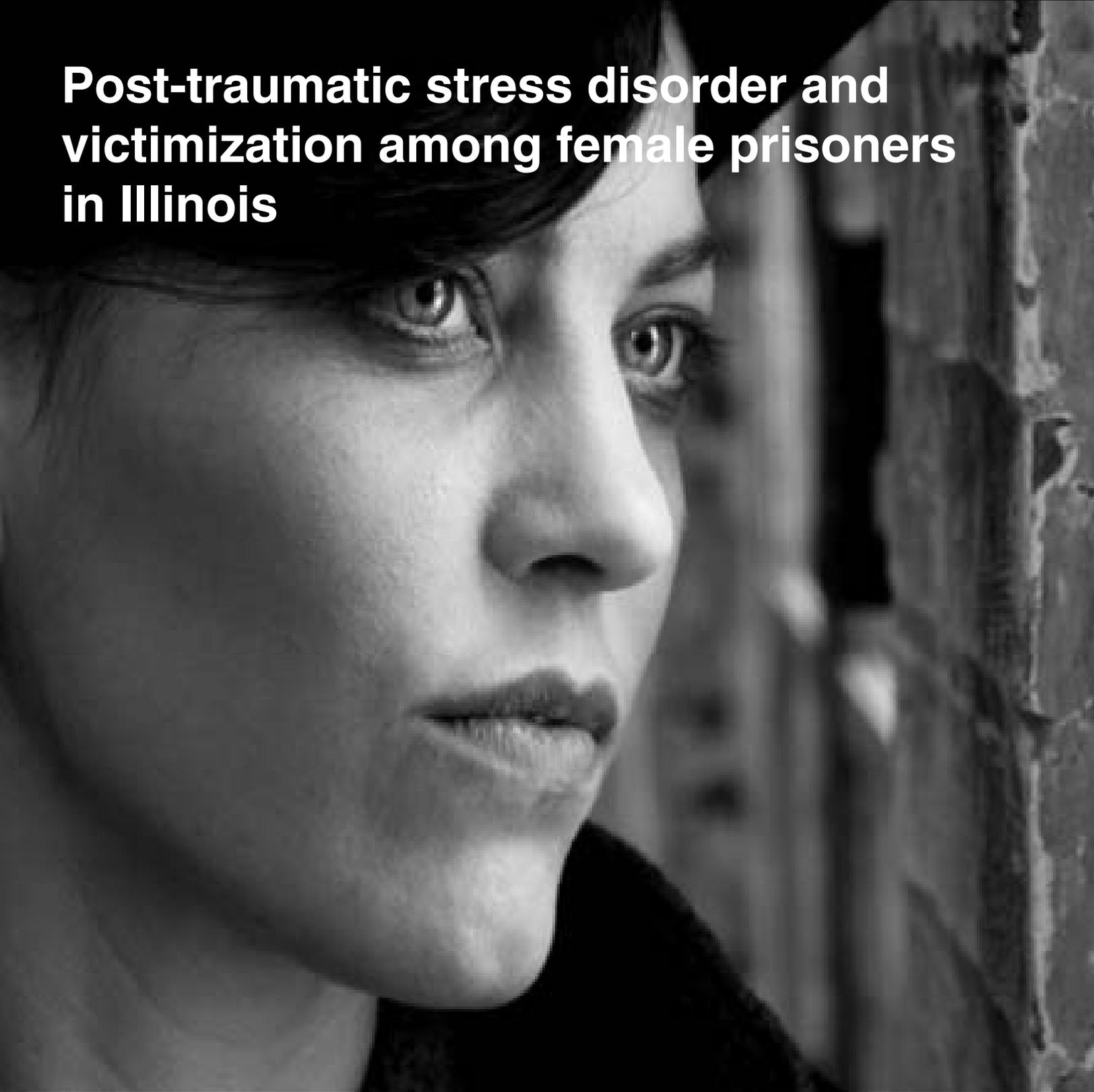




Post-traumatic stress disorder and victimization among female prisoners in Illinois



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Key findings

Post-traumatic stress disorder or PTSD is an anxiety disorder caused by a traumatic event. Below are some key findings learned from interviews with female prisoners in Illinois on prior abuse and PTSD symptoms.

- Eighty-three percent of the female prisoners in the sample were bothered by a PTSD symptom in the past month.
- Three-fourths of the sample were bothered in the past 30 days by the PTSD symptom of feeling very upset when something reminded them of a stressful past experience.
- Seventy-one percent of the sample were bothered by repeated, disturbing memories, thoughts, or images of a stressful experience from the past, and avoided thinking about or talking about a stressful past experience to avoid having feelings related to it.
- Sixty percent of the sample could potentially be diagnosed as having PTSD.
- About one-fourth of the sample experienced trauma symptoms in childhood; 41 percent as teenagers; and 84 percent in adulthood.
- More types of abuse and more severe abuse were associated with greater levels of PTSD symptoms.
- Those who experienced childhood sexual abuse, as well as those who experienced more types of abuse (physical and sexual) in childhood were more likely to have greater levels of PTSD symptoms.
- Those who experienced sexual abuse were more likely to have greater PTSD symptoms.
- Those who sought more types of help were more likely to have greater PTSD symptoms.

