

Testing a New Intervention With Incarcerated Women Serving Life Sentences

Research on Social Work Practice
1-12
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DOI: 10.1177/1049731517700272
journals.sagepub.com/home/rsw


Gina Fedock¹, Sheryl Kubiak², and Deborah Bybee³

Abstract

Purpose: Incarcerated women serving life sentences are a growing subpopulation with multiple mental health needs. However, no existing interventions have been designed for or tested with this population. **Method:** This study tested a gender-responsive, trauma-informed intervention (*Beyond Violence*) and examined changes in incarcerated women's mental health and anger expression. Pre-, post-, and follow-up surveys were administered to two treatment groups with women with life sentences ($n = 26$). Multilevel modeling was conducted to assess changes over time for women's mental health and anger expression and to compare outcomes for women based on time served. **Results:** Significant positive outcomes were found for all women for some anger measures, and women who had been in prison for less than 10 years started with higher scores on multiple measures and showed significant changes over time. **Discussion:** This study offers insight into social work practice, policy advocacy, and research for this population of women.

Keywords

women, corrections, criminal justice, mental health, and trauma

Incarcerated women serving life sentences are a subpopulation in prisons that has been largely neglected by prison administrators, practice professionals, and researchers (Kazemian & Travis, 2015; Leigey & Reed, 2010). This subpopulation is often not included in samples for studies studying interventions for women in prison, nor are there interventions that are tailored or created for this subpopulation. This lack of research corresponds with the common prison policy of denying or excluding women with life sentences from treatment-based interventions, as such interventions are commonly reserved for women reentering the community (Nellis, 2012).

Incarcerated women with life sentences have high rates of risk factors based on their preprison life experiences and their reports of physical and mental health needs during incarceration (Aday & Kabrill, 2011; Dye & Aday, 2013; Leigey & Reed, 2010). Given the rising number of incarcerated women with life sentences (Nellis, 2013), an intervention that is efficacious in addressing these women's mental health and well-being in prison may benefit not only the women but also prison administrators, clinical staff, and the women's families. Thus, this study tested a new intervention specifically with incarcerated women with life sentences and examined changes in their mental health and anger over time.

Incarcerated Women Serving Life Sentences

Women comprise a small fraction of those arrested (14%) and sentenced (5%) for a violent offense within the United States (West, Sabol, & Greenman, 2010). A majority of women with

life sentences (94%) are serving time for violent offenses, and the number of women sentenced to life sentences is a growing subpopulation, rising 14% from 2008 to 2012 (Nellis, 2013). The increase in the number of women with life sentences is linked to "tough on crime" sentencing practices focused on long sentences (Nellis & King, 2009). Also, the implication of a life sentence has shifted from indeterminate (i.e., until rehabilitation occurs) to literally the end of natural life (Mauer, King, & Young, 2004). While sentencing varies state to state, there are two main types of life sentences: a life sentence and life without parole. A life sentence carries the potential for a prisoner to be released from prison on parole, whereas life without parole is typically devoid of that potential.

On a national scale, one out of every nine prisoners has a life sentence (Nellis, 2013). On average, a person serving a life sentence is incarcerated for 29 years with little opportunity to be released (Mauer et al., 2004). There are state-level variations on how life sentences are applied. For example, in California, those in prison with a life sentence have an 18% chance of

¹ School of Social Service Administration, University of Chicago, Chicago, IL, USA

² School of Social Work, Michigan State University, East Lansing, MI, USA

³ Department of Psychology, Michigan State University, East Lansing, MI, USA

Corresponding Author:

Gina Fedock, School of Social Service Administration, University of Chicago, 969 E. 60th Street, Chicago, IL 60637, USA.

Email: gfedock@uchicago.edu

being approved for release by the parole board (Weisberg, Mukamal, & Segall, 2011), and in Michigan, the chance is 9% (Levine, 2014) making release a rare event.

In order for incarcerated women to be considered for possible release, prison administrators evaluate women's progress toward and capacity for positively managing dynamic risk factors such as attitudes, emotionality, and coping skills in decision-making processes related to release and risk (Hannah-Moffat & Yule, 2011). These skills and progress are often obtained through treatment-based programming while in prison. In a systematic review of interventions specifically for women in correctional settings in the United States, a majority of the interventions focused on substance abuse treatment with the goal of preventing recidivism and were designed to be delivered to women preparing to exit prison and reenter their communities (Tripodi, Bledsoe, Kim, & Bender, 2011). A small number of the reviewed interventions had the purpose of improving women's behavior as well as physical and mental health while in prison.

