

Age, Cumulative Trauma and Stressful Life Events, and Post-traumatic Stress Symptoms Among Older Adults in Prison: Do Subjective Impressions Matter?

Tina Maschi, PhD, LCSW, ACSW*¹, Keith Morgen, Ph D, LPC, NCC,²
Kristen Zgoba, PhD,³ Deborah Courtney, MSW,¹ and Jennifer Ristow, MSW¹

¹Fordham University Graduate School of Social Service, New York, New York.

²Centenary College, Hackettstown, New Jersey.

³New Jersey Department of Corrections, Trenton, New Jersey.

*Address correspondence to Tina Maschi, PhD, LCSW, ACSW, Fordham University Graduate School of Social Service, New York, NY 10023.
E-mail: tmaschi@fordham.edu

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Background: The aging prison population in the United States presents a significant public health challenge with high rates of trauma and mental health issues that the correctional system alone is ill-prepared to address. The purpose of this study was to examine the relationship of age, objective, and subjective measures of trauma and stressful life events and post-traumatic stress symptoms among older adults in prison. **Methods:** Data were gathered from 334 prisoners (aged 55+) housed in the New Jersey Department of Corrections, as of September 2010. An anonymous self-report, self-administered survey was mailed to the total population of 1,000 prisoners aged 55 years and older. Objective and subjective trauma was measured using the Life Stressors Checklist-Revised (LSC-R), and post-traumatic stress symptoms were measured using the Civilian Version of the Post-traumatic Stress Scale. **Findings:** Results of a path analysis revealed that past year subjective impressions of traumatic and stressful life events had a positive and significant relationship to current post-traumatic stress symptoms. Age was found to have a significant and inverse relationship to subjective traumatic and stressful life events. That is, younger participants reported higher levels of cumulative traumatic and stressful life events and past

year subjective ratings of being bothered by these past events. **Implications:** These findings have significance for interdisciplinary/interprofessional practice and appropriate institutional and community care, including reentry planning of older adults in the criminal justice system.

Key Words: Trauma, Older adults, Prisoners, Exposure to violence, Criminal justice system, Post-traumatic stress disorders, Elderly offenders, Older prisoners, Older criminals

In 2007, about 10% of 2.3 million United States prisoners were aged 55 years and older (Sabol & Couture, 2008). The aging prisoner population, which is five times larger than in 1990, presents a significant public health challenge that the correctional system is not adequately equipped to address (Aday, 2003). The high prevalence of trauma and stress and associated psychological distress are of particular concern (Krause, 2004). Studies have shown that upwards of 93% of juvenile and adult prisoners had prior exposure to trauma (e.g., being a victim of and/or witness to violence) and stressful life events (e.g., parental divorce and foster care placement) (Harlow, 1999). About 65% reported

post-traumatic stress symptoms, such as reexperiencing the event, avoidance and numbing, and increased anxiety and emotional arousal (Abram et al., 2007).

Research on how older prisoners process trauma and stressful life events across the life course is uncharted territory. Studies using community samples of older adults suggest that the accumulation of life course trauma and stressful life events can increase the risk of adverse emotional, psychological, and behavioral responses, including post-traumatic stress symptoms (e.g., Yehuda et al., 1995). There is a dearth of research that examines older adult prisoners' life course accumulation of trauma and stressful life events and their current subjective impressions and associated psychiatric symptoms.

The lack of research on trauma and stressful life events among older prisoners is a significant oversight that needs to be rectified. Older prisoners are at a higher risk for injury, victimization, declining health, and dying in prison, compared with their younger counterparts (Dawes, 2009). If exposure to cumulative trauma and stressful life events continues to be left unidentified and unaddressed, unresolved subjective distress about these events may increase the persistence or resurfacing of post-traumatic stress symptoms (Coleman, 1999). This study contributes to the literature by examining the intersection of age, lifetime occurrences of traumatic and stressful life events, and later life subjective impression (or distress) and/or post-traumatic stress symptoms among older prisoners. Understanding how the cumulative influence of age and life course traumatic and stressful life events are related to stress symptoms among older prisoners has significance for interdisciplinary and interprofessional practice and policy. The information garnered from this study can be used to develop appropriate services and policies for institutional and community care, including reentry planning for older adults in the criminal justice system.

Review of the Literature

Theory

Theoretical perspectives, such as the as the life course perspective, stress process theories, and cumulative disadvantage theories, can be used to examine the influence of age, life course trauma and stressful life events, and post-traumatic stress symptoms among older prisoners. The life course perspective emphasizes how personal and historical

significant life events, social relationships, and age act as critical factors that influence individual development and later life outcomes, including mental health (Elder, 2003). Integrating the life course and stress process theories can explain how subjective distress may exacerbate the impact of traumatic and stressful life events, including the persistence or resurfacing of post-traumatic stress symptoms across the life course (Pearlin et al., 2005). Age also may act as a protective factor because individuals' subjective experiences of past-trauma and stressful life events often change over the life course. For example, over time, individuals may develop more resilient responses, such as cognitive and emotional coping resources, including intellectual and emotional maturity (Janoff-Bulman, 1992).

Similarly, cumulative advantage/disadvantage theory examines the life course cumulative impact of trauma and stressful life events, such as violent victimization, poverty, financial strain, and poor health and asserts that these events may have a life course cumulative effect on individuals overall well-being (Sampson & Laub, 2003). Coping resources, such as adaptive emotional and cognitive coping, may act as protective factors. Janoff-Bulman (1992) refers to a healing process that commonly occurs among trauma survivors, such as the reinterpretation of trauma in a positive light, which may help reduce the resurfacing of later-life post-traumatic stress symptoms. In the case of some older prisoners, it is plausible that the accumulation of adverse traumatic and stressful experiences contributed to their disadvantaged position, especially if they continued to carry unresolved subjective distress about these events (Pearlin et al., 2005).

Empirical Evidence

Consistent with these theories, empirical research on community samples of older adults shows that the accumulation of traumatic and stressful life events heightens the risk of adverse consequences, including life course mental health symptoms (Krause et al., 2004). These experiences (singular or cumulative) may occur as early as childhood and the consequences may unfold differently across the life course (Shmotkin & Litwin, 2009). Childhood traumatic events may cause ongoing or intermittent psychological distress or mental health consequences and later life revictimization among survivors (Acierno et al., 2010).