Overall, these findings indicate that many female prisoners have currently or previously experienced PTSD symptoms. Those who experienced any childhood abuse, more severe abuse, and sexual abuse may be more likely to experience PTSD or greater levels of PTSD. These findings indicate service needs for PTSD for female prisoners.

Introduction

This research study involved interviews with 163 randomly-selected female inmates in the general population at Illinois Department of Corrections' facilities. This is the second in a series of reports by the Illinois Criminal Justice Information Authority (Authority) on victimization among female prison inmates.

Prevalence of and types of prior victimization among study respondents was explored. Study participants were asked questions on prior victimization in their lives and symptoms of post-traumatic stress disorder (PTSD) were gauged with the PTSD Symptoms Checklist (PCL). This study shares the level and correlates of female inmate PTSD symptomology.

Participants' PTSD scores were then correlated with other factors:

- Demographics.
- Offense type and criminal histories.
- Sentence length.
- Prior abuse types (physical, sexual, and intimate partner emotional abuse).
- The number of prior abuse types.
- Specific prior abuse violations.
- Number of prior abuse violations.
- Severity of abuse.
- Drug and alcohol abuse.

The information presents a contextual picture of PTSD symptomology for female prison inmates, which can impact basic functioning, including the ability to prevent further criminal involvement, maintain a job, enjoy healthy relationships, and avoid abusing drugs and alcohol. This report offers support for the utilization of a standardized assessment of trauma for offender populations, as other studies have found that trauma scores significantly predict future criminal offending, as well as risky sexual behavior for adolescent females (Smith, Leve, & Chamberlain, 2006).

Literature review

What is PTSD?

PTSD is an anxiety disorder characterized by a traumatic stressor leaving one to continuously have negative thoughts about the experience. Symptoms often appear within three months after a traumatic event, but may be delayed months or even years (American Psychiatric Association, 2000). The severity, proximity, and duration of a person's exposure to the traumatic event are the best predictors for determining who is most likely to develop PTSD (American Psychiatric Association, 2000).

PTSD was first acknowledged as a mental illness in 1980, when it was included in the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM-III)*. The *DSM* is a handbook written by the American Psychiatric Association and used by mental health professionals to diagnosis mental illnesses. *Figure 1* shares the *Diagnosics and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR)* criteria for PTSD. Those who suffer from PTSD exhibit three types of symptoms (U.S. Department of Veteran's Affairs, 2009):

- Re-experiencing the traumatic event in their minds.
- Avoidance of situations that remind them of the traumatic experience and numbing of general feelings.
- Arousal of emotions resulting from exposure to situations that remind them of the traumatic experience.

In order to qualify for a formal diagnosis, the symptoms must persist for more than one month and cause significant distress or impairment in the individual's ability to function socially, occupationally, or domestically.

Prevalence of PTSD

While many experience trauma—about 40 to 90 percent of the general population—not all develop PTSD (Astur, St. Germain, Tolin, Ford, Russel, & Stevens, 2006). Studies have found lifetime prevalence for PTSD to range from 1 percent to 14 percent, depending on the population sampled and data collection methods (Astur et al., 2006; Kessler, Berglund, Demler, Jin, Merikangas, & Walters, 2005). Studies of at-risk individuals, such as combat veterans or victims of violent crime, have prevalence rates of PTSD ranging from 3 percent to 58 percent (Mental Health Today, 2010).

Early research focused on the occurrence of PTSD in war veterans, but it is now known that women and girls who have been abused also experience PTSD at an extremely high rate (Scott-Tilley, Tilton, & Sandel, 2010). One study found that males are more likely to experience trauma in their lives, but females are more likely to develop PTSD after experiencing trauma than men (Tolin & Foa, 2006). A household survey of adolescents found sexually assaulted girls had a lifetime PTSD rate of nearly 30 percent compared with only 7 percent of girls with no sexual assault history (Kilpatrick, D.G., Saunders, B.E., & Smith, D.W., 2003).

Figure 1 DSM-IV Criteria for Post-traumatic Stress Disorder

Criterion A. The person has been exposed to a traumatic event in which both of the following have been present:

- (1) 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.
- (2) The person's response involved intense fear, helplessness, or horror.

Criterion B. The traumatic event is persistently re-experienced in one (or more) of the following ways:

- (1) Recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions.
- (2) Recurrent distressing dreams of the event.
- (3) Acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur upon awakening or when intoxicated).
- (4) Intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.
- (5) Physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

Criterion C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:

- (1) Efforts to avoid thoughts, feelings, or conversations associated with the trauma.
- (2) Efforts to avoid activities, places, or people that arouse recollections of the trauma.
- (3) Inability to recall an important aspect of the trauma.
- (4) Markedly diminished interest or participation in significant activities.
- (5) Feeling of detachment or estrangement from others.
- (6) Restricted range of affect (e.g., unable to have loving feelings).
- (7) Sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span).

Criterion D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:

- (1) Difficulty falling or staying asleep.
- (2) Irritability or outbursts of anger.
- (3) Difficulty concentrating.
- (4) Hypervigilance.
- (5) Exaggerated startle response.

