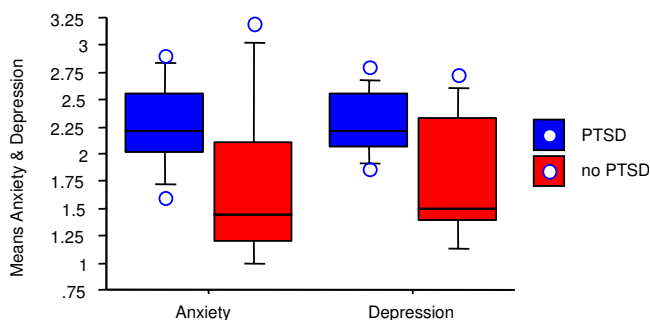


Figure 2
Box plot of average HSCL-25 scores of anxiety and depression in patients with (blue) and without (red) current PTSD.

Only a few variables distinguished German men from Sudanese men: German subjects, for instance, reported more traumatic events than Sudanese subjects ($t(23) = 2.5$, $p < .05$), along with more safety and competence experiences during childhood and adolescence ($p < .05$). Physical abuse and secrets during childhood were reported more often by Sudanese than by Germans ($p < .05$).

Discussion

Without exception, forensic patients in the present study reported exposure to at least one traumatic event serious enough to potentially lead to PTSD. This is in line with previous reports of higher rates of PTSD in forensic patients compared to the general population or compared to prison inmates [17-20] Also in line with previous reports, abuse (physical, sexual, emotional) was a prominent experience [30,11,12,31], which was frequently reported for childhood and early adolescence. The present findings may add to the notion of Rivera and Widom [32,15,33] that childhood victimization may favor trauma-spectrum disorders and also further later criminal behavior. However, it must be kept in mind that ours and basically all available data are only correlational and thus allow equally well alternative causal relationships. For instance, it could be that early signs of conductive disorder or delinquent behavior in a child may favor physical abuse and neglect. A viscous circle, whereby both processes would reinforce each other is also possible.

Traumatic experiences have devastating consequences: Relative to the prevalence of PTSD in the respective countries ([34] for a German sample, [35] for different Sudanese populations), and in prison inmates (<29%, [19,35,9]), the findings of 39% for current PTSD (39%) and 55% for lifetime seems alarmingly high. It has been shown (in other populations, [36,37]), that the likelihood of PTSD increases with increasing exposure to traumatic experiences (described as a "building block effect"). For forensic patients, we might assume that the multiple experiences of potentially traumatic events across the life span increase the risk for the development PTSD, potentially also for the development of a personality disorder, which is often found in forensic patients and which is often reported as comorbid diagnosis of a PTSD [26,38].

Subjects suffered substantially from anxiety, depression, and emotional distress, with comorbid symptoms being more pronounced in the present sample than in inmates of other studies, e.g. [39,40,25,41,12]. This result asks for particular attention for the severity of the disorder in forensic patients – with therapeutic implications, and for a clarification of the network of traumatic experiences and their consequences across the life span in larger samples and ideally prospective or longitudinal approaches.

Table 1: Mean number (M ± SD in brackets) of life events according to the 11 TAQ categories, separately for four developmental periods (early childhood: 0–6 years of age; middle childhood: 7–12 years, adolescence: 13–18 years, adulthood: 19 years and older) and separately for patients with (top lines, 'yes:') and without current PTSD (lower lines: 'no'). Significant differences are marked by * (p < .05)

	0–6 yrs	7–12 yrs	13–18 yrs	(>19) yrs
Competence	yes: 0.69(.70)	1.32(1.1)	1.32(.87)	1.14(1.1)
	no: 1.29(.94)	1.42(.97)	1.50(.98)	1.46(.96)
Safety	yes: 0.87(.57)	0.94(.80)	1.24(.88)	1.06(.47)
	no: 1.26(.67)	1.17(.54)	1.22(.61)	0.94(.31)
Neglect	yes: 0.98(.45)*	1.07(.51)	1.09(.72)	1.18(.52)
	no: 0.57(.30)	0.87(.35)	1.13(.30)	1.36(.64)
Separation	yes: 0.25(.35)	1.07(.81)	1.16(.81)	1.79(.93)
	no: 0.33(.49)	0.58(.66)	0.96(.84)	1.58(.92)
Secrets	yes: 0.56(.50)	1.35(.91)	1.41(1.0)	1.27(1.1)
	no: 0.85(.83)	1.08(.63)	1.46(.63)	1.54(.69)
Emotional abuse	yes: 0.98(.72)	1.34(.58)*	1.80(.74)	1.42(.69)
	no: 0.72(.59)	0.88(.43)	1.42(.63)	1.45(.51)
Physical abuse	yes: 0.50(.59)	1.09(.88)	1.51(1.14)	1.45(.88)
	no: 0.28(.45)	0.81(.93)	1.47(1.01)	1.19(.88)
Sexual abuse	yes: 0.42(1.0)	0.57(.92)	0.86(1.1)	0.43(.75)
	no: 0.00(.00)	0.21(.38)	0.33(.53)	0.04(.10)
Other trauma	yes: 0.183(.242)	0.36(.27)	0.71(.55)	1.11(.49)
	no: 0.27(.41)	0.24(.30)	0.49(.52)	1.24(.66)
Witnessing	yes: 0.56(.52)	0.79(.73)	0.94(.96)	0.82(.87)
	no: 0.26(.31)	0.51(.38)	0.67(.46)	0.58(.50)
Alcohol/drug abuse	yes: 0.19(.53)	0.50(.71)	1.04(.99)	1.18(1.1)
	no: 0.08(.28)	0.29(.54)	1.21(.99)	1.00(.98)