While none of the reviewed interventions had a specific focus or inclusion of women with life sentences, this population of women could benefit from interventions aimed at improving mental health in prison. Women with life sentences arrive at prison with high rates of psychosocial needs, including high rates of mental health concerns, suicide risk factors, and histories of sexual abuse, childhood abuse, and intimate partner violence victimization (Leigey & Reed, 2010). Some of these rates are higher than men with life sentences and other incarcerated women (Leigey & Reed, 2010). In a qualitative study, women with life and long-term sentences reported depression, hopelessness, and anger, especially at the beginning of their sentence (Jose-Kampfner, 1990). They described having a life sentence as "an existential death" and the process of coping with this sentence as similar to the stages of grief often described by terminally ill patients (Jose-Kampfner, 1990).

In addition, women with life sentences report a multitude of physical and mental health concerns as they age in prison (Aday & Krabril, 2011). Women who have served longer sentences (over 10 years) have reported more problems with the prison environment, such as boredom and a dearth of educational, work, and social opportunities, than women who have served less time (MacKenzie, Robinson, & Campbell, 1989). One study suggested that the more time a woman serves, then the more difficulty she may have psychologically in prison (Vuolo & Kruttschnitt, 2008). Depression and suicide risk are particular concerns for incarcerated women with life sentences, both early in women's stays in prison (Dye & Aday, 2013) and after longer periods of time in prison (Clements-Nolle, Wolden, & Bargmann-Losche, 2009).

Women with life sentences are in need of physical and mental health treatment opportunities in prison. The prison physical and psychological health-care system may face increased demands as the number of women serving life sentences increases, both for women upon arrival to prison and over their long-term stay in prison. Thus, given the lack of interventions for this population of women with the

corresponding needs of these women, testing a new intervention with women with life sentences fills a current gap in both research and practice, with an opportunity to advance policy advocacy efforts as well.

An Intervention for Incarcerated Women: Beyond Violence

Based on the lack of interventions specifically for incarcerated women with violent offenses (Tripodi et al., 2011), a new intervention entitled *Beyond Violence: A Prevention Program for Criminal Justice-Involved Women* (Covington, 2011) was developed as a gender-responsive and trauma informed intervention. Gender-responsive interventions focus on empowerment and improving problem-solving, self-image, and self-efficacy, based on understanding the pathways to crime common for women include their high rates of victimization, mental health distress, and substance use disorders (Bloom, Owen, & Covington, 2003; Wright, Van Voorhis, Salisbury, & Bauman, 2012).

Beyond Violence (Covington, 2011) is based in trauma theory (Herman, 1997) and incorporates a guiding tenant that experiences of trauma influence both perceptions of and reactions to life events (Kendall-Tackett, 2000). This trauma-informed approach incorporates an understanding that early or ongoing exposure to traumatic events can result in mental health distress (Breslau, Peterson, Kessler, & Schultz, 1999; Horwitz, Widom, McLaughlin, & White, 2001; Molnar, Buka, & Kessler, 2001), repressed anger (Neumann, Houskamp, Pollock, & Briere, 1996; Springer, Sheridan, Kuo, & Carnes, 2007), and the use of alcohol and other drugs as ways of coping and responding to trauma (Hedtke et al., 2008; Najavitis, Weiss, & Shaw, 1997). *Beyond Violence* uses a multimodal approach and evidence-based therapeutic strategies (i.e., psychoeducation, role-playing, mindfulness activities, and cognitive behavioral restructuring) to address issues of mental health, substance abuse, trauma histories, and anger regulation (Covington, 2011).

Four modules comprise the main areas of focus for the curriculum. They correspond with the targets for prevention outlined by the World Health Organization for violence prevention (Dahlberg & Krug, 2002). These four domains are self, relationships, community, and society and are described more in-depth in additional publications (Kubiak, Fedock, Tillander, Kim, & Bybee, 2014; Kubiak, Kim, Fedock, & Bybee, 2012). This 20-session group intervention is designed to be delivered by a trained mental health professional with a group size of 8–15 women. Each session lasts approximately two hours.

Present Study

Beyond Violence has demonstrated efficacy with positively influencing women's mental health and anger-related outcomes in a therapeutic treatment unit of prison (Kubiak, Kim, Fedock, & Bybee, 2012) and in the general population setting with women convicted of violent offenses (Kubiak, Kim,

Fedock, & Bybee, 2015). For the pilot testing of *Beyond Violence*, three groups of incarcerated women with violent offenses participated, including a subsample of eight incarcerated women with life sentences (Kubiak, Kim, Fedock, & Bybee, 2012). This small subsample had higher scores on measures of mental health and showed a significant decrease in post-traumatic stress disorder (PTSD) symptoms when compared to women without life sentences (Kubiak, Kim, Fedock, & Bybee, 2012). This small subsample had higher scores on measures of mental health and showed a significant decrease in post-traumatic stress disorder (PTSD) symptoms when compared to women without life sentences (Kubiak, Kim, Fedock, & Bybee, 2012). Feedback from the women with life sentences in the pilot groups was elicited in order to make the *Beyond Violence* content applicable and relevant for women with life sentences. Given that women's rates of violence in prison are low (Owen, Wells, Pollock, Muscat, & Torres, 2008), this study focused mainly on the mental health and anger-related outcomes of *Beyond Violence* with this population of women. It is seemingly the first study to utilize a treatment sample of only women with life sentences and to investigate outcomes specifically for these women.