When traumatic experience are marked by intensity, duration, and chronicity, such as a prolonged exposure combat, the likelihood of post-traumatic stress symptoms is increased and prolonged, including into older age (Neal et al., 1995). When an individual experiences trauma, their initial responses may be feeling of intense fear and helplessness. In later life, these subjective experiences may be triggered by later life traumatic or stressful life experiences, including widowhood (Hiskey et al., 2008).

Although there is a lack of studies on older prisoners, the culture of violence found within prison environments suggests that many older adults have witnessed prison violence (Maruschak, 2008). The study by Struckman-Johnson, Struckman-Johnson, Rucker, Bumby, and Donaldson (1996) of 1,800 prisoners at a Midwest state prison system found that 20% of prisoners had been pressured or forced to have unwanted sexual contact, including forced anal, vaginal, or oral intercourse and gang rape. Older prisoners are considered at the highest risk for victimization because of their decreasing ability to defend themselves against younger prisoners or staff (Dawes, 2009). Preliminary research in this area also has documented the presence of traumatic and stressful life events and mental health symptoms among older prisoners. In a review of case records, Haugebrook, Zgoba, Maschi, Morgen, and Brown (2010) found upward of 80% of older prisoners had documented histories of one or more traumatic or stressful life events that occurred during childhood and/or adulthood. About 20% had childhood physical and/or sexual assault histories and 36% of older prisoners had documented mental health issues.

Based on this review, the following hypotheses were tested: (H1) Age will have a significant and differential influence on cumulative “objective” traumatic and stressful life events and recent (past year) subjective impressions about these events. (H2) Cumulative “objective” traumatic and stressful life events and current (past year) “subjective” impressions of these events will significantly influence the (current) post-traumatic stress symptoms levels.

Methods

Research Design

This study, which used a cross-sectional correlation design, was conducted in September 2010 in the New Jersey Department of Corrections

(NJ DOC) and consisted of 344 English-speaking prisoners (aged 55 years and older). Of approximately 25,000 prisoners housed in the NJ DOC in January 2010, approximately 4% ($n = 1,000$) were aged 55 years and older. Information to create the sampling frame included the NJ DOC administrative records data for State Bureau of Identification number and age. The NJ DOC generated the sampling frame for the study with a list of names, so that invitations and anonymous surveys could be mailed to potential participants and return correspondence could be received.

A response rate of 45% was achieved. This estimate falls within the higher range of expected mail response rates, which are 20%–40% for prison populations (Hochstetler, Murphy, & Simons, 2004). The project was part of the Hartford Geriatric Social Work Faculty Scholars Program Award, which is funded by the Gerontological Society of America and the John A. Hartford Foundation. The study was approved by the Fordham University Institutional Review Board and met the standards for conducting research with a special population of older prisoners and on sensitive topics.

Data Collection

The Dillman, Smyth, and Christian (2009) method for mailed surveys was used to maximize response rates. Specifically, potential participants received: (a) a letter of invitation; (b) a packet with a cover letter, consent form, survey, and a self-addressed electronically stamped envelope 7 days later; and (b) two thank you cards and reminders sent 7 days apart that included an enclosed self-addressed envelope for participants to request a survey replacement.

Constructs and Study Measures

Traumatic and stressful life events were measured using the 31-item Life Stressor Checklist-Revised (LSC-R) (McHugo et al., 2005). The LSC-R estimates the frequency of lifetime and current traumatic events (being a victim of and/or witness to violence), which is consistent with Diagnostic Statistical Manual (DSM IV-TR) Criterion A for post-trauma stress symptoms (American Psychiatric Association [APA], 2000). It also accounts for stressful life events, such as losing a loved one, physical health problems, divorce, and financial problems. The LSC-R has good psychometric properties, including for use with diverse age groups and criminal justice populations.

The LSC-R enables the measurement of ‘objective’ cumulative trauma and stressful life events, which is defined in this study as whether or not one or more traumatic or stressful life events have occurred. Traumatic experiences are defined as those objective events that are consistent with *DSM IV-TR* Criterion A for post-traumatic stress disorder (PTSD) (APA, 2000). Objective measures for stressful life events refer to life course experiences, such as losing a loved one or a job, that tax the adaptive capacities of persons experiencing them but are generally not considered traumatic events. Participants had the option to endorse as to whether or not each of the 31 items events occurred (0 = *no*; 1 = *yes*). A summative score was created for objective trauma and stressful life events by adding the 31 items.

More specifically, the LSC-R also includes a subscale for participants’ “subjective” impressions of traumatic and stressful life events. For each of the individual traumatic and stressful life events experienced, participants were asked their current subjective impression of these events by rating each type of traumatic and stressful life events on the degree to which it was bothersome within this past year. Each item was measured using a 5-point Likert scale from 1 = *not at all* to 5 = *extremely*. A total score was calculated by adding participants’ past year subjective ratings related to each of the 31 possible objective traumatic and stressful life events that were experienced during the life course. Researchers have reported that the LSC-R has demonstrated good criterion-related validity for detecting traumatic and stressful life events among prisoners (McHugo et al., 2005). For example, one study of 2,729 women in which a test–retest sample was completed on a subset of 186 women who completed the measure on average 7 days later. Kappa’s range averaged .70 for different items (McHugo et al., 2005).

Post-traumatic Stress Symptoms.—Post-traumatic stress symptoms were measured with the PTSD Checklist (PCL) for civilian populations. Participants were given the more general instructions to assess “stressful experiences in the past” as opposed to one specific traumatic event (Weathers, Litz, Herman, Huska, & Keane, 1993). The PCL is a 17-item self-administered survey that measures three PTSD symptom clusters: (a) reexperiencing (5 items), (b) avoidance (7 items), and (c) increased arousal (5 items). It measures past month symptoms using a 5-point Likert scale that ranges from

not at all to *extremely*. Coefficient alpha for the scale has been shown to be as high as .91 with civilian populations and ex-prisoners of war (Piotrkowski & Brannen, 2002). The total number of PTSD symptoms was used because information was not available to make a determination of actual or probable PTSD, and this approach is suitable for stress research.