The present results are based on retrospective self-report, limiting the power of conclusions. There has been considerable controversy about the validity of information obtained from retrospective self-reports of childhood traumata and experiences, e.g. [14,24,42-47]. Retrospective reports particularly suffer from distortion and loss of information associated with the recollection of events from a prior time period, especially those from the distant past [48,49]. On the other hand, Brewin and colleagues [50] concluded that there is little reason to link psychiatric pathology with less reliable or less valid recall of life experiences. And indeed, the test-retest reliability of the present TAQ data was high. Given that it is unlikely, that patients remembered correct assignment of events to the different developmental periods, had they just made up the data, it seems that these reflect the subjective truth.

Differences between the German and the Sudanese subsamples were small, given the common assumption of notable cultural differences in psychopathological symptoms. This suggests once more a general impact of traumatic experiences on mental health and negligible cultural modulations of the impact of negative childhood and traumatic experiences.

Conclusion

The present results emphasize, but also suggest further investigation of the consequences of early exposure to traumatic experiences: it remains to be investigated, how personality and PTSD relate to criminal behavior, ultimately leading to a forensic status. Many mental health workers and professionals acknowledge the severe mental disorder (including comorbid depression and anxiety) in forensic patients in treatment and rehabilitation. Early detection of traumatic experiences may be among the prerequisites to prevent the development of trauma-spectrum disorders and its behavioral and clinical consequences.

Abbreviations

DSM: Diagnostic and Statistical Manual of Mental Disorders [51]

PTSD: Posttraumatic Stress Disorder

SCID: semi-structured Clinical Interview for the DSM-IV

TAQ: Traumatic antecedent questionnaire

HSCL: Hopkins symptoms checklist

BDI: Beck depression inventory

Declaration of competing interests

The author(s) declare that they have no competing interests.

Authors' contributions

SG was responsible for recruitment and assessment of the Sudanese sample and participated in the data collection in the German sample, MS, FN, TE, and BR designed the study and supervised data collection and analysis, ES assisted in data collection of the German sample, TK and KH recruited patients of the German sample and had medical responsibility of the study, BR and TE supervised data analyses and wrote the article.