Criterion E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than one month.

Criterion F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

It is common for incarcerated women to have experienced abuse and subsequent PTSD (Moloney, van den Bergh, & Moller, 2009). In a study about female inmates and their history of traumatic experiences, 99 percent reported experiencing at least one traumatic event in their lives (Cook, Smith, Tusher, & Raiford, 2005). The study from which the data for this report is derived also sampled female inmates and supports the findings of Cook et al. with 99 percent of the

respondents indicating prior emotional, physical, or sexual abuse in their lives before incarceration (Reichert, Adams, & Bostwick, 2010). Other studies that have sampled female prisoners across the country reported between 60 and 85 percent had experienced prior victimization (Bloom, Chesney-Lind, & Owen, 1994; Browne, Miller, & Maguin, 1998; Lake, 1993).

In a study that addressed the prevalence of PTSD among female prisoners, 68 percent of incarcerated women had current or lifetime PTSD—48 percent had PTSD and 20 percent met the criteria at some other point in their lifetimes (Zlotnick, 1997). One study of females in a juvenile detention center found that 77 percent of them had been exposed to trauma and 33 percent had PTSD (Ariga, Uehara, Takeuchi, Ishige, Nakano, & Miluni, 2008).

Effects of trauma, PTSD

Trauma and subsequent PTSD may cause avoidance of situations or activities that remind victims of the original trauma which may interfere with interpersonal relationships, or lead to marital conflict, divorce, or loss of job (Mental Health Today, 2010). Other responses to trauma include feelings of ineffectiveness, shame, despair, or hopelessness; feeling permanently damaged; a loss of previously sustained beliefs, hostility; social withdrawal; feeling constantly threatened; impaired relationships with others; or a change from the individual's previous personality characteristics (Mental Health Today, 2010). Even victims who do not meet the criteria for a PTSD diagnosis share many characteristics with individuals who have a mental health issue, such as social isolation, paranoia, impulsive behavior, unstable relationships, and inappropriate or intense anger (Fletcher, Shaver, & Moon, 1993).

Trauma victims and those suffering from PTSD are at increased risk for additional mental and physical health problems. There is increased risk of panic disorder, agoraphobia, obsessive-compulsive disorder, social phobia, depression, somatization disorder, suicide, and substance-related disorders (Mental Health Today, 2010; Scott-Tilley, Tilton, & Sandel, 2010). Drug addiction is common because drugs are used as a coping mechanism and a form of self-medication (Young & Reviere, 2006). Physical problems associated with PTSD include impaired immune function, obesity, increased risk of diabetes, and increased severity of premenstrual symptoms (Scott-Tilley et al., 2010).

One study focusing on childhood trauma and health outcomes of females in prison found prior trauma was correlated with prostitution, eating-related problems, mental health issues, and alcohol problems (Messina & Grella, 2006). Another study that also sampled female prisons found childhood trauma was a risk factor for attempted suicide (Clements, Nolle, Wolden, & Bargmann-Losche, 2009). Furthermore, a review of the literature by Moloney, van den Burgh, and Moller (2009) found that trauma experienced by females in prison strongly influences offending behavior.

Methodology

This study involved interviews with inmates in the general population at three Illinois Department of Corrections (IDOC) facilities: Dwight (maximum security), Lincoln (medium security), and Decatur (minimum security). Researchers held structured, private, one-on-one interviews lasting 30 to 60 minutes in the participants' correctional facilities.

A total of 217 female inmates were randomly selected to be interviewed. Of them, 14 declined and 40 were either in segregation, receiving medical treatment, transferred to another facility, or released before the interview could take place. The final sample size was 163.

Overall, the study sample was representative of the female inmate population in IDOC. However, women committed to IDOC from areas outside Cook and collar counties (DuPage, Kane, Lake, McHenry, and Will) were slightly overrepresented. White females, women held in medium security facilities, and those with one child also were slightly overrepresented. To verify differences that existed between the study sample and the female inmate population, researchers used the two-tailed two-proportion z-test. This analysis confirmed the overall representativeness of the sample at $\alpha=0.05$.

The survey instrument structure was designed to obtain information on types of victimization experienced by the subjects, as well as onset, frequency, perpetrators, and duration. Physical and sexual abuse questions were selected from the Early Trauma Inventory (Bremner, 2009) and modified slightly to cover the entire life course.

Emotional abuse and stalking questions were adapted from the Chicago Women's Health Risk Study (Block, 2000). Questions also were asked about the services sought after victimization.

The Post-Traumatic Stress Disorder Symptoms Checklist (PCL) was used to gauge symptoms that indicate PTSD. The PCL is one of the most commonly used screening mechanisms for PTSD and has been found to be reliable and valid for screening purposes across numerous populations (U.S. Department of Veteran's Affairs, 2009).

Limitations

Participants may not report abuse due to the stigma of victimization and treatment, inability to recall incidents, and fear of disclosure. Further, even with adequate disclosure, the data on female inmate victimization may show an association, but not causation for PTSD. Individual women may experience many risk factors for PTSD in addition to victimization, such as incarceration, poverty, single motherhood, mental illness, and substance abuse. This makes it difficult to isolate the impact of prior abuse on PTSD.