This study examines the changes in mental health symptoms and anger experiences and expressions for two *Beyond Violence* treatment groups of incarcerated women with life sentences. The research questions for this study were (1) Do mental health symptoms of anxiety, depression, PTSD, and serious mental illness (SMI) improve for incarcerated women with life sentences after participating in *Beyond Violence*? (2) Do forms of anger and anger expression change after participating in *Beyond Violence*? Also, research suggests that differences may exist between women new to prison and those who have been in prison for a long period of time. Thus, the third research question was (3) Are there differences in mental health and anger-related outcomes for women based on the length of time served?

Method

Study Design

This study had a pretest–posttest design (Shadish, Cook, & Campbell, 2002). A survey was administered by research staff prior to the start of treatment, at the end of treatment, and 3 months following the end of treatment. A sample of 26 incarcerated women was divided into two *Beyond Violence* treatment groups (Group A with 14 women; Group B with 12 women) with no control group. Identical treatment was administered to these two groups. This study was part of a larger multiphase intervention study, and all study procedures were approved by the institutional review board at Michigan State University, which included review by a prison advocate.

Participants

An initial random sample of 68 women with life sentences was used in order to form two *Beyond Violence* treatment groups

within a Midwestern state women's prison. Considering that women with life sentences are typically not included in treatment groups within this prison, the sample of women met the researchers' criteria and received final approval by the prison administrative leadership. Correctional administrators worked with research staff to determine women who met criteria for group inclusion. Criteria included (1) currently housed in a lower security level, (2) absence of major misconduct tickets in the previous 18 months, (3) a demonstrated need for substance abuse treatment, and (4) currently serving a life sentence (with or without possibility of parole) for a violent offense. From the list generated by the prison administrators, women were stratified by amount of time served. Then, women were assigned to the treatment groups such that the group members had a range of time served. Prison administrators also prohibited certain relational dynamics within the groups' composition (e.g., no relatives such as mothers/daughters and no codefendants within the same group). Also, women's schedules were reviewed to ensure availability for group participation on the chosen day/times for the treatment groups; women who had work conflicts were considered ineligible.

Research staff held an informational meeting with the remaining eligible women ($n = 28$) to discuss their possibility of participating in a *Beyond Violence* treatment group, provide an overview of the process and specific information about the study, and gather informed consent from women who were interested in participation. Of the 28 women called out for this meeting, 3 women did not attend. A second informational meeting was held with these 3 women at a subsequent date. After these two informational meetings, a total of 26 women agreed to participate, excluding 1 woman who declined to participate and 1 woman who was determined ineligible. All women were living on the general population unit of the prison. Likewise, all women had been convicted of murder. However, 15 of the 26 women serving life sentences were convicted of first-degree murder (i.e., premeditated or intentional murder) and 11 were convicted of second-degree murder (i.e., unplanned, unintentional murder, or murder due to reckless or neglectful behavior). The characteristics of this sample are displayed in Table 1 and are reflective of national characteristics of incarcerated women with life sentences (Nellis, 2013). Also, the flow of participant involvement is displayed in Figure 1.

Procedures

As is standard in intervention research (Fraser, Richman, Galinsky, & Day, 2009), pre- and posttests were used to assess changes in repeated measures at the end of the intervention. A member of the study's research team (who was not involved in facilitating the treatment groups) met with women at three time points for survey collection: (1) before the first group session, (2) at the end of the intervention, and (3) at 3 months after the end of the group.

One mental health provider conducted the treatment groups and had an extensive, over 10-year clinical experience

Table 1. Participant Demographics and Background Experiences.