Acknowledgements

The study was supported by the Deutsche Forschungsgemeinschaft

References

- Amir M, Kaplan Z, Kotler M: **Type of trauma, severity of post-traumatic stress disorder, and associated features.** *J Gen Psychol* 1996, **123**:341-351.
- Basoglu M, Paker M, Ozmen E, Tasdemir O, Sahin D: **Factors related to long-term traumatic stress responses in survivors of torture in Turkey.** *JAMA* 1994, **272**:357-363.
- Joseph S, Dagleish T, Williams R, Yule W, Trasher S, Hodgkinson P: **Attitudes towards emotional expression and posttraumatic stress in survivors of the Herald of Free Enterprise disaster.** *Br J Clin Psychol* 1997, **35**:133-138.
- Resnick HS, Kilpatrick DG, Dansky BS, Saunders BE, Best CL: **Prevalence of civilian trauma and posttraumatic stress disorder in a representative national sample of women.** *J Consult Clin Psychol* 1993, **61**:984-991.
- Byrne CA, Riggs DS: **The cycle of trauma; relationship aggression in male Vietnam veterans with symptoms of posttraumatic stress disorder.** *Violence Vict* 1996, **11**:213-225.
- Begic D, Jokic-Begic N: **Aggressive behavior in combat veterans with post-traumatic stress disorder.** *Mil Med* 2001, **166**:671-676.
- Vreugdenhil C, Vermeiren R, Wouters LFM, Doreleijers TAH, van den Brink W: **Psychotic symptoms among male adolescent detainees in the Netherlands.** *Schizophrenia Bulletin* 2004, **30**:73-86.
- Steiner H, Garcia IG, Mathews Z: **'Post-traumatic Stress Disorder in Incarcerated Juvenile Delinquents.'** *Journal of the American Academy of Child and Adolescent Psychiatry* 1997, **36**:357-365.
- Powell TA, Holt JC, Fondacaro KM: **The prevalence of mental illness among inmates in a rural state.** *Journal of Law and Human Behavior* 1997, **21**:427-438.
- Cauffman E, Feldman SS, Waterman J, Steiner H: **Post-traumatic Stress Disorder among Female Juvenile Offenders.** *Journal of the American Academy of Child and Adolescent Psychiatry* 1998, **37**:1209-1216.
- Fondacaro KM, Holt JC, Powell TA: **Psychological impact of childhood sexual abuse on male inmates: The importance of perception.** *Child Abuse and Neglect* 1999, **23**:361-369.
- Gibson LE, Holt JC, Fondacaro KM, Tang TS, Powell TA, Turbitt EL: **An Examination of Antecedent Traumas and Psychiatric Comorbidity Among Male Inmates with PTSD.** *Journal of Traumatic Stress* 1999, **12**:473-484.
- Abram KM, Teplin LA, Charles DR, Longworth SL, McClelland GM, Dulcan MK: **Posttraumatic stress disorder and trauma in youth in juvenile detention.** *Arch Gen Psychiatry* 2004, **61**:403-410.
- Widom CS: **Does violence beget violence? A critical examination of the literature.** *Psychological Bulletin* 1989, **106**:3-28.
- Widom CP, Ames MA: **'Criminal Consequences of Childhood Sexual Victimization.'** *Child Abuse and Neglect* 1994, **18**:303-318.
- Edunits DW, Scott CL, Yarvis RM, Paizis CL, Panizzon MS: **Impulsiveness, impulsive aggression, personality disorder, and spousal violence.** *Violence Vict* 2003, **18**:3-14.
- Stone MH: **Early traumatic factors in the lives of serial murderers.** *American Journal of Psychiatry* 1994, **151**:5-26.
- Lewis DO, Yeager CA, Swica CA, Pincus JH, Lewis M: **Objective documentation of child abuse and dissociation in 12 murderers with dissociative identity disorder.** *American Journal of Psychiatry* 1997, **154**:1703-1710.
- Timmerman IG, Emmelkamp PM: **The relationship between traumatic experiences, dissociation, and borderline personality pathology among male forensic patients and prisoners.** *Journal of Personality Disorders* 2001, **15**:136-149.
- Spitzer C, Dudeck M, Liss H, Orlob S, Gillner M, Freyberg H: **Post-traumatic stress disorder in forensic inpatients.** *The Journal of Forensic Psychiatry* 2001, **12**:63-77.
- Van der Kolk BA, Perry JC, Herman JL: **Childhood origins of self-destructive behavior.** *American Journal of Psychiatry* 1991, **148**:1665-1671.
- Van der Kolk BA, Pelcovitz D, Roth S, Mandel FS, McFarlane A, Herman JL: **Dissociation, somatisation and affect dysregulation: The complexity of adaptation to trauma.** *American Journal of Psychiatry* 1996, **153**:83-93.
- Van der Kolk BA: *Bessel van der Kolk's Psychological Trauma Assessment Package* The Trauma Center/Arbour Health System; 2001.
- Herman J, Schatzow E: **Recovery and verification of memories of childhood sexual trauma.** *Psychoanalytic Psychologist* 1987, **4**:1-14.
- Herman H, McGorry P, Mills J, Singh B: **Hidden severe psychiatric morbidity in sentenced prisoners: An Australian study.** *American Journal of Psychiatry* 1991, **148**:236-239.
- Herman JL, Perry JC, Van der Kolk BA: **Childhood trauma in borderline personality disorder.** *American Journal of Psychiatry* 1998, **146**:490-495.
- Mollica RF, Wyshak G, de Marneffe D, et al.: **Indochinese versions of the Hopkins Symptoms Checklist-25: a screening instrument for the psychiatric care of refugees.** *American Journal of Psychiatry* 1987, **144**:497-500.
- Beck A, Unit C, Mendelson M, et al.: **An inventory for measuring depression.** *Archives of General Psychiatry* 1961, **4**:561-571.
- Karunakara U, Neuner F, Schauer M, Singh K, Hill K, Elbert T, Burnham G: **Traumatic events and symptoms of post-traumatic stress disorder amongst Sudanese nationals, refugees and Ugandan nationals in the West Nile.** *African Health Sciences* 2004, **4**(2):83-93.
- Week R, Widom CS: **Self reports of early childhood victimization among incarcerated adult male felons.** *Journal of Interpersonal Violence* 1998, **13**:346-361.
- Dutton DG, Hart SD: **Evidence for long-term, specific effects of childhood abuse and neglect on criminal behavior in men.** *International Journal of Offender Therapy and Comparative Criminology* 1994, **36**:129-137.
- Rivera B, Widom CS: **Childhood victimization and violent offending.** *Violence and Victims* 1990, **5**:19-35.
- Adshad G: **'Damage: Trauma and Violence in A Sample of Women Referred to a Forensic Service.'** *Behavioral Science and the Law* 1994, **12**:235-249.
- Perkonig A, Lieb R, Hofler M, Schuster P, Sonntag H, Wittchen HU: **Traumatic events and posttraumatic stress disorder in a community: prevalence, risk factors and comorbidity.** *Acta Psychiatr Scand* 2000, **101**:46-78.
- Collins JJ, Baila SL: **Traumatic Stress Disorder and Violent Behavior.** *Journal of Traumatic Stress* 1990, **3**:203-220.
- Neuner F, Schauer M, Karunakara U, Klaschik C, Robert C, Elbert T: **Psychological trauma and evidence for enhanced vulnerability for PTSD through previous trauma in West Nile refugees.** *BMC Psychiatry* 2004, **4**(1):34.
- Schauer M, Neuner F, Karunakara U, Klaschik C, Robert C, Elbert T: **PTSD and the "building block" effect of psychological trauma among West Nile Africans.** *ESTSS (European Society for Traumatic Stress Studies) Bulletin* 2003, **10**:5-6.
- Putkonen A, Kotilainen I, Joyal CC, Tiihonen J: **Comorbid personality disorders and substance use disorders in mentally ill homicide offenders: A structured clinical study on dual and triple diagnoses.** *Schizophrenia Bulletin* 2004, **30**:59-72.
- Neighbors HW, Williams DH, Gunning TS, Lipscomb WD, Broman C, Lepowski J: *The Prevalence of Mental Disorder in Michigan Prisons* Final Report submitted to the Michigan Department of Corrections; 1987.