An official PTSD diagnosis would require a more comprehensive diagnostic exam which most researchers are not qualified to administer. However, it is useful in the PCL to include a measure of symptoms normally associated with survivors of traumatic victimization. Additionally, subjects were not asked to describe symptoms over their entire life course, but only for the

month prior to the time of the interview, with an additional question to determine how far back the respondent could remember feeling symptoms. It is not possible to determine the root cause of reported symptoms with the PCL.

There are also limitations on the use of criminal history record information (CHRI). The state's Computerized Criminal History (CCH) System is driven by the submission and identification of an individual's fingerprints. Once a match to previously submitted prints is established by the computer, the associated demographic and criminal justice events are retrieved and collated into a criminal history transcript (rap sheet). However, this information for research purposes is limited to an off-line copy of the live database, accessed through a match of name and date of birth. Therefore, successful identification of a criminal history record through this connection is dependent upon the same name and date of birth being furnished by the individuals that has already been recorded in the state system.

Seven women in this study for whom CHRI could not be found may have provided the Illinois Department of Corrections with a different name than the one associated with their arrest records. In addition, some individuals may not be fingerprinted during the course of their arrest (such as if they were hospitalized due to injuries from the event). Without fingerprints, either no official state criminal history record is created or only an incomplete record is available. Finally, other records may be missing due to data errors that caused the information to be improperly processed.

A final limitation is that, due to the already small sample and the exploratory nature of the research, the survey was not piloted and there are no metrics on the construct validity of the PCL instrument. However, the instrument was reviewed by a team of experts in the field of study, so the survey has face and content validity. Additionally, many questions used in the interviews included existing surveys, which have high validity, such as the ETI and the PCL.

Characteristics of sample

Demographics

The average age of the women in the sample was 36 years old. About half of the women in the sample were white (48 percent) and 43 percent were black. Seven percent stated that their race was "*Other*" and one was unknown.

More than half of the sample were never married (53 percent), and 20 percent were married at the time of the interview. The average age at time of first marriage was 20 years old. Many had at least one child (80 percent). The median age at time of having a first child was 18 years old.

Almost half had an education of less than a high school degree (44 percent). Twenty-six percent had a high school degree or GED, and 29 percent had an education beyond high school. Almost half were enrolled in an educational program at the prison at the time of the interview (48 percent).

At the time of incarceration, 58 percent of the women were employed full-time or part-time, 17 percent were unemployed, and the rest were students, homemakers, or categorized as "*Other*."

Thirty-eight percent made less than \$5,000 per year, 40 percent made between \$5,000 and \$30,000, and 17 percent made more than \$30,000. The range of income was \$0 to \$170,000.

Criminal history

Criminal histories were available for 96 percent (n=156) of the sample. These women had a combined 1,732 prior arrests and an average of 11 prior arrests. The average age at first arrest was 22.8 (SD = 7.56). Many of the women may have been arrested as juveniles, but juvenile records prior to 2000 were not available in the criminal history record information system.

Prior charges were placed into categories according to most serious charges. The women were most frequently charged with property offenses (average=6.48) followed by drug offenses (average=2.69) and crimes against a person (average=1.85). The women had an average of seven prior arrests for property offenses, an average of three arrests for drug offenses, and an average of two arrests for crimes against a person.

Lifetime victimization

The study's methodology included multiple questions on incidents that constitute abuse without asking participants to characterize themselves as victims of abuse, and utilized a life history calendar, both of which increase probability of accurate responses about abuse prevalence (Widom, Dutton, Czaja, & DuMont, 2005; Freedman, Thornton, Camburn, Alwin, & Young-Demarco, 1988; Hopper, 2010; Sayles, Belli, & Serrano, 2010). Almost all of the women interviewed experienced some type of emotional, physical, or sexual abuse in their lives (n=161) (99 percent). Almost all of the women prisoners interviewed for this study had experienced physical abuse in their lifetime (n=159) (98 percent). Eighty-five percent of the female inmates had experienced stalking or emotional abuse by an intimate partner in their lifetime (n=139) and 75 percent experienced some form of sexual abuse in their lifetime (n=123).

Findings

The PTSD Symptoms Checklist is a 17-item self-reported measure of PTSD symptoms identified by the *DSM-IV*. Respondents rated how much they were bothered by symptoms in the past month. Items were rated on a five-point scale—1 (not at all), 2 (a little bit), 3 (moderately), 4 (quite a bit), and 5 (extremely). The PCL can generate a total symptom severity score, which is referred to in this report as the *PTSD indicator score*. This score can be obtained by summing the scores from each of the 17 items.

Bothered by PTSD symptom

Eighty-three percent of the sample reported being bothered by a PTSD symptom in the past month (n=136). Three-fourths of the sample reported being bothered in the past 30 days by the PTSD symptom of feeling very upset when something reminded them of a stressful past experience (n=122). Seventy-one percent reported being bothered by repeated, disturbing memories, thoughts, or images of a stressful experience from the past, and the same percentage (71 percent) reported avoiding thinking about or talking about a stressful past experience to avoid having feelings related to it (n=116) (*Table 1*).