Analytic Method

The analysis was conducted in two steps. In Step 1, descriptive statistics were used to examine the sociodemographic characteristics and lifetime experiences of trauma and stressful life events. In Step 2, a series of path analyses were used to examine the relationship between participants’ age, objective trauma and stressful life events, and post-traumatic stress symptoms. Path analysis entails comparison of the hypothesized model to the data in an effort to see how well the model describes the data. Model analysis involves an examination of indices of model fit (e.g., does the model fit the data; Bollen, 1989). The most common fit index is the chi-square (a nonsignificant chi-square means an insignificant difference between model and data), but it comes with two weaknesses. First, models with large sample sizes almost always produce a significant chi-square. Second, the statistic is influenced by the model correlations, with larger correlations producing poor model fit. Therefore, other indices are recommended in a review of model fit (Kline, 1998). The comparative fit index (CFI; Bentler, 1990) is interpreted on a 0 to 1 scale, with any value between .90 and .95 representing acceptable model fit and values greater than or equal to .95 representing good model fit. The root mean square error of approximation (RMSEA; Browne & Cudeck, 1993) expressed per degree of freedom (making it sensitive to model complexity), with a good-fitting model producing a value less than or equal to .05 and any value between .05 and .10 producing adequate fit. A 90% confidence interval is calculated with the RMSEA.

Findings

Descriptive Analyses

Sample Description.—As shown in Table 1, the sample consisted of 334 older adult males (aged 55+) serving prison sentences in the NJ DOC in September 2010. The mean age of participants was 60.83 ($SD = 5.43$) and their race/ethnicity

Table 1. Sociodemographic Characteristics of Study Sample

Variable	Total (N = 334)	
	%	N
Race/Ethnicity		
White	42.9	142
African American	40.8	135
Hispanic/Latino	9.1	30
Other	7.3	24
Education		
No High School Diploma	10.3	34
HS Diploma	72.2	239
College Degree or Above	17.5	58
Military History	34.7	115
Marital Status		
Never Married	26.5	86
Married	12.9	42
Partnered–Not Married	8.3	27
Divorced	33.2	108
Separated	8.0	26
Widowed	10.2	33
Other	0.9	3
Family		
One or More Children	80.4	259
One or More Children <18	16.6	48
One or More Grandchildren	63.7	191
One or More Grandchildren <18	57.5	164
Incarcerated Family Member	41.3	136
Mental Health History		
Mental Health Diagnosis	27.3	90
Alcohol Problem	21.3	70
Drug Problem	35.9	118
Gambling Problem	9.4	31
Drugs at Time of Offense	35.2	113
Alcohol Time of Offense	25.3	81
Prison Mental Health Treatment	31.4	103
Prison Religious Participation	69.4	229
Offense History		
Delinquent Offense	37.8	123
Violent Offense	62.1	205
Sex Offense	29.0	95
Drug Offense	38.8	127
Violation of Probation	41.3	135
Parole Violation	37.6	124

consisted of White (43%), African-American (41%), Hispanic/Latino (9%), and other (7%). Only 10% reported no graduating high school or obtaining a GED. The majority (72%) reported having a high school diploma, in which 18% earned a college degree or higher. About one third reported having served in the military.

About 27% of participants reported having a mental health diagnosis and 36% reported a drug problem and being under the influence of a substance (alcohol or drugs) at the time of their current offense. The majority had serious offenses,

including violent (62%) and sex offenses (29%). The average time served was 156 months (or 13 years) with a range from 4 months to 42 years served. About 8% were sentenced to life in prison and over half were scheduled to be released from prison within 1 year (38%) or 2–5 years (26%). As for family, about 21% of participants reported currently being married or partnered. Most participants reported having children (80%), including under the age of 18 (17%) and grandchildren (58%). One fifth of participants reported having at least one incarcerated family member.

As shown in Table 2, many participants reported objective trauma and stressful life events and subjective impressions. About 61% of participants reported experiencing the sudden death of a loved one, 43% reported witnessing family violence before the age of 16. The most common victimization experiences reported by participants were physical assault (16%) and sexual assault (17%) that occurred before age 16. Participants reported the most frequent stressful life events as the death of a loved one that was expected (69%) and serving a prior prison term (63%).

Participants who experienced these events also reported their past year subjective impressions of ‘being bothered’ by them (See Table 2). In general, participants on average reported higher subjective scores with experiences of direct victimization (e.g., victim of physical or sexual assault) compared with indirect witnessing of events. As for stressful life events, participants reported higher levels of subjective distress in response to death of a loved one, prison stress, or family-related problems. Subjective responses to traumatic experiences, such as sexual touch age 16 years or older ($M = 3.8$) were rated about as high as some stressful life events, such as forced separation from child ($M = 3.7$).

Path Analysis

Path analyses were used to examine the relationship between age, cumulative “objective” and “subjective” trauma and stressful life events, and post-traumatic stress symptoms (See Figure 1). The base model allows for all the parameters (noted as A, B, C, D in Figure 1) to freely estimate. The standardized regression weight for each parameter (β -weight) reflects the relationship between the two variables of the parameter. For instance, a standardized regression weight of .75 means that as one variable goes up by 1 *SD*, the other variable

Table 2. Descriptive Statistics for the Occurrence of Trauma and Stressful Life Events and Mean Scores for Subjective Impressions of Recent (Past Year) and Stressful Life Events