Demographics	Frequency	Percentage
Conviction		
First-degree murder	15	57.69
Second-degree murder	11	42.31
Sentence		
Life with opportunity for parole	17	65.38
Life without opportunity for parole	9	34.62
Race		
Black women	13	50
White women	13	50
Time served (no. of years Incarcerated)		
More than 10 years	10	38.46
10 or less years	16	61.54
Marital status		
Single	20	76.92
Married/partner	3	11.54
Separated/divorced	3	11.54
Mothering		
Children, minors	11	42.31
Children, not minors	11	42.31
No children	4	15.38
Trauma histories		
Childhood emotional abuse	19	73.08
Childhood physical abuse	15	57.69
Childhood sexual abuse	22	84.61
Any childhood abuse	24	92.31
Intimate partner violence	19	73.08
Adult victimization (not-IPV)	14	53.85
Any trauma	26	100
Perpetration histories		
Physical violence (partner)	11	42.31
Physical violence (other)	8	30.77
Both partner and other	5	19.23
Uncaught violent behaviors	13	50

Note. $n = 26$

background with women involved in the criminal justice system. The groups did not occur completely simultaneously; Group A lasted from July to September 2012 and Group B occurred from August to November 2012. Both groups met twice a week for one and half hours per session. Prison policy dictated that women could not miss more than 2 group sessions in order to participate; women attended an average of 19.42 sessions out of the 20. At the end of every group session, each group member and the facilitator completed fidelity forms to indicate which material was covered and satisfaction levels with the content. They could also provide additional feedback. These forms were reviewed by research staff in order to ensure intervention content was covered during every session.

Measures

The survey used at each time point included measures assessing various constructs of mental health (i.e., depression, anxiety, PTSD and SMI) and types of anger and anger expressions. These measures were used to examine differences over time.

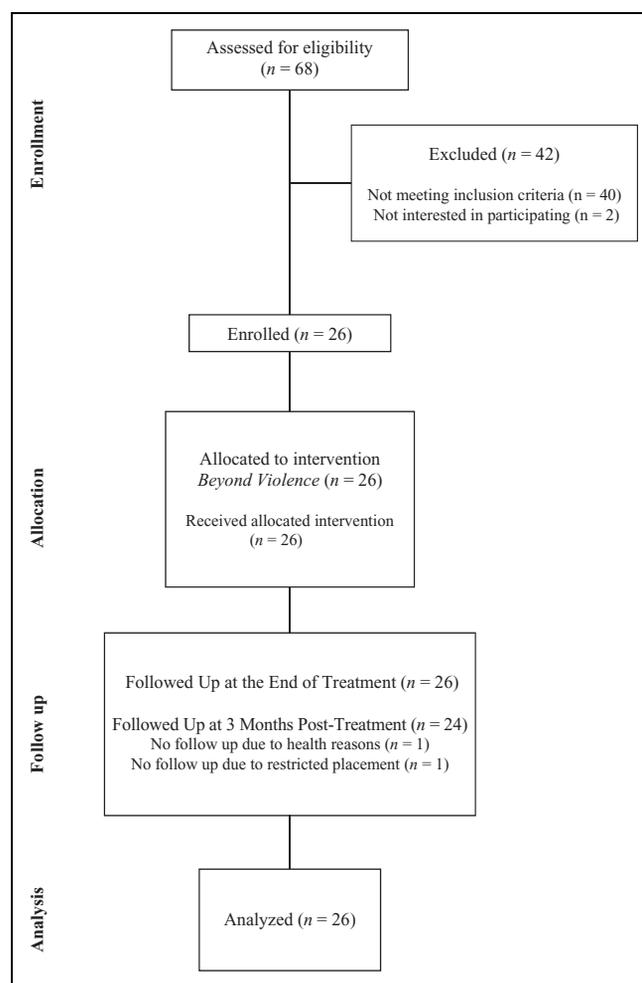


Figure 1. Flow of participants ($n = 26$) through each stage of the study.

Depression. The Patient Health Questionnaire: Depression subscale (Kroenke, Spitzer, & Williams, 2001) is a 9-item subscale that assesses the number of depression symptoms experienced in the prior 2-week period. This scale has been used to measure depression with multiple populations including adults with offense histories, incarcerated youths, and incarcerated women (Domalanta, Risser, Roberts, & Risser, 2003; Kubiak, Beeble, & Bybee, 2009). The scale has items such as “Experienced little interest or pleasure in doing things” and “Felt bad about yourself, or felt that you are a failure or have let yourself or your family down.” Respondents rated items on 4-point Likert-type scale ranging from *not at all* (0) to *nearly everyday* (3). The nine responses were summed to measure the severity of depression symptoms and had a Cronbach’s α ranging from .75 to .90 with this sample.

Anxiety. The Patient Health Questionnaire: Anxiety subscale (Spitzer, Kroenke, Williams, & Patient Health Questionnaire Study Group, 1999) is comprised of 7-items that examine the number of anxiety symptoms over the past 4 weeks. The first item, “Over the last four weeks, how often have you been

feeling nervous, anxious, on edge, or worrying a lot about different things?," was a screening question to determine if participants had experienced anxiety symptoms over the prior 4-week period. Participants then responded to the remaining 6 items which included "Getting tired very easily" and "Feeling so restless that it's hard to sit still." Respondents rated each item with a response on a 4-point Likert-type scale ranging from *not at all* (0) to *nearly everyday* (3). The summed score of the 7 items was used for analysis and the Cronbach's α ranged from .87 to .88 with this sample.

