Commentary: Trauma and Female Inmates: Why Is Witnessing More Traumatic?

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The study of female inmates by Warren *et al*. is essential research concerning the characteristics of trauma and the symptoms of trauma associated with full PTSD. This commentary explores their surprising finding that a high number of female inmates who have experienced multiple and severe traumas report that witnessing is traumatic and that, in a high percentage, it is associated with full PTSD. The commentary proposes a connection between the ultimate finding of Warren *et al*. that the number of traumas predicts full PTSD and links witnessing to symptoms of intrusion and arousal via memory formation in individuals with a high incidence of lifetime trauma, because of their increased sensitivity.

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The diagnosis posttraumatic stress disorder (PTSD), especially within the context of forensic psychiatric evaluations involving civil litigation or criminal cases, tends to provoke a collective shudder in expert witnesses, because of the myriad of potentially confounding factors in defining PTSD. These factors include the diagnostic criteria (especially the definition of trauma as defined in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR)[1] Criterion A1); the symptom presentation criteria; the associated psychopathology including coexisting mood, substance disorders, and personality disorders; and, finally, problems related to malingering. Although much debate and controversy surround these difficulties, Warren *et al*.[2] accomplished a detailed and elegant study further advancing our understanding of trauma and its association with both full PTSD diagnosis and the subclinical presentation of trauma-related psychiatric symptoms in women. They studied a population known to experience high levels of traumatic life events: female inmates in a maximum security prison. This population was not involved in adjudications, as all the women were postconviction and were not involved in civil litigation. Their status provided an opportunity to build on the diagnostic debates surrounding the PTSD diagnosis due to the lower likelihood of the interference of exaggeration or fabrication. The study participants all had experienced at least one traumatic event that met Criterion A1 for PTSD, and nearly all answered the DSM-IV Personality Disorders Screen (SCID-II Screen) indicating symptoms suggestive of at least one personality disorder. The authors' goal was to explore the individual and symptomatic factors that differentiated the full PTSD diagnosis from within a group of women who experienced high lifetime levels of trauma.

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Symptoms Cluster Around Two Factors: Intrusion and Arousal

Warren *et al*.[2] accomplished the laudable goal of describing salient symptoms that best identify PTSD in women who have experienced trauma. Logistic regression analysis found five salient symptoms that correctly classified each woman with 86 percent accuracy. Of those diagnosed with PTSD, 96.1 percent reported at least three of five symptoms, whereas only 35 percent of the non-PTSD group reported three of the five symptoms. However, all reported at least two symptoms. The authors concluded that PTSD is a diagnosis on a continuum of trauma-related symptoms, with those exposed to a greater number of traumas demonstrating more symptoms that meet

the criteria for full PTSD. These symptoms indicate intrusive memories and the psychological and physiological arousal that accompanies this struggle. Warren and colleagues did not find indications of the three-factor symptom clusters embedded in DSM-IV (re-experiencing, avoidance, and arousal), and there was no one particular symptom exclusive to PTSD. Instead, they found more support for the two factors: intrusion and arousal.

While the study by Warren *et al.*[2] confirmed findings of previous studies, such as the association of PTSD with borderline personality disorder[3] (BPD), many outcomes of their study were surprising and counter to previous findings regarding women with PTSD and even counterintuitive to what mental health and legal professionals would be likely to predict regarding the inciting trauma and the study participants' behavior and substance abuse. Behaviors included the similarity between the groups regarding criminal history of violent offenses and similar violent infractions within the institution. Regarding substance abuse, no differences in alcohol and drug dependence diagnoses were found between the two groups, although the PTSD group reported more symptoms of alcohol dependence. Given these similarities between the two groups, it is likely that the existence of personality disorder symptoms in all of the study participants (their baseline criminal behavior, and substance abuse) had a greater influence on the study participants' behavior than did PTSD. This said, one wonders what influence their lifetime traumas and the associated trauma symptoms (even if subclinical) had on all these factors, even though the two groups cannot be differentiated statistically with regard to violent behavior, when they are grouped according to the PTSD diagnosis. Of interest, those with PTSD showed fewer rule-violation infractions, despite the PTSD inmates' scoring significantly higher on the Spielberger Trait Anger subscale.