Trauma and SLE	Objective trauma/SLE (occurrence–lifetime)		Subjective impression (degree bothered 1 = <i>not at all</i> to 5 = <i>extremely—past year</i>)	
	%	N	Mean	SD
Traumatic events				
1. Seen serious accident	62.9	207	2.2	1.5
2. Seen robbery, mugging, attacked	49.7	163	2.1	1.4
3. Had serious accident (self)	49.1	160	2.6	1.6
4. Been robbed, attacked, mugged	46.0	150	2.4	1.6
5. Seen family violence >age 16	42.5	138	2.9	1.6
6. Been in serious disaster (self)	36.3	118	2.3	1.5
7. Emotional abuse or neglect (self)	33.4	109	3.3	1.5
8. Physically attacked >age 16	33.0	107	2.9	1.6
9. Sexual touch >age 16	21.6	69	3.1	1.5
10. Been in combat or war	19.0	61	3.2	1.7
11. Physical neglect (self)	16.7	54	3.5	1.6
12. Sexual assault >age 16	17.1	55	3.3	1.5
13. Physically attacked <age 16	16.4	54	3.1	1.5
14. Sexual touch <age 16	8.0	26	3.8	1.4
15. Kidnapped, taken hostage, tortured	6.5	21	3.5	1.6
SLE				
16. Someone close died (not unexpectedly)	68.9	222	3.1	1.5
17. Prior jail term (self)	63.4	208	2.7	1.6
18. Unexpected death—someone close	61.2	200	3.1	1.5
19. Separation or divorce (self)	57.2	187	2.5	1.6
20. Experienced stress in prison	56.1	183	3.7	1.3
21. Serious money problems (self)	44.0	144	2.9	1.7
22. Serious physical illness (self)	42.0	139	3.4	1.6
23. Close family member in jail/prison	40.2	133	2.4	1.4
24. Ever lived in violent neighborhood	39.4	128	3.0	1.5
25. Parents separated or divorced	38.2	123	2.5	1.6
26. Forced separation from child (self)	27.8	88	3.7	1.4
27. Serious mental illness (self)	23.8	76	3.1	1.6
28. Caregiver of person serious illness	22.0	71	2.7	1.5
29. In foster care or adoption (self)	9.5	31	2.7	1.7
30. Sexual harassment	12.4	40	2.6	1.4
31. Had child with handicap	5.6	18	3.4	1.5

Note: SLE = stressful life events.

increases by 0.75 *SD*. A significant β -weight (similar to a regression) indicates a significant directional influence of one variable on another. See Bollen (1989) for a primer on path analysis and structural equation modeling.

In an effort to test the influence of the age, cumulative objective trauma and stressful life events, and past year subjective impressions on post-traumatic stress symptoms, each parameter (one at a time) was constrained to zero with the new model compared with the original. The change in the chi-square statistic measures if the revised model significantly erodes the original base model's fit to the data (as depicted by a significant

difference between the chi-square statistic of the original base and revised models. The revised model is only considered a viable alternative if model fit is not significantly eroded. This procedure—common in *SEM* (see Bollen, 1989)—permits for refinement of the theoretical model via establishing parameter by parameter the value of each model component. For example, a well-fitting model could have irrelevant components. Thus, each parameter is checked for model value.

Base Model.—The base model (with all parameters freely estimating; see Figure 2) adequately fit the data, $\chi^2 = 3.48$, $df = 1$, $p = .06$,

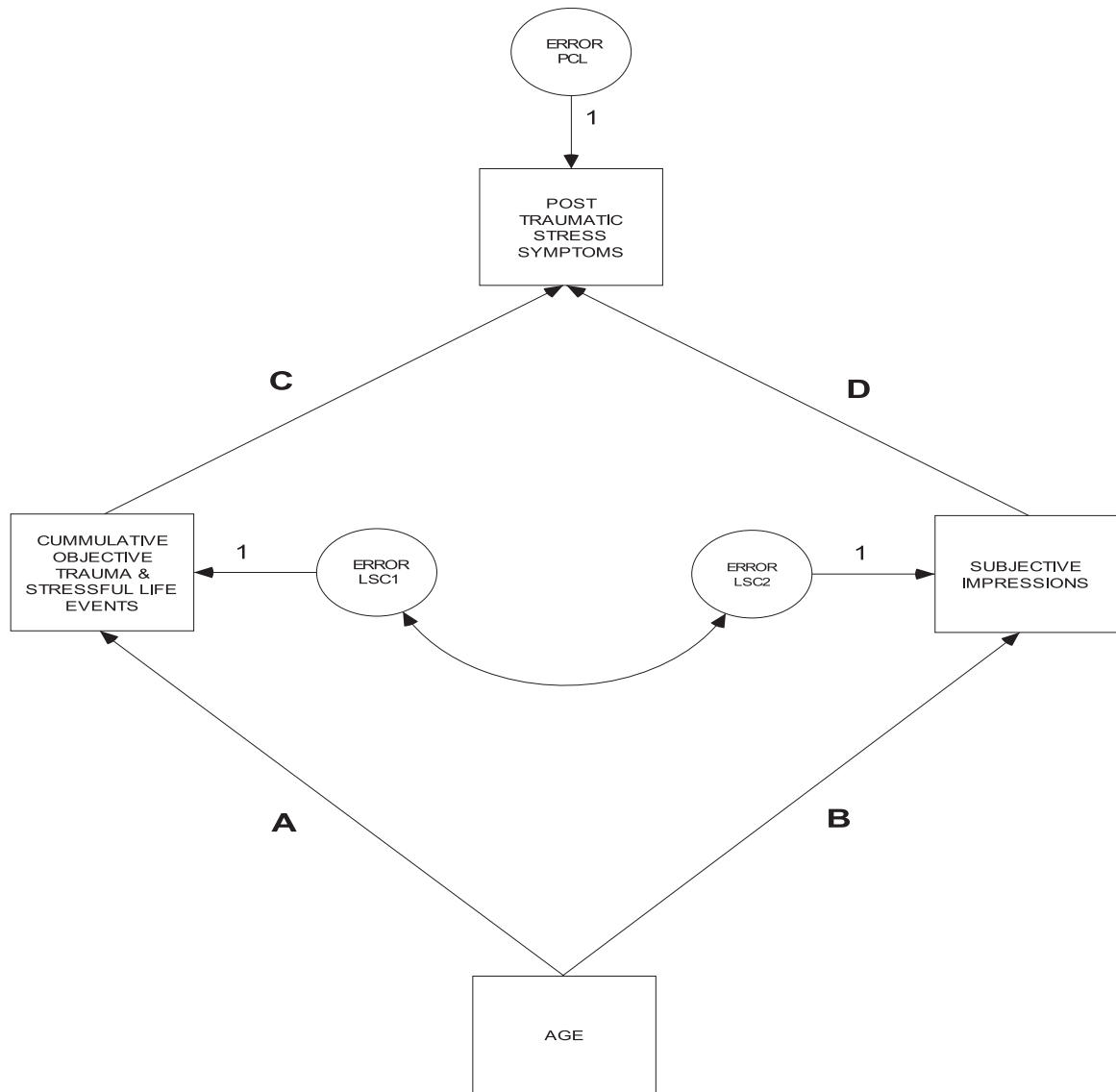


Figure 1. Base model.