40. Chiles JA, Von Cleve E, Jemelka RP, Trupin EW: **Substance abuse and psychiatric disorder in prison inmates**. *Hospital and Community Psychiatry* 1990, **41**:1132-1134.
41. Motiuk LL, Porporino FJ: *The prevalence, nature and severity of mental health problems among federal male inmates in Canadian penitentiaries* Ottawa: Correctional Services of Canada; 1991.
42. Berliner L, Williams LM: **Memories of child sexual abuse: Response to Lindsay and Read**. *Applied Cognitive Psychology* 1994, **8**:379-387.
43. Briere J, Conte J: **Self-reported amnesia for abuse in adults molested as children**. *Journal of Traumatic Stress* 1993, **6**:21-31.
44. Della Femina D, Yeager CA, Lewis DO: **Child abuse: Adolescent records versus adult recall**. *Child Abuse and Neglect* 1990, **14**:227-231.
45. Kruttschnitt C, Dornfeld M: **Why they tell?**. *Journal of Research in Crime and Delinquency* 1992, **29**:136-147.
46. Loftus E: **The reality of repressed memories**. *American Psychologist* 1993, **48**:518-537.
47. Williams LM: **Recall of childhood trauma: A prospective study of women's memories of child sexual abuse**. *Journal of Consulting and Clinical Psychology* 1994, **62**:1167-1176.
48. Squire LR: **On the course of forgetting in very long-term memory**. *Journal of experimental Psychology Learning, Memory, and Cognition* 1989, **15**:241-245.
49. Bradburn NM, Rips LJ, Shevell SK: **Answering autobiographical questions: The impact of memory and inference on surveys**. *Science* 1987, **236**:157-161.
50. Brewin CR, Andrews B, Gotlib IH: **Psychopathology and early experiences. A reappraisal of retrospective reports**. *Psychological Bulletin* 1993, **113**:82-98.
51. American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* 4th edition. Washington, DC: APA; 1994.

Publish with **BioMed Central** and every scientist can read your work free of charge

"BioMed Central will be the most significant development for disseminating the results of biomedical research in our lifetime."

Sir Paul Nurse, Cancer Research UK

Your research papers will be:

- available free of charge to the entire biomedical community
- peer reviewed and published immediately upon acceptance
- cited in PubMed and archived on PubMed Central
- yours — you keep the copyright

Submit your manuscript here:
http://www.biomedcentral.com/info/publishing_adv.asp