PTSD and Borderline Personality Disorder

The study data confirmed prior work demonstrating an association between women with PTSD and borderline personality disorder (BPD). But no relationship to PTSD was found with other symptoms of personality disorders except for avoidant behavior related to avoidant personality disorder. Of interest, there were not enough women with a negative screen for symptoms of at least one personality disorder to have a control group free of personality pathology. While childhood trauma is associated with BPD,[4] this study did not demonstrate an increased association between childhood sexual and physical abuse and full PTSD, as both the PTSD and non-PTSD groups reported nearly equal proportions of early abuse. The study group's data demonstrate an association between BPD and PTSD and the specific trauma symptom of amnesia, which was otherwise an infrequently reported symptom. Given the association in the literature between BPD and early childhood neglect and abuse, the finding of no association between early childhood abuse and PTSD may be interpreted through the authors' ultimate conclusion that the number of traumas correlates best with full PTSD. Since early childhood abuse was present in both groups, its contribution toward PTSD may be one of an elevated background risk for both BPD and full PTSD. As the number of lifetime traumas accumulates, the risk for PTSD increases. Of course, the development of PTSD may also be related to premorbid personality disturbances. As the authors noted, it is the emotional dysregulation and affective instability that characterize BPD and a range of symptoms that define PTSD. The interaction of PTSD and BPD presents the forensic expert with a delicate quandary when these diagnoses coexist within the context of a legal dispute and an opinion regarding causation is required. This debate frequently involves the impact of the offending trauma versus a long-standing personality maladjustment.

DSM-IV PTSD Criterion A1: Defining Trauma

Often, a difficult aspect of diagnosing PTSD within the forensic setting is determining whether a trauma fits the definition set forth in the DSM-IV Criterion A1: "the person experienced, witnessed or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others" (Ref. 1, p 467). It is not unusual for the forensic expert to be confronted with a disputed diagnosis of PTSD, where many psychiatric symptoms are endorsed, as can be done easily in a self-report format, but the inciting traumatic event does not clearly meet the DSM-IV definition. Currently in discussion for the DSM-V's definition of trauma associated with PTSD in Criterion A1 is the question of whether "confronted with" should be included with "witness

or experience." The DSM-IV PTSD diagnostic Criterion A1 in its present form will likely be redefined according to Spitzer and colleagues.[5] (Robert Spitzer was one of the original authors of the first PTSD diagnosis in the Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM-III).) With regard to defining the trauma in Criterion A1, Spitzer *et al*. describe the words, "witness, experience or confronted" as "modes" of experiencing actual or threatened death. According to them, "confronted with" is problematic, as it is vague enough to include hearing the news of a traumatic event as in an indirect report. They suggest eliminating "confronted with" and adding the qualifier "directly" to experience, to return to the original intent of the PTSD diagnosis as a reaction to an experienced trauma, even if the experience is witnessing. It may be even more helpful to clinicians, expert witnesses, and legal decision-makers if more descriptions of "witness" are included in the DSM-V, since witnessing trauma is accepted as being associated with symptoms of mental distress and PTSD.

In High Numbers, Study Population Reported That Witnessing Is Traumatic

The study participants in Warren *et al*. reported experiencing a surprisingly high number of "witnessing or experiencing harm to others" while also experiencing many other traumas that clearly met DSM-IV Criterion A1. A telephone discussion with the study's primary author (Warren JI, Professor of Psychiatry and Neurobehavioral Sciences, University of Virginia, May 2009) further described the phrase used in this study, "experience of harm to others." Warren *et al*. described "experience of harm to others" as a more intense experience than witnessing, in that the study participant would have been somehow involved in the traumatic event but without being the recipient of the trauma, such as in a domestic or parental abuse situation. They list "sudden death of friend/relative" and "terrible event of friend/relative" under "harm to other." Understandably, the sudden death of a friend or relative can be a traumatic loss that does not necessarily involve actual witnessing or being present at the death. However, the "terrible event of friend/relative" may be interpreted as learning of or hearing about as described by Spitzer *et al*.[5] While further clarification by the authors may assist with understanding this specific question about the study concerning "experiencing harm to others," their overall results about witnessing warrants discussion and interpretation. From the sample in Warren *et al*., 188 of the total 201 reported witnessing or experiencing harm to others, and more than half (54%) of them rated this as their worst trauma; more than half (54%) of those met full PTSD criteria. This finding is startling given the types of trauma and number of traumatic events experienced in the full study group. Although three-quarters of the incarcerated women had had extensive exposure to violent victimization, such as being shot, stabbed, or mugged, only 13 percent judged these traumas to be their worst. On the opposite spectrum were trauma types of natural disaster, serious accident, and life-threatening illness, which were reported in low numbers and judged as the worst trauma in the lowest percentages by those with PTSD.