CFI = .99, RMSEA = .09 (.00–.19); see Table 2. Age significantly influenced both cumulative objective trauma and stressful life events ($\beta = -0.12$, $p = .02$) and past year subjective impressions ($\beta = -0.11$, $p = .04$), indicating an inverse relationship between age and cumulative objective trauma and stressful life events and past year subjective impressions. There was a significant correlation between cumulative objective trauma and stressful life events and past year subjective impressions ($\beta = 0.849$, $p < .001$). In addition, past year subjective impressions significantly influenced the total score for the degree of current post-traumatic stress symptoms ($\beta = 0.70$, $p < .001$), whereas cumulative objective trauma and stressful life events did not significantly

influence degree of current post-traumatic stress symptoms ($\beta = -0.15$, $p > .05$). Overall, the squared multiple correlations for post-traumatic stress symptoms (PCL) were 33.7%, indicating that one third of the post-traumatic stress symptoms were accounted for in the model.

Model Comparisons.—In a series of model comparisons, the base model was altered by constraining one parameter to zero in an effort to ascertain if any of the parameters in the base model are not crucial (see Table 3). Each of the model changes resulted in significant fit erosion, indicating that the base model (Model 1) best represents the data. Each model comparison will briefly be addressed (see Table 4).

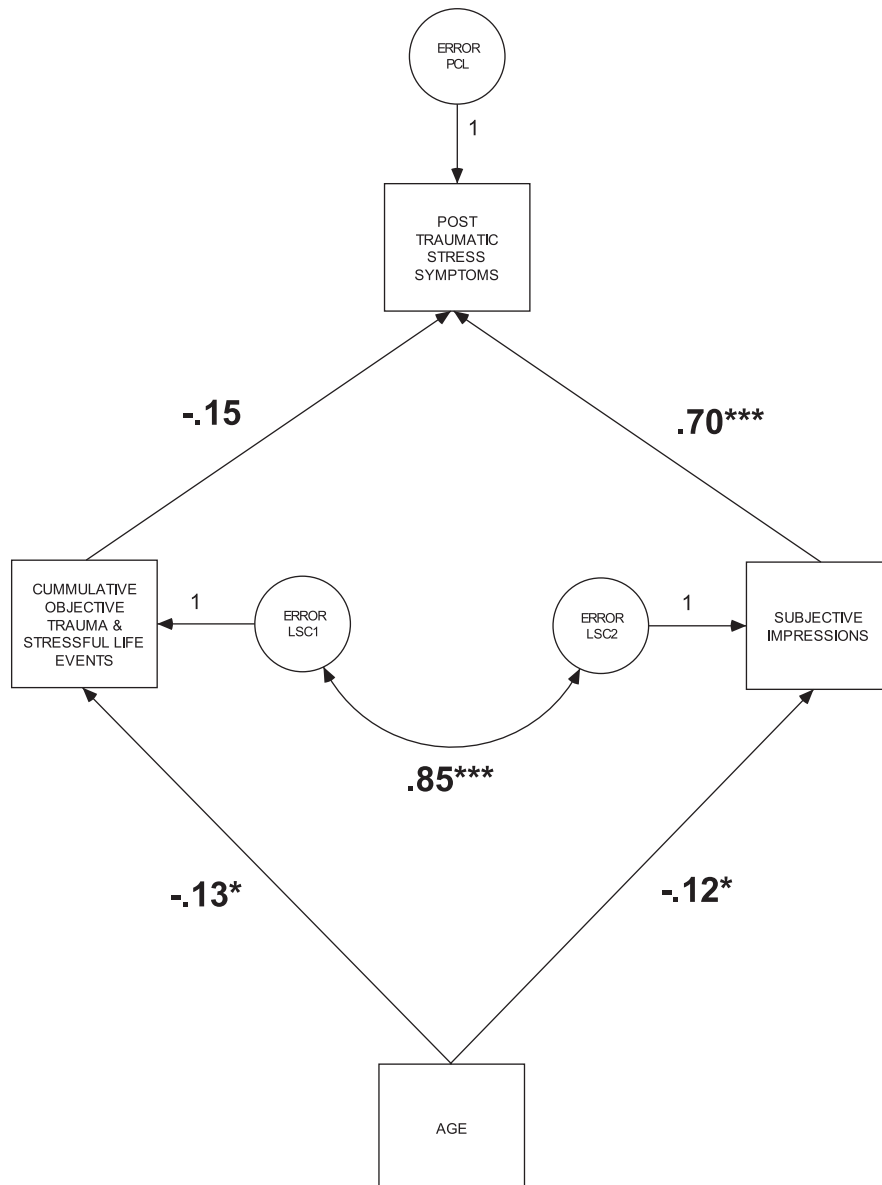


Figure 2. Base model with standardized estimates. $*p < .05$; $***p < .001$.

Model 2 (Parameter of Age → Cumulative Objective Trauma and Stressful Life Events Constrained to Zero). By constraining to zero the parameter of age predicting number of cumulative objective traumatic and stressful life events, the model fit significantly eroded, $\Delta\chi^2 (\Delta df) = 5.23 (1)$, $p < .05$. Consequently, this parameter is considered crucial to the base model.

Model 3 (Parameter of Age → Subjective Impressions Constrained to Zero). By constraining to zero the parameter of age predicting the cumulative degree of past year subjective impressions, the

model fit significantly eroded, $\Delta\chi^2 (\Delta df) = 4.33 (1)$, $p < .05$. Consequently, this parameter is considered crucial to the base model.

Model 4 (Parameter of Age → Cumulative Objective Trauma Stressful Life Events and Subjective Impressions Constrained to Zero). By constraining to zero the parameters of age predicting the number of cumulative objective traumatic and stressful life events and past year subjective impressions, the model fit significantly eroded, $\Delta\chi^2 (\Delta df) = 5.30 (2)$, $p < .10$. Consequently, these two parameters are considered crucial to the base model.