The PTSD symptom of feeling emotionally numb or unable to have loving feelings for those closest to them had the highest average PTSD indicator score—3.9 out of 5.0. The PTSD symptom of suddenly acting or feeling as if a stressful experience were happening again (as if they were reliving it) had the lowest average PTSD indicator score of 2.02.

Table 1 includes the number and percent of the sample who reported being bothered by PTSD symptoms in the past month, the number and percentage indicating a level of symptom severity, referred to as being “symptomatic,” as well as the mean PTSD indicator score. One individual was missing a PTSD indicator score, rendering a valid number of cases of 162.

Table 1
Women in sample bothered by PTSD symptoms and PTSD indicator score

	Bothered by symptom in past month		Symptomatic*		PTSD indicator score**
	N	%	N	%	Mean
PTSD symptoms					
Repeated, disturbing memories, thoughts, or images of a stressful experience from the past	116	71%	86	53%	2.86
Repeated, disturbing dreams of a stressful experience from the past	93	57%	66	40%	2.51
Suddenly acting or feeling as if a stressful experience were happening again (as if you were reliving it)	69	42%	45	28%	2.02
Feeling very upset when something reminded you of a stressful experience from the past	122	75%	91	56%	2.97
Having physical reactions (like heart pounding, trouble breathing, or sweating) when something reminded you of a stressful experience from the past	87	53%	55	34%	2.21
Avoid thinking about or talking about a stressful experience from the past or avoid having feelings related to it	116	71%	87	53%	2.85
Avoid activities or situations because they remind you of a stressful experience from the past	91	56%	70	43%	2.48
Trouble remembering important parts of a stressful experience from the past	81	50%	61	37%	2.39
Loss of interest in things that you used to enjoy	87	53%	67	41%	2.47
Feeling distant or cut off from other people	98	60%	80	49%	2.72
Feeling emotionally numb or being unable to have loving feelings for those close to you	81	50%	61	37%	3.88
Feeling as if your future will somehow be cut short	71	44%	51	31%	2.12
Trouble falling or staying asleep	77	47%	62	38%	2.36
Feeling irritable or having angry outbursts	87	53%	54	33%	2.18
Having difficulty concentrating	92	56%	69	42%	2.47
Being "super-alert" or watchful on guard	103	63%	93	57%	2.90
Feeling jumpy or easily startled	83	51%	61	37%	2.29
*Symptomatic means being bothered "moderately" to "extremely"					
**On a scale of 1 to 5 points.					

The mean PTSD indicator scores in this study of female prisoners can be compared with other studies that used the PCL on different populations. The mean PTSD indicator score in this study was higher than motor vehicle accident survivors, mothers of children with cancer or Type I

diabetes, and those who experienced the sudden unexpected death of a loved one. However, women in prison had a lower mean PTSD indicator score than women in prostitution and sexual assault survivors. *Table 2* compares PTSD indicator scores of these different populations and cites the studies reporting that data.

Table 2
Comparison of PTSD indicator scores

Study	Population	N	Mean PTSD indicator score	Standard deviation
ICJIA study	Women in prison	163	42.14	18.98
Farley, Baral, Kiremire, & Sezgin, 1998	Women in prostitution	130	54.9	17.8
Stoppelbein & Greening, 2007	Mothers of children with cancer or type I diabetes	99	33.48	15.04
Kelley, Weather, McDevitt-Murphy, Eakin & Flood, 2009	Motor vehicle accident survivors	162	31.6	11.2
Kelley, Weather, McDevitt-Murphy, Eakin & Flood, 2009	Sexual assault survivors	86	43.5	12.2
Kelley, Weather, McDevitt-Murphy, Eakin & Flood, 2009	Sudden unexpected death of a loved one	185	33.5	12.1

Potential PTSD diagnosis

As noted earlier, the degree to which symptoms bothered participants were rated on a five-point scale—1 (not at all), 2 (a little bit), 3 (moderately), 4 (quite a bit), and 5 (extremely). Response of 3 to 5 on the scale (moderately or above) are considered symptomatic. Respondents would need to meet the following criteria to be given a PTSD diagnosis according to the *DSM-IV*,

- Symptomatic response to at least 1 item, questions 1–5,
- Symptomatic response to at least 3 items, questions 6–12, and
- Symptomatic response to at least 2 items, questions 13–17.

Using the *DSM-IV* criteria, 60 percent of study respondents could potentially be diagnosed as having PTSD (n=97).

Study participants were asked how long they had experienced PTSD symptoms. The average age of onset of any trauma symptoms was 19.9 years old (median=18.0). About one-fourth, or 26 percent, reported experiencing some trauma symptoms in childhood (ages 0 to 12 years old); 41 percent experienced trauma in their teenage years (ages 13 to 17 years old); and 84 percent experienced trauma in adulthood (over age 18).

Characteristics at the time of the interview, including age, income, race, education, and marital status, were not correlated with PTSD indicator scores, indicating that demographic characteristics may not influence PTSD symptomology, a finding supported by other studies (Zlotnick, 1997). Further, introducing these characteristics into the other models in this study did

not provide any substantive information. As a result, these variables were not included in any additional analyses.