Incarcerated Women Differ From General Population Surveyed Regarding Witnessing

The data in Warren *et al*. differ substantially from those obtained in a general population survey, the National Comorbidity Survey (NCS),[6] regarding the trauma of witnessing reported by women with PTSD. Less than five percent of the NCS women with PTSD rated witnessing as their only or most distressing trauma. A stark difference exists between frequency of witnessing as a trauma by women in this general population survey versus that of the study population of incarcerated women in Warren *et al*. While the two studies were conducted very differently, both still found that sexual victimization was reported in high numbers by women, and it was rated as the worst trauma in about one-third of those women reporting sexual trauma. Regarding witnessing as trauma in the general population survey (NCS), a gender difference was found. Twenty-four percent of men with PTSD reported witnessing as trauma (second to combat), a much higher rate than the five percent of women with PTSD. But within the population of incarcerated women in Warren *et al*., witnessing trauma was also associated with PTSD in a high percentage of instances, similar to the 25 percent reported by men in the general population survey. Although the exact percentages cannot be directly compared due to differences in the studies' design, this is a noteworthy finding of Warren *et al*., with implications for further studies and further understanding of trauma associated with full PTSD.

Warren and colleagues hypothesized that the incarcerated women's experiencing witnessing as traumatic and highly associated with full PTSD may be a phenomenon related to the sex of the individual. General population studies have found that women experience PTSD in higher numbers overall than do men,[7] indicating that a person's sex is likely to affect the development of PTSD in ways not yet fully understood. Yet, the similarity of the rate of incarcerated women with PTSD in Warren *et al*. to the NCS men with PTSD may have uncovered information about the specific trauma of witnessing. One factor common to both studies is that both experienced higher occurrences of trauma than did the general population of women in the NCS.

Kessler *et al*.[6] explained the NCS results that showed that women had higher rates of PTSD, while men experienced higher instances of trauma, as being due to rape and sexual molestation, which are high-impact traumas and are experienced in higher numbers by women who are also more vulnerable to PTSD, thus combining to explain why women experienced PTSD at higher rates than do men.

While this result explains the association of sexual victimization to PTSD, it does not address the finding in Warren *et al*. that the incarcerated women more often reported witnessing trauma, and that, despite many other high-impact traumas, a higher percentage of women found witnessing to be the worst trauma.

Witnessing Is More Traumatic for Individuals Who Have Experienced Multiple Traumas

The experience of witnessing as a significant PTSD-associated trauma with high impact may be specific to individuals, men or women, who have experienced multiple antecedent traumas. Witnessing may relate to full PTSD symptoms caused by a heightened sensitivity of the hypothalamic-pituitary-adrenal (HPA) axis, as has been hypothesized in a study demonstrating changes to glucocorticoid signaling in patients with PTSD.[8] The lower urinary and plasma cortisol levels found in studies of patients with PTSD is thought to be due to enhanced negative feedback caused by cortisol's effect of increasing glucocorticoid receptor sensitivity. The psychological and physiological symptoms of intrusion and arousal were found in Warren *et al*. to be those factors associated with both partial and full PTSD. Intrusion is dependent on memories and recall of trauma. Witnessing may have more impact on individuals who have experienced multiple traumatic events, because of the related memory formation and recall. That is, witnessing or the experiencing of others' trauma may involve more vivid memory formation in individuals with heightened HPA axis sensitivity and thus increase the potential for more intrusion and the subsequent response of increased arousal to intrusive memory. This more vivid memory would also explain why amnesia was the least endorsed symptom by both groups of study participants in Warren *et al*. Amnesia may represent a symptom particular to the PTSD group with borderline personality disorder, because of the specifically higher propensity for dissociation than for the other study participants.

The NCS found that men actually experienced a greater number of traumas than did the women in the general population. The high number of traumatic events occurring in men as discussed by Kessler *et al*.[6] may account for the similarity between the incarcerated women and the general population of men with regard to witnessed trauma. The incarcerated women's lifestyles and economic factors most likely put them at risk of more traumatic experiences overall. Witnessing trauma by these women and the NCS men may create more vivid memories, because of their increased vulnerability resulting from the physiologic effects of repeated traumatic experiences. The study population in Warren *et al*. had similar demographics between the two groups of women, including minority status and economic factors, making the connection between the high number of traumas to the effects of witnessing as a trauma less encumbered by other factors and easier to explore as a specific trauma. Witnessing trauma is a different physical experience for the witness than for the victim of the trauma. The biological defense mechanisms that accompany physical trauma, such as changes in levels of consciousness and pain-associated endorphin release, are not available to witnesses of trauma. Thus, witnessing trauma without the intervention of other biological defenses that affect the victim supports the development of intense memories in those who are already sensitized by having experienced multiple previous traumas. A witness to trauma is subject to feelings of helplessness and self-recriminatory guilt about the witness' actions or lack of actions, especially as the trauma is reviewed