Table 3. Covariance Matrix, Means, and SDs for All Model Variables

Variables	1	2	3	4	M	SD
(1) Age	28.86				60.87	5.38
(2) Effects	-15.04		588.11		10.79	5.75
(3) Objective Trauma Effects	-3.90	118.49	32.96	30.93	24.11	
(4) PCL PTS Score	-4.85	202.89	37.37	211.58	14.52	14.52

Note: N = 334. PTS = post-traumatic stress.

Model 5 (Parameter of Cumulative Objective Trauma and Stressful Life Events → Post-traumatic Stress Symptoms Constrained to Zero). By constraining to zero the parameter of cumulative objective trauma and stressful life events predicting the degree of post-traumatic stress symptoms, the model fit significantly eroded, $\Delta\chi^2 (\Delta df) = 2.82 (1)$, $p < .10$. Consequently, this parameter is considered crucial to the base model.

Model 6 (Parameter of Subjective Impressions → Post-traumatic Stress Symptoms Constrained to Zero). By constraining to zero the parameter of past year subjective impressions predicting the current post-traumatic symptoms score, the model fit significantly eroded, $\Delta\chi^2 (\Delta df) = 55.18 (1)$, $p < .001$. Consequently, this parameter is considered crucial to the base model.

Model 7 (Parameters of Cumulative Objective Trauma and Subjective Impressions → Post-traumatic Stress Symptoms Constrained to Zero). By constraining to zero the parameters of cumulative objective trauma and stressful life events and past year subjective impressions predicting the degree of current post-traumatic stress symptom levels, the

model fit significantly eroded, $\Delta\chi^2 (\Delta df) = 121.28 (2)$, $p < .001$. Consequently, these two parameters are considered crucial to the base model.

Discussion

This study explored the relationship of age, cumulative trauma and stressful life events, subjective impressions of trauma and stressful life events, and post-traumatic stress symptoms. Participants reported experiencing a host of traumatic events, including family and neighborhood violence; and stressful life events, including the unexpected death of a family member or close friend, prior prison or jail term, or stress in prison. It is interesting to note that participants reported high levels of subjective impressions of both traditionally defined traumatic events, such as being a victim of violence, as well as less severe stressful life events, such as the death of someone close. Descriptive analysis revealed a portrait of older prisoners of which some may experience ongoing subjective distress and mental health symptoms from prior traumatic and stressful life experiences. Over half of the participants, many of which have ongoing subjective distress related to trauma, were expected to

Table 4. Model Fit Indices for All Models

Model	χ^2	df	p	CFI	RMSEA (90% CI)	$\Delta\chi^2 (\Delta df)$
Model 1 Base model	3.48	1	.06	.99	.09 (.00-.19)	—
Model 2	8.71	2	.01	.98	.10 (.04-.17)	5.23 (1)**
Model 3	7.81	2	.02	.98	.10 (.03-.16)	4.33 (1)**
Model 4	8.78	3	.03	.98	.08 (.02-.14)	5.30 (2)*
Model 5	6.30	2	.04	.99	.08 (.01-.16)	2.82 (1)*
Model 6	58.66	2	<.001	.89	.30 (.23-.36)	55.18 (1)***
Model 7	124.76	3	<.001	.77	.35 (.30-.41)	121.28 (2)***

Note: N = 334. All models compared against Model 1 (base model). Model notes: Model 2 was the base model with parameter A (see Figure 1) constrained to zero; Model 3 was the base model with parameter B (see Figure 1) constrained to zero; Model 4 was the base model with both parameters A and B (see Figure 1) constrained to zero; Model 5 was the base model with parameter C (see Figure 1) constrained to zero; Model 6 was the base model with parameter D (see Figure 1) constrained to zero; Model 7 was the base model with both parameters C and D (see Figure 1) constrained to zero. CFI = comparative fit index; RMSEA = root mean square error of approximation; CI = confidence interval.

* $p < .10$. ** $p < .05$. *** $p < .001$

be paroled and reenter the community between 2011 and 2016.

The results showed that the study's hypotheses were partially supported. Path analysis revealed that age was significantly related to participants' subjective impressions of trauma and post-traumatic stress symptoms. Participants who reported an increase in past year subjective impressions of prior trauma and life event stressors also were more likely to report higher levels of post-traumatic stress symptoms. However, the hypothesis that cumulative objective trauma and stressful life events were significantly related to post-traumatic stress symptoms was not supported. These findings suggest that recent subjective impressions of trauma and life events stressors carry much more significant weight as opposed to objective measures of trauma that only measure whether or not an event occurs. Additionally, these findings show that the subjective impressions of life course trauma and stressful life events, and not an objective measure of whether or not the event occurred, fuels current post-traumatic stress symptoms.

Also as hypothesized, participants' age had a significant and inverse relationship to post-traumatic stress symptoms. In other words, participants (aged 55–82 years) that were younger were more likely to report a higher level of post-traumatic stress symptoms compared with participants who were older. These findings suggest that the subjective impressions of trauma change over the life course. That is, as adults grow older, the subjective distress related to past and current traumatic and stressful life experiences might be managed more effectively. Perhaps with older participants, these events were more distal, resulting in decreased subjective distress related to the events. In comparison, younger participants' experiences may have been more proximal, possibly explaining the higher subjective distress related to the events.

This study corroborates prior results that find a high frequency of trauma and stressful life events and post-traumatic stress symptoms among the general population of prisoners with an older adult prison sample (Abram et al., 2007). However, this study's unique contribution is that it also examines older prisoners' past year subjective impressions of these events with their degree of post-traumatic stress symptoms. The current study's findings on age differences suggested that the "younger" old were at higher risk for post-traumatic stress symptoms as compared with the "older" old, similar to other studies' findings. For example, Krause and

colleagues (2004) used a nationally representative sample of 1,518 community dwelling older adults aged 65 years and older and found that the "younger" old compared with the "older" old with trauma histories were at the greatest risk for adverse consequences, particularly subjective physical health.