Abuse type and PTSD indicator scores

A prior study using a sample of treatment-seeking individuals found those who had been both physically and sexually abused were at greatest risk for PTSD (Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997). In addition, another study found child sexual abuse victims who were re-victimized as teens or adults had more symptoms of PTSD than women with a history of child sexual abuse alone (Arata, 2002).

Women in this study who reported experiencing more types of abuse (physical, sexual, intimate partner) were more likely to have higher PTSD indicator scores ($r_{pb} = 0.37, p < .01$). Additionally, those who experienced childhood sexual abuse were more likely to have higher PTSD indicator scores than those women who did not self-report this type of abuse ($r_{pb} = 0.36, p < .01$), a finding supported by other studies (Carey, Walker, Roosouw, Seedat, & Stein, 2008; McClean & Gallop, 2003; Schaaf & McCanne, 1998). Research on incarcerated women has consistently shown a strong link between childhood abuse and PTSD (Messina & Grella, 2006).

Higher PTSD indicator scores were moderately correlated with sexual abuse ($r_{pb} = 0.38, p < .01$). Ordinary least squares (OLS) regression analyses showed that when controlling for all other types of abuse, experiencing physical abuse or sexual abuse in childhood and experiencing sexual abuse in adolescence increased PTSD indicator scores, on average. *Table 3* provides a summary of the regression findings. Approximately 23.4 percent of the variance in PTSD indicator scores was explained by the types of abuse experienced by life stage (the age of the victim at the time of the abuse). Controlling for length of stay in prison and other individual characteristics, such as income and race, added no additional information to the model and were not included.

Table 3
Unstandardized coefficients and standard errors from ordinary least squares regression of abuse type and PTSD indicator scores

<i>Independent variables</i>	Coefficients			95% confidence interval	
	<i>Coeff.</i>	<i>SE</i>	<i>Sig.</i>	<i>Lower bound</i>	<i>Upper bound</i>
Intimate partner adolescence	1.681	3.234	0.604	-4.708	8.070
Intimate partner adult	-0.413	3.764	0.913	-7.849	7.022
Physical abuse childhood	8.692	3.182	0.007***	2.404	14.979
Physical abuse adolescence	-4.544	3.436	0.188	-11.333	2.244
Physical abuse adulthood	8.163	4.817	0.092	-1.354	17.680
Sexual abuse childhood	7.934	3.163	0.013**	1.685	14.183
Sexual abuse adolescence	8.582	2.929	0.004***	2.794	14.369
Sexual abuse adulthood	0.976	2.874	0.735	-4.702	6.654
Intercept	24.162	4.981	0.000	14.322	31.002
Valid number of cases	162				
R ² = 0.234, R ² (adj) = 0.194					
ANOVA results (F=5.839, p=0.000)					

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Bivariate explorations of experiencing abuse types (physical, sexual, and intimate partner emotional abuse) during the different life stages were significantly correlated with PTSD indicator scores. Experiencing more types of abuse in childhood had the strongest correlation ($r=0.4$, $p=0.000$), followed by adolescence ($r=0.25$, $p=0.001$), and adulthood ($r=0.165$, $p=0.018$). To further explore this relationship, an OLS regression model indicated that experiencing more types of abuse in childhood (sexual, physical) increased PTSD indicator scores by 7.8 points, on average, when controlling for the number of types of abuse experienced in adolescence and adulthood. However, when controlling for the number of abuse types experienced during the other life stages, the number of abuse types experienced in adolescence and adulthood provided no significant predictive power. *Table 4* provides a summary of the regression results. Approximately 18.5 percent of the variation in PTSD indicator scores were explained by the model, including the number of different types of abuse experienced during the different life stages.

Table 4
Unstandardized coefficients and standard errors from ordinary least squares regression of abuse types and PTSD indicator scores

<i>Independent variables</i>	Coefficients			95% confidence interval	
	<i>Coeff.</i>	<i>SE</i>	<i>Sig.</i>	<i>Lower bound</i>	<i>Upper bound</i>
# Abuse types in childhood	7.801	1.794	0.000***	4.257	11.345
# Abuse types in adolescence	1.829	1.483	0.219	-1.101	4.758
# Abuse types in adulthood	2.733	1.634	0.096	-0.495	5.961
Intercept	25.020	4.184	0.000	16.757	33.283
Valid number of cases	162				
R ² = 0.185, R ² (adj) = 0.169					
ANOVA results (F=11.945, p=0.000)					

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

The number of total types of abuse experienced throughout the life course was positively correlated with PTSD indicator scores ($r=0.327$, $p=0.000$). OLS regression results showed that for each additional type of abuse experienced, the PTSD indicator scores increased 8.9 points, on average. *Table 5* provides a summary of the regression results. Approximately 10.7 percent of the variation in PTSD indicator scores was explained by the model including the number of types of abuse experienced throughout the life course.