PTSD. The Short Screening Scale for DSM-IV PTSD (modified version, Breslau et al., 1999) was an 8-item measure that collected current PTSD symptoms. This measure has been used for women involved in the criminal justice system (Kubiak, Beeble, & Bybee, 2010). The first item was a screening question to determine if participants were ever exposed to a traumatic event; specifically, "In your life, have you ever had any experience that was considered frightening, horrible, or upsetting?" Participants who provided an affirmative response to the screening question were then asked to answer the remaining 7 items, which included items such as, "Avoided being reminded of this experience by staying away from certain places, people, or activities" and "Became jumpy or got easily startled by ordinary noises or movements." Respondents provided responses on a 4-point Likert-type scale ranging from *not at all* (0) to *nearly everyday* (3). Cronbach's α for this scale ranged from .79 to .83 for this sample.

SMI. The K6 (Kessler et al., 2002, 2003) is a brief 6-item measure that assesses the participant's overall mental health and examines their level of serious mental health distress over the prior 4-week period. The items include "Over the last 4 weeks, how often have you felt nervous?" and "Over the last 4 weeks, how often have you felt hopeless?" Respondents provided responses to items on a 5-point Likert-type scale of frequency ranging from *none of the time* (0) to *all of the time* (4). A total score was used for analysis and Cronbach's α ranged from .87 to .91 for this sample.

State and trait anger. The State-Trait Expression Inventory—2 (STAXI-2; Spielberger, 1999) is used to measure the experience and intensity of anger as an emotional state and as an emotional trait. This instrument has been commonly and widely used for the measurement of the experience and expression of anger among incarcerated men and women (Schützwohl & Maercker, 2000; Suter, Bryne, Bryne, Howells, & Day, 2002). The test-retest reliability of this instrument has also shown to remain stable over time (Bishop & Quah, 1998; Jacobs, Latham, & Brown, 1988). The STAXI-2 was included to explore changes in the experience of, responses to, and the expression of anger, mainly through the constructs of state anger (i.e., anger as a temporary emotional state) and trait anger (i.e., intensity of anger as a constant component of the personality).

The 57-item STAXI-2 includes six scales, five subscales, and an Anger Expression Index. The State Anger Scale assesses the intensity of angry feelings at a particular time, specifically the present moment. High state anger scores translate to having experiences of relatively intense angry feelings. The State Anger Scale consists of 15 items in three subscales, Feeling Angry, Feel like Expressing Anger Verbally, and Feel like Expressing Anger Physically. Participants rate the intensity of their emotions "right now" on a 4-point Likert-type scale ranging from 1 (*not at all*) to 4 (*very much so*). The Cronbach's α for this scale ranged from .91 to .97 with this sample.

The Trait Anger Scale measures how the respondent feels anger over time and perceives this anger. High trait anger scores indicate that a respondent may feel frequently and persistently angry feelings and often feel treated unfairly by others. The Trait Anger Scale consists of 10 items in two subscales, Angry Temperament and Angry Reaction. Participants rate how they "generally" feel on a 4-point Likert-type scale ranging from 1 (*almost never*) to 4 (*almost always*). Cronbach's α for this scale ranged from .84 to .90 with this sample.

Four subscales assess the expression and management of anger: Anger Expression-Out, Anger Expression-In, Anger Control-Out, and Anger Control-In. Each subscale is comprised of 8 items. Anger Expression-Out measures the expression of anger toward other persons in the environment, and high scores indicate frequent use of aggressive behaviors as an expression of anger. Cronbach's α for this subscale ranged from .61 to .77 for this sample. Anger Expression-In measures the angry feelings directed inward, and high scores correspond to having intense angry feelings, but with the tendency to suppress these feelings rather than expressing them either physically or verbally. Cronbach's α for this subscale ranged from .68 to .81 for this sample. Anger Control-Out is related to behaviorally preventing the expression of anger toward other persons or objects in the environment, and higher scores are typically favorable as they display a monitoring of angry feelings and preventing of aggressive outward anger expression. Cronbach's α for this subscale ranged from .87 to .93 for this sample. Anger Control-In is related to the control of suppressed angry feelings by calming down or cooling off when angered. Persons with high Anger Control-In scores tend to calm down and reduce their anger quickly. Cronbach's α for this subscale ranged from .93 to .95 for this sample. For each of these subscales, participants rate how they generally react in certain situations on a 4-point Likert-type scale ranging from 1 (almost never) to 4 (almost always) for these four scales.

Analysis

Preliminary analysis was conducted using paired samples *t*-tests to examine differences in mental health and anger related measures across all participants over time. To confirm and further test these results, multilevel modeling (MLM; Raudenbush & Bryk, 2002) was used for final analysis, in effect taking into account that repeated measures are nested within individuals. MLM is suggested for use in treatment

studies for an analysis of longitudinal data with repeated measures (Nash, Kupper, & Fraser, 2004). The intraclass correlation (ICC) ranged from .40 to .71 for all outcome variables, indicating that substantial proportions of variance were accounted for by grouping of observations within women, thus confirming MLM as an appropriate analytic strategy. The number of months between the baseline and the end of treatment survey ranged from 2.56 months to 2.93 months, with a mean of 2.76 months (standard deviation [SD] = 0.19) and between the baseline and final follow-up survey, the number of months ranged from 5.93 to 7.63 across women, with a mean of 6.72 months (SD = 0.42). In addition to appropriately handling dependencies in repeated measures data, MLM allows for variability in the timing of the collection of measures across participants over time and accommodates missing data. MLM shows the relationship and type of change between participants' starting scores and their change over time based on each participant's individual intercept and slope. This allows for examining the changes in the slope, taking into account at what point each woman started. This two-level MLM incorporated three assessments collected over three time points (time = Level 1) for each of the 26 participants in the sample (participants = Level 2). For Level 1, time was measured as number of days since the pretest survey and centered on the pretest.

The MIXED procedure in SPSS was utilized for this analysis (IBM SPSS Statistics, version 22.0; Peugh & Enders, 2005). The models included random intercepts. A comparison of models with random and fixed slope effects was conducted and the model with the best fit according to likelihood ratio χ^2 was chosen. For all models, a quadratic term (e.g., converting time into a power polynomial) was tested, but no significant quadratic trends were found with any of the models. The results presented below are based on models with time centered on the pretest assessment; however, analyses were also run with the results centered on the posttest with similar results found. To test for differences in outcomes between women based on the length of time served (short vs. a long time served), the grouping variable was added to the best-fitting model for each dependent variable. This variable was given the label of "years served" with women given a code of "0" for less than 10 years and a "1" for having served more than 10 years of their life sentence. Additional analysis included probing significant two-way interaction effects in order to fully explore the direction and significance of the simple slopes for each group (Preacher, Curran, & Bauer, 2006).

Surveys were collected from all 26 women at the pre- and posttest time points. However, 2 women were unable to complete their surveys at the 3-month time point; one woman was undergoing chemotherapy and was confined her to her cell, and another woman declined to participate in this final assessment. Also, at each time point, some women chose not to answer some survey questions, however, a majority of questions were answered. Taking into account the data from all three time points, Little's test of missing completely at random (Little's MCAR) was conducted and suggested that the pattern of missing data was random (Little's MCAR χ^2 = 148.58, df = 2,618,

Table 2. Mental Health and Anger Outcome Variables Across Time for All Women.

Outcome Variables	Baseline		Post-BV		Follow-Up	
	Mean	SD	Mean	SD	Mean	SD
Depression	7.19	5.80	5.46	6.00	5.25	5.14
1-9 Years served	10.10	6.37	6.40	7.04	5.70	5.52
10+ Years served	5.38	4.75	4.88	5.41	4.93	5.05
Anxiety	5.42	4.51	4.42	4.73	4.96	5.39
1-9 Years served	7.80	4.64	5.80	5.82	4.50	5.56
10+ Years served	3.94	3.87	3.56	3.85	5.29	5.44
Post-traumatic stress disorder	6.65	5.07	5.34	4.90	4.88	4.50
1-9 Years served	9.50	5.60	6.00	5.35	4.90	4.66
10+ Years served	4.88	3.90	4.94	4.72	4.86	4.56
Serious mental illness	7.35	5.54	5.35	6.17	5.88	6.28
1-9 years served	10.40	5.37	5.50	5.91	6.50	7.34
10+ years served	5.44	4.87	5.25	6.52	5.43	5.65
Trait anger	15.69	5.11	13.15	3.99	12.92	4.60
1-9 Years served	16.80	5.75	13.40	4.14	13.00	5.68
10+ Years served	15.00	4.72	13.00	4.01	12.86	3.88
State anger	20.04	6.94	18.85	5.91	20.13	9.60
1-9 Years served	20.90	9.10	20.20	7.90	20.80	9.64
10+ Years served	19.50	5.47	18.00	4.34	19.64	9.91
Anger Expression-Out	13.88	3.35	13.04	3.78	12.79	3.08
1-9 Years served	15.00	3.80	12.90	4.33	13.00	4.00
10+ Years served	13.19	2.95	13.13	3.54	12.64	2.37
Anger Expression-In	16.11	4.62	15.42	4.45	17.04	5.83
1-9 Years served	18.30	5.32	17.90	4.61	17.60	5.99
10+ Years served	14.75	3.66	13.13	3.69	16.64	5.92
Anger Control-Out	21.65	6.25	24.04	6.96	24.75	5.77
1-9 Years served	21.90	6.89	24.20	7.42	21.70	5.89
10+ Years served	21.50	6.04	23.94	6.90	26.93	4.76
Anger Control-In	22.50	7.38	25.73	6.58	26.88	6.15
1-9 Years served	21.60	7.55	25.90	6.38	23.30	6.40
10+ Years served	23.06	7.46	25.63	6.91	29.43	4.67

Note. n = 26. SD = standard deviation.

p = 1.00). All cases were included in the analysis, and in consideration of the small sample and other issues, a restricted maximum likelihood approach was used for estimation (Snijders & Bosker, 1999). For this sample of 26 women, power estimation for multilevel analyses was conducted with Optimal Design Software (Raudenbush et al., 2011). This showed that the sample of 26 women would provide statistical of power of .8 to detect as significantly different from zero at two-tailed p < .05 a large slope effect (i.e., accounting for at least 17% of the variance with ICC of .40; 20% with ICC of .70). For detection of differences between women who had served long versus short amounts of time, the minimum detectable effects would be larger, accounting for at least 25% of the variance.

Results

Participants

Demographic and background characteristics of the participants are reported in Table 1. The mean age for the sample was 42 years old (SD = 9.48 years, range 22-60), and the

Table 3. Paired-Samples *t*-Tests Results for Mental Health and Anger Measures for All Women Over Time.

Measures	Pre/Post Tests			Post/Follow-Up Tests		Pre/Follow-Up Tests			
	Pretest Mean (SD)	Posttest Mean (SD)	Test Statistic ^a	Effect Size ^b	Test Statistic ^a	Pretest Mean (SD)	Follow-Up Test Mean (SD)	Test Statistic ^a	Effect Size ^b
Depression	7.19 (5.80)	5.46 (6.00)	1.65	0.32	-0.30	7.19 (5.80)	5.25 (5.14)	1.68	0.34
Anxiety	5.42 (4.51)	4.42 (4.73)	1.35	0.26	-0.88	5.42 (4.51)	4.96 (5.39)	0.38	0.07
Post-traumatic stress disorder	6.65 (5.07)	5.34 (4.90)	1.61	0.31	0.23	6.65 (5.07)	4.88 (4.50)	2.25*	0.46
Serious mental illness	7.35 (5.54)	5.35 (6.17)	2.11*	0.41	-1.80	7.35 (5.54)	5.88 (6.28)	1.23*	0.25
State anger	20.04 (6.94)	18.85 (5.91)	1.32	0.26	-1.05	20.04 (6.94)	20.13 (9.60)	-0.297	0.06
Trait anger	15.69 (5.11)	13.15 (3.99)	3.91*	0.77	0.22	15.69 (5.11)	12.92 (4.60)	2.86*	0.58
Anger Expression-Out	13.88 (3.35)	13.04 (3.78)	1.72	0.34	-0.22	13.88 (3.35)	12.79 (3.08)	1.37	0.28
Anger Expression-In	16.11 (4.62)	15.42 (4.45)	0.87	0.17	-1.57	16.11 (4.62)	17.04 (5.83)	-0.62	0.13
Anger Control-Out	21.65 (6.25)	24.04 (6.96)	-2.49*	-0.49 ^c	-0.17	21.65 (6.25)	24.75 (5.77)	-2.05*	-0.42 ^c
Anger Control-In	22.50 (7.38)	25.73 (6.58)	-2.75*	-0.54	-2.75**	22.50 (7.38)	26.88 (6.15)	-3.07*	-0.63

Note. *n* = 26. SD = standard deviation.

^a*t* Value from paired samples *t*-test, *df* = 25. ^bCohen's *d*. ^cNegative *d*'s reflect average increases in scores.

p* < .05. *p* < .01. ****p* < .001.

Table 4. Multilevel Analysis of Mental Health and Anger Outcomes Over Time (Two-Level Multilevel Models).

	Intercept at the Baseline Time Point			Time		
	<i>B</i>	Sig	<i>SE</i>	<i>B</i>	Sig	<i>SE</i>
Depression	6.65	***	1.01	-0.24		0.16
Anxiety	5.06	***	0.90	-0.03		0.14
Post-traumatic stress disorder	6.17	***	0.90	-0.19		0.14
Serious mental illness	6.58	***	1.14	-0.10		0.15
State anger ^a	19.49	***	1.34	0.07		0.29
Trait anger	15.12	***	0.86	-0.38	**	0.12
Anger Expression-Out	13.69	***	0.65	-0.11		0.08
Anger Expression-In	15.67	***	0.91	0.16		0.15
Anger Control-Out	22.45	***	1.22	0.31		0.31
Anger Control-In	23.26	***	1.22	0.58	**	0.18

Note. *SE* = standard error.

^aFor this dependent variable, the random slope model was used as it was estimated through the likelihood ratio χ^2 comparison test to be the best fit. For all other dependent variables, models with a fixed slope were used as they were estimated to be the best fit.

p* < .05. *p* < .01. ****p* < .001.

average length of time served in prison was 14.35 years (*SD* = 8.95 years, range 1–38 years). Women's scores on the mental health and anger-related outcomes at pre-, post-, and 3-month follow-up time points are reported in Table 2. These scores are also reported based on women's length of time served. For screening purposes, women who had served less than 10 years went from an average depression score of 10.10 (*SD* = 6.37) to 5.70 (*SD* = 5.52). The clinical cutoff score for major depression is 10 or higher, indicating the average score fell below the clinical cutoff over time (Kroenke & Spitzer, 2002).

Preliminary Paired Sample *t*-Tests Results for Changes for All Women Over Time

The results of the initial paired sample *t*-tests are reported in Table 3. For mental health measures, significant score changes

were found for SMI at both posttest and the 3-month follow-up time point. Significant changes in scores were also found for PTSD from pretest to the 3-month follow-up time point. For the anger-related measures, significant changes were found for trait anger as well as Anger Control-In and Anger Control-Out from the pretest to the posttest time point and also from the pretest to the 3-month follow-up time point.

Changes in Mental Health and Anger Outcome Variables Over Time

The results of MLM analyses on each of the outcome measures are summarized in Table 4. The first set of columns lists the intercept terms, which were estimated as random and centered at the preintervention time point. For example, on average, the women scored 6.65 on the depression measure, which is significant (e.g., significantly different than zero). Average scores

Table 5. Multilevel Analysis of Mental Health and Anger Outcomes Over Time by Years Served.^a

	Intercept			Time			Years ^a			Time × Years		
	B	Sig	SE	B	Sig	SE	B	Sig	SE	B	Sig	SE
Depression	9.01	***	1.61	-0.58	*	0.24	-3.87		2.05	0.59		0.32
Anxiety	7.54	***	1.43	-0.47	*	0.21	-4.08	*	1.82	0.76	**	0.27
Post-traumatic stress disorder	8.23	***	1.45	-0.48	*	0.21	-3.37		1.85	0.49		0.27
Serious mental illness	8.72	***	1.84	-0.41		0.23	-3.53		2.35	0.55		0.31
State anger ^b	20.61	***	2.18	-0.00		0.47	-1.82		2.78	0.12		0.61
Trait anger	16.02	***	1.41	-0.50	**	0.18	-1.48		1.80	0.22		0.24
Anger Expression-Out	14.48	***	1.08	-0.26	*	0.12	-1.32		1.37	0.27		0.16
Anger Expression-In	18.28	***	1.42	-0.11		0.23	-4.27	**	1.81	0.45		0.30
Anger Control-Out	23.68	***	1.98	-0.08		0.25	-2.06		2.53	0.66	*	0.33
Anger Control-In	24.45	***	1.98	0.19		0.28	-2.00		2.53	0.68		0.37

Note. SE = standard error.

^aLength of time incarcerated (years) was categorized into 0 = less than 10 years; 1 = 10 years or longer. ^bFor this dependent variable, the random slope model was used as it was estimated through the likelihood ratio χ^2 comparison test to be the best fit. For all other dependent variables, models with a fixed slope were used as they were estimated to be the best fit.

* $p < .05$. ** $p < .01$. *** $p < .001$.

were found to be significant for all measures, but this result is not necessarily informative. The second set of columns lists the slope coefficients describing the trajectory of change over time. In most cases, slope terms were estimated as fixed; for two dependent variables, slopes were estimated as random. The mental health outcome variable slope coefficients were negative, indicating that the scores of mental health symptoms decreased from the pretest to the 3-month follow-up assessment. However, none of these slopes were significantly different from zero.

For the types of anger-related variables, the slope coefficients for trait anger were also negative, indicating the desired decrease in this types of anger. This decrease for trait anger was significant over time. Unlike trait anger, state anger showed an increase, yet this change was not significantly different than