Implications

Currently, the relationship of traumatic and stressful life events and their impact on the mental well-being of older prisoners have been largely ignored. This is a serious oversight since prison systems are known for being highly stressful environments in which older adults are at greater risk for the onset or resurfacing of post-traumatic stress symptoms (Maschi, Gibson, Zgoba, & Morgen, 2011). Although common practices and mandates in most correctional facilities are to conduct an intake assessment and pre-parole evaluations, psychological distress related to trauma and stressful life events often go undetected in older prisoners. This oversight is likely because most evaluations do not include assessment of past and current traumatic and stressful life events and associated subjective distress, especially specific to older adults. Traditional trauma assessment instruments often do not include items for stressful life events, which would include the fear of dying in prison or concerns over ailing health, which are common for older prisoners (Aday, 2005)

Given that more than 50% of participants are expected to be released into the community within the next 5 years, it is imperative that these issues be effectively addressed. The need for continued intellectual discourse about life course trauma and stress in aging prisoners is supported by these results. There is potential for new federal proposals to aid in improving both advancing the discourse about these issues and improving practices for older adults in correctional facilities. More specifically, the Substance Abuse and Mental Health Services Administration (SAMHSA, 2011) recently created eight new initiatives (2011–2014), including trauma and justice. The timing of this initiative parallels the timeline of reentry of many of the participants from this study, highlighting the need for trauma-informed services within the criminal justice system. The adoption of trauma-informed services in the criminal justice system must involve the screening and treatment from the point of entry into the correctional system, in preparation for reentry into the community, and care after release,

including for older adults. For younger offenders, early detection might help to interrupt the cycle of stress-related psychological distress psychiatric symptoms, potentially resulting in less recidivism and greater well-being, along with the much needed reduction in the aging prisoner population.

As the findings suggest, significant differences were found between objective and subjective experiences of trauma and stressful life events in this population. Understanding these differences and the significant role that subjective impressions plays for these participants is essential in understanding, developing, and refining effective screening instruments and implementing appropriate, trauma-informed interventions. Screening for trauma and stressful life events at the point of entry into the correctional system can be done rather simply with an objective screening measure. However, this study supports that notion that assessing for subjective distress related to these events also may be essential.

Along the same lines, interventions and treatment must be in line with the finding of how significant the subjective impressions of trauma and stressful life events are for older prisoners in treatment. In other words, these findings suggest that subjective experience is an important aspect of intervention with this population. A promising intervention that is being piloted in the criminal justice system with younger age groups is Eye Movement Desensitization and Reprocessing (EMDR). EMDR is being chosen for discussion at this point because it specifically targets change in subjective units of distress among trauma survivors, which in turn reduces post-traumatic stress symptoms, which is very much in line with the findings from this study (Kitchiner, 2000). Moreover, previous research with incarcerated juveniles shows that EMDR can work in reducing post-traumatic stress reactivity resulting in less violent behavior and conduct problems among samples. Its utility for older prisoners has yet to be fully explored in practice and should be a focus of future research.

If helping professions adequately assessed prisoners for objective and subjective trauma and stressful life events and then provided access to effective treatment that included these subjective experiences of psychological distress while in prison, it is likely that they would reenter the community with lower levels of post-traumatic stress reactive responses. This is importance because evidence suggests that untreated trauma and grief is related to increased adult recidivism rates (Leach

et al., 2008). Therefore, treating psychological distress and untreated symptoms effectively, which involves both screening and treatment that captures subjective impressions, may help to break the cycle of recidivism. In particular, the older adults in the current study commonly reported prior incarcerations or high recidivism rates, further supporting the necessity of such.

Furthermore, given that prisoners in the current study commonly reported living in a highly stressful and violent environment, interventions that not only target the individual level but also the organizational and community levels, such as the Sanctuary Model, may also be useful in adult correctional facilities (Bloom, Sreedhar, 2008). As Bloom and Farragher (2010) explain in their latest work, not only are the individuals traumatized, but the institutions themselves, in this case the prisons, are traumatized, which makes it difficult for growth and productive change to occur. As a result, an interdisciplinary and interprofessional approach is necessary to begin the work to reform correctional care, consequently allowing for the healing and progress of those receiving services within them. This type of multisystemic approach may help reduce aging prisoner populations, especially for those individuals who cycle in and out of prison into old age.

This study has notable limitations. The NJ DOC sample may not be representative of and generalizable to prisoners in other geographic locations and who are not able to read English at sixth grade level or higher. It also used a cross-sectional design thus precluding causal inferences. Using a mailed self-administered survey may be another limitation because of possible low response rates and possible limited literacy levels. Future research in this area can be used to help improve interdisciplinary and interprofessional collaborations, especially with the anticipated community reentry of older offenders, many of whom will need assistance with post-traumatic stress-related health and mental health care to support a smooth transition to community life and prevent recidivism, in addition to the usual reentry needs, including assistance with housing, employment, welfare benefits, health, and mental health care. Therefore, future studies that examine factors that foster resilience, especially coping resources in the form of individual and social level coping resources, among ethnically diverse older prisoners are warranted. Evaluating the effectiveness of different trauma and post-traumatic stress measures among older adult

offenders would help identify reliable and valid measures for use with older adults in the criminal justice system. A longitudinal study accessing reactivity among ex-offenders after reentry would greatly benefit the field and provide evidence for policy makers to implement such trauma-informed treatments within the prison system and community correctional programs.