Table 5
Unstandardized coefficients and standard errors from ordinary least squares regression of number of abuse types and PTSD indicator scores

<i>Independent variables</i>	Coefficients			95% confidence interval	
	<i>Coeff.</i>	<i>SE</i>	<i>Sig.</i>	<i>Lower bound</i>	<i>Upper bound</i>
Number of types of abuse	8.937	2.044	0.000***	4.900	12.974
Intercept	19.076	5.461	0.001	8.291	29.861
Valid number of cases	162				
R ² = 0.107; R ² (adj) = 0.101					
ANOVA results (F=19.110, p=0.000)					

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Abuse severity and PTSD indicator scores

Abuse severity scores were developed based on a sexual abuse severity score by Zink, Klesges, Stevens, and Decker (2008) and used in this study with permission. Severity of abuse was scored based on the following factors: age of onset, number of perpetrators, number of occurrences, and most severe abuse (outlined in the *Appendix*). The calculation of the severity score was altered slightly by eliminating the factor “Maximum coercion ever experienced.” A person could score from zero to 16 for severity for each type of abuse.

This study applied severity scores for both emotional and physical abuse in addition to sexual abuse. Chronbach’s alphas were calculated to determine the level of internal consistency (reliability) of the severity scales. All severity scales showed acceptable internal consistency, an alpha of higher than 0.70, as indicated in *Table 6*. While these analyses found acceptable scale reliability, further evaluation is warranted to determine if adaptations made from the original sexual abuse severity scale threatened the scale’s validity.

Table 6
Chronbach’s alpha coefficients for abuse severity scales

Abuse severity scale	α
Emotional abuse severity scale	0.88
Physical abuse severity scale	0.79
Sexual Abuse severity scale	0.88

Bivariate analyses showed abuse severity scores were positively correlated with PTSD indicator scores, indicating that more severe abuse may be related to greater levels of PTSD symptoms. Another study found PTSD symptoms of abused women were positively correlated with the severity of abuse the women experienced (Woods, 2000). Severity of physical abuse had the strongest correlation with PTSD indicator scores, although the relationship is only moderate ($r = 0.370$, $p=0.000$), followed by emotional abuse ($r=0.297$, $p=0.000$), and sexual abuse severity ($r=0.294$, $p=0.000$).

Table 7 indicates the correlations of abuse severity and PTSD indicator scores.

Table 7
Correlations of abuse severity and PTSD symptom scores (Pearson’s r)

Abuse severity score	PTSD indicator score
Emotional abuse severity score	0.30**
Physical abuse severity score	0.37**
Sexual Abuse severity score	0.29**

** Significant at $p<0.01$

OLS regression results indicate that abuse severities were significant predictors of PTSD indicator scores, explaining approximately 15 percent of the variation in PTSD scores ($F=60.065$, $p=0.001$; $R^2=0.147$). Additionally, when controlling for other types of abuse severity, intimate partner emotional abuse severity and sexual abuse severity increased PTSD scores, on average, by 1.9 and 0.94 points on the five point scale, respectively. *Table 8* provides a summary of the regression results for abuse severity and PTSD scores.

Table 8
Unstandardized coefficients and standard errors from ordinary least squares regression of abuse severity and PTSD indicator scores

<i>Independent variables</i>	Coefficients			95% confidence interval	
	<i>Coeff.</i>	<i>SE</i>	<i>Sig.</i>	<i>Lower bound</i>	<i>Upper bound</i>
Emotional abuse severity	1.892	0.778	0.017**	0.349	3.463
Physical abuse severity	0.778	0.581	0.184	-0.375	1.930
Sexual abuse severity	0.939	0.433	0.032**	0.082	1.797
Intercept	12.563	8.345	0.135	-3.982	29.108
Valid number of cases	162				
$R^2 = 0.147$; $R^2(\text{adj}) = 0.122$					
ANOVA results ($F=6.065$, $p=0.001$)					

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Crime and PTSD indicator scores

The Authority’s Criminal History Record Information (CHRI) Ad Hoc datasets provided the criminal history records of the women interviewed. These data were derived from records in the Illinois State Police’s Computerized Criminal History (CCH) system, the state’s central repository for criminal history record information. Using the women’s names and dates of birth, it was possible to retrieve the history of arrests and convictions in an electronic format for all but seven women (96 percent, $n=156$). Exploration of a link between criminal history and PTSD indicator scores did not yield any significant findings.

Help seeking and PTSD indicator scores

In a national household study of females, informal help seeking (from a relative or friend) and formal help seeking (from a professional) were associated with past-year diagnoses of PTSD (Lewis, Resnick, Ruggiero, Smith, Kilpatrick, Best, & Saunders, 2005).

Table 9 provides a summary of the regression results of the number of types of help sought and PTSD indicator scores from this analysis. The types of help or service sought after incidents of violence included talking to friends, consulting an agency or counselor, seeking medical help, or

contacting the police. Those who sought more types of help were more likely to have higher PTSD indicator scores than those who sought fewer types of help or no help. There was a moderate correlation between PTSD and seeking more types of help ($r_{pb} = 0.33, p < .01$). OLS regression results indicated that there was no significant relation between the type of help sought and PTSD indicator scores, however, the PTSD indicator scores were significantly predictive of the number of types of help sought and explained approximately 10 percent of the variation in the number of types of help sought.