through vivid recall. Thus, the study population of highly traumatized women who reported witnessing as most distressing is likely to resemble men with PTSD in the NCS, who reported with a high frequency that witnessing was their most distressing trauma, because of both populations' having experienced more traumas. This finding is consistent with the finding of Warren *et al*. that PTSD was associated with the high number of trauma events, not the severity of the traumas. Further studies of witnessing traumas may reveal more information about trauma symptoms; in particular, intrusion and arousal. More knowledge about memory formation and even the accuracy of those memories and their association with distressing symptoms may come from understanding the experience of witnessing trauma by individuals who have had multiple traumatic events.

Proposed Adjustments to DSM-V May Clarify Diagnostic Controversy

Although witnessing is a trauma defined by DSM-IV Criterion A1 for PTSD, it is not necessarily recognized as a disabling condition in occupational settings, as is discussed by Weiss and Farrell[9] concerning railway drivers. The United States Supreme Court decision in *Consolidated Rail Corp. v. Gottshall*[10] found that railroad drivers who experienced work-related psychological trauma in the absence of imminent direct physical impact are not entitled to relief from their employers. More information concerning the experience of witnessing trauma may help alleviate the disparity between the recognition of witnessing as a trauma associated with full PTSD symptoms by the mental health community but not as a compensable work-related condition per the Federal Employer's Liability Act (FELA). It may be helpful for clinicians and forensic experts to understand that the impact of witnessing trauma is likely to be more distressing for individuals who have experienced multiple traumas. The witnessing experience may have more impact on individuals who are sensitized to trauma through enhancing memory formation; thus, intrusive and vivid recall is more likely. Since experiencing multiple traumas appears to correlate with full PTSD, a statement that exposure to multiple traumatic experiences increases the likelihood of full PTSD should be considered as an adjustment to the diagnostic characteristics of PTSD in the forthcoming DSM-V. Also, an inclusion of quality descriptors in Criterion A1 may be helpful for more accurate definitions of the trauma described as "witness" and the "confronted with" experience. One idea is to borrow some descriptors concerning the experience of witnessing trauma from *Dillon v. Legg*,[11] a 1968 case in which the California Supreme Court ruled in favor of awarding damages to a bystander for mental distress experienced after witnessing a trauma. *Dillon* set standards for a bystander action for damages: close relationship to the injured, close proximity to the scene, sensory and contemporaneous observation.[11] It may be helpful if the authors of DSM-V consider descriptors of witnessing for inclusion in Criterion A1, using the themes delineated in *Dillon* but not necessarily requiring "close relationship to injured" for a witness, although this may be helpful as a descriptor for "confronted with." The study population with PTSD in Warren *et al*. described witnessing as seeing serious injury to or death of another, without the descriptor of close relationship. A close relationship was part of their "harm to other" category; "sudden death of friend/relative," and "terrible event of friend/relative" (Ref. 2, p 299).

The results in Warren *et al*. support the clinical observation that PTSD is a diagnosis of pathological reaction to trauma that occurs on a continuum ranging from what might be considered normal to more extreme. The diagnosis of PTSD did not have a trauma or symptom that was exclusive but, instead, as the numbers of traumas increased so did the symptoms and the association with full PTSD. This observation supports the adjustments to the forthcoming DSM-V proposed by Spitzer *et al*.[5] of setting symptom descriptors to the higher threshold necessary to meet the diagnosis of PTSD. They state that those "most familiar with the clinical diagnosis of PTSD might be in the best position to operationalize such thresholds and to consider how best to make the 'cut' between likely disorder and likely normality" (Ref. 5, p 238). They suggest setting the symptoms descriptor such as; "requiring recurrent and intrusive distressing recollections of the event 'of an intensity, frequency, and/or duration beyond that associated with the expectable emotional pain and lengthy working through of intensely negative life events' " (Ref. 5, p 237). The notion that trauma-related symptoms occur in all who experience trauma and that pathology occurs on the severe end of the spectrum is a familiar theme regarding PTSD.[12] Warren *et al*. have taken the mental health field closer to

understanding this relationship and have provided enlightening data for further study regarding those traumas and symptoms of trauma associated with full PTSD pathology.

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