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References

- Abram, K. M., Washburn, J. J., Teplin, L. A., Emanuel, K. M., Romero, E. G., & McClelland, G. M. (2007). Posttraumatic stress disorder and psychiatric comorbidity among detained youths. *Psychiatric Services*, *58*, 1311–1316.
- Acierno, R., Hernandez, M. A., Amstadter, A. B., Resnick, H. S., Steve, K., Muzzy, W., et al. (2010). Prevalence and correlates of emotional, physical, sexual, and financial abuse and potential neglect in the United States: The National Elder Mistreatment Study. *American Journal of Public Health*, *100*, 292–297. doi:10.2105/AJPH.2009.16308
- Aday, R. H. (2003). *Aging prisoners: Crisis in American corrections*. Westport, CT: Praeger.
- Aday, R. H. (2005). Aging prisoners' concerns toward dying in prison. *OMEGA-Journal of Death and Dying*, *52*, 199–216.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders (TR)*. Washington, DC: American Psychiatric Association.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*, 238–246.
- Bloom, S. L., & Farragher, B. (2010). *Destroying sanctuary: The crisis in human service delivery systems*. New York: Oxford University Press.
- Bloom, S. L., & Sreedhar, S. Y. (2008). The Sanctuary Model of trauma-informed organizational change. *Reclaiming Children and Youth*, *17*(3), 48–53.
- Bollen, K. (1989). *Structural equations with latent variables*. New York: John Wiley.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen, & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Beverly Hills, CA: Sage Publications.
- Coleman, P. G. (1999). Creating a life story: The task of reconciliation. *The Gerontologist*, *39*, 133–139. doi: 10.1093/geront/39.2.133
- Dawes, J. (2009). Ageing prisoners: Issues for social work. *Australian Social Work*, *62*, 258–271.
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method* (3rd ed.). Hoboken, NJ: John Wiley.
- Elder, G. (2003). The emergence and development of life course theory. In J. T. Mortimer, & M. J. Shanahan (Eds.), *Handbook of the life course* (pp. 3–21). New York: Kluwer Academic.
- Harlow, C. W. (1999). *Prior abuse reported by inmates and probationers*. (NCJ Publication No. 172879). Rockville, MD: U.S. Department of Justice.
- Haugebrook, S., Zgoba, K., Maschi, T., Morgen, K., & Brown, D. (2010). Trauma, stress, health and mental health issues among ethnically diverse older adult prisoners: A correctional health care concern. *Journal of Correctional Healthcare*, *16*, 220–229.
- Hiskey, S., Luckie, M., Davies, S., & Brewin, C. (2008). The phenomenology of reactivated trauma memories in older adults: A preliminary study. *Aging & Mental Health*, *12*, 494–498. doi:10.1080/13607860802224367
- Hochstetler, A., Murphy, D. S., & Simons, R. L. (2004). Damaged goods: Exploring predictors of distress in prison inmates. *Crime & Delinquency*, *50*, 436–457.
- Janoff-Bulman, R. (1992). *Shattered assumptions: Toward a new psychology of trauma*. New York: Free Press.
- Kitchiner, N. J. (2000). Using EMDR to treat post-traumatic stress disorder in a prison setting. *British Journal of Community Nursing*, *5*(1), 26–31.
- Kline, R. (1998). *Principles and practice of structural equation modeling*. New York, NY: Guilford Press.
- Krause, N. (2004). Lifetime trauma, emotional support, and life satisfaction among older adults. *The Gerontologist*, *44*, 615–623. doi: 10.1093/geront/44.5.615
- Krause, N., Shaw, B. A., & Cairney, J. (2004). A descriptive epidemiology of lifetime trauma and the physical health status of older adults. *Psychology and Aging*, *19*, 637–648.
- Leach, R. M., Burgess, T., & Holmwood, C. (2008). Could recidivism in prisoners be linked to traumatic grief? A review of the evidence. *International Journal of Prisoner Health*, *4*, 104–119.
- Maruschak, L. M. (2008). *Medical problems of prisoners*. (NCJ Publication No. 221740). Rockville, MD: U.S. Department of Justice.
- Maschi, T., Gibson, S., Zgoba, K. M., & Morgen, K. (2011). Trauma and life event stressors among young and older adult prisoners. *Journal of Correctional Health Care*, *17*, 160–172. doi: 10.1177/1078345810396682
- McHugo, G., Caspi, Y., Kammerer, N., Mazelis, R., Jackson, E., Russell, L., et al. (2005). The Assessment of trauma history in women with co-occurring substance abuse and mental disorders and a history of interpersonal violence. *Journal of Behavioral Health Services & Research*, *32*, 113–127.
- Neal, L., Hill, N., Hughes, J., Middleton, A., & Busuttill, W. (1995). Convergent validity of measures of PTSD in an elderly population of former prisoners of war. *International Journal of Geriatric Psychiatry*, *10*, 617–622.
- Pearlin, L. I., Schieman, S., Fazio, E., & Meersman, S. (2005). Stress, health, and the life course: Some conceptual perspectives. *Journal of Health and Social Behavior*, *46*, 205–219.
- Piotrkowski, C., & Brannen, S. (2002). Exposure, threat appraisal, and lost confidence as predictors of PTSD symptoms following September 11, 2001. *Journal of Orthopsychiatry*, *74*, 476–485.
- Sabol, W. J., & Couture, H. (2008). *Prison inmates at midyear 2007*. (NCJ Publication No. 221944. (pp. 1–24). Rockville, MD: U.S. Department of Justice.
- Sampson, R. J., & Laub, J. H. (2003). Life-course desisters? Trajectories of crime among delinquent boys followed to age 70. *Criminology*, *41*, 555–592.
- Substance Abuse and Mental Health Services Administration. (2011). *Leading change: A plan for SAMHSA's roles and actions*. Retrieved May 7, 2011, from <http://store.samhsa.gov/shin/content/SMA11-4629/04-TraumaAndJustice.pdf>
- Shmotkin, D., & Litwin, H. (2009). Cumulative adversity and depressive symptoms among older adults in Israel: the differential roles of self-oriented versus other-oriented events of potential trauma. *Social Psychiatry & Psychiatric Epidemiology*, *44*, 989–997. doi:10.1007/s00127-009-0020-x
- Struckman-Johnson, C., Struckman-Johnson, D., Rucker, L., Bumby, K., & Donaldson, S. (1996). Sexual coercion reported by men and women in prison. *The Journal of Sex Research*, *33*, 67–76.
- Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M. (1993). *The PTSD checklist: Reliability, validity, and diagnostic utility*. Paper presented at the annual meeting of the International Society for Traumatic Stress Studies, San Antonio, TX.
- Yehuda, R., Kahana, B., Schmeidler, J., Southwick, S., Wilson, S., & Giller, E. (1995). Impact of cumulative lifetime trauma and recent stress on current post-traumatic stress disorder symptoms in Holocaust survivors. *American Journal of Psychiatry*, *152*, 1815–1818.