Table 9
Unstandardized coefficients and standard errors from ordinary least squares regression of PTSD indicator scores and number of types of help sought

<i>Independent variables</i>	Coefficients			95% confidence interval	
	<i>Coeff.</i>	<i>SE</i>	<i>Sig.</i>	<i>Lower bound</i>	<i>Upper bound</i>
PTSD indicator scores	0.025	0.006	0.000**	0.013	0.037
Intercept	1.508	0.279	0.000	0.956	2.059
Valid number of cases	162				
R ² = 0.097; R ² (adj) = 0.091					
ANOVA results (F=17.100, p=0.000)					

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Conclusion

Post-traumatic stress disorder is prevalent among the female inmate population. Eighty-three percent of the sample reported being bothered by a PTSD symptom in the past month (n=136), and 60 percent of the women could potentially be diagnosed as having PTSD (n=97). Higher levels of PTSD severity are correlated with multiple types of prior abuse, severity of abuse, and child sexual abuse.

Other studies support these findings, particularly related to the implications of child sexual abuse. Specifically, among those sexually abused as children, the prevalence of lifetime psychiatric disorders was higher than among those who did not report sexual abuse (Molnar, Buka, & Kessle, 2001; Adams, 2010). Traumatic events experienced in childhood affect brain development in children including logic and reason leading to lifelong mental health issues including PTSD (Adams, 2010). Adult survivors of child sexual abuse report poorer social and interpersonal relationship functioning, dysfunction, and maladjustment, including high-risk sexual behavior, and a greater tendency toward re-victimization through adult sexual assault and physical partner violence (Polusny & Follette, 1995). Further, experiencing physical abuse in childhood and experiencing more types of abuse in childhood increased PTSD indicator scores, on average. Similarly, those who experienced sexual abuse in adolescence, more types of abuse, and more severe sexual and intimate partner emotional abuse were more likely to have higher PTSD indicator scores, on average.

It should become common practice for correctional systems to recognize and treat female prisoners who have experienced trauma (Moloney & Moller, 2009). PTSD can affect daily functioning, interpersonal relationships, and employment, and are likely contributors to criminal behavior. Typically, survivors of violence and abuse need long-term therapy to learn coping mechanisms, identify triggers, manage stress, learn situation avoidance, and obtain appropriate medications (U.S. Department of Veteran's Affairs, 2010). Women who have been out of abusive relationships for years can continue to experience PTSD symptoms (Woods, 2000).

Salina, et al., maintains, "since incarcerated settings have high rates of detainees with substance abuse and mental disorders, they are an ideal place to interrupt this destructive cycle," (Salina, Lesondak, Razzano, & Weilbaecher, 2007, p. 221). However, there are deficiencies in types and availability of correctional programs and services, particularly in services that meet the unique needs of females (Brennan & Austin, 1997). Correctional and post-release services are needed to address the unique issues, concerns, and needs of women, which includes those that stem from abuse and victimization in their lives. Since the majority of female offenders are trauma survivors, it is important for the corrections system to prevent the infliction of additional trauma. The experience of entering into the criminal justice system can be traumatic due to its invasive security measures and authoritative handling of prisoners (Covington, 1998; Adams, 2010). In order to address the vicious cycle of abuse and criminality, appropriate assessment for trauma and PTSD symptoms should be a required part of correctional intake, and service delivery and community re-entry efforts should become a priority.

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Appendix

Factors contributing to lifetime physical, sexual, and intimate partner emotional abuse severity scores	
Factor	Points allocated
Age of onset	
0-4	7
5-6	6
7-8	5
9-10	4
11-12	3
13-14	2
15-16	1
17+	0
Number of perpetrators	
0-1	0
2+	1
Number of occurrences of abuse	
1	0
2	1
3	2
4-9	3
10+	4
Additional factors contributing to lifetime physical abuse severity score	
Most severe abuse ever experienced	
Burned, choked or strangled, cut or stabbed, shot	4
Slapped, punched or kicked, hit or spanked with an object, hit with an object thrown, pushed or shoved, tied up or locked up, threatened to be shot or stabbed	2
Witnessed anyone slapped, punched, choked, beaten, shot, or stabbed	0
Additional factors contributing to lifetime sexual abuse severity score	
Most severe abuse ever experienced	
Attempted forced intercourse, forced intercourse, forced or coerced to perform oral sex, forced oral sex performed on victim	4
Genitals rubbed on victim by force, forced or coerced kiss, forced or coerced to touch person on private body part, touched on private body part	2
Person flashed or exposed sexual parts, spied on while bathing or dressing, forced or coerced to watch sex acts	0
Additional factors contributing to lifetime intimate partner emotional abuse severity score	
Most severe abuse ever experienced	
Felt unsafe in intimate partner relationship, felt no control over own life in intimate relationship	4
Intimate partner showed up when no business being there, partner vandalized or destroyed property	2
Followed or spied on by partner, received unwanted phone calls by intimate partner	0
<p>Note: Adapted from Zink, T., Klesges, L., Stevens, S., & Decker, P. (2008). The development of a sexual abuse severity score: Characteristics of childhood sexual abuse associated with trauma symptomatology, somatization, and alcohol abuse. <i>Journal of Interpersonal Violence, 24</i>(3), 537-546.</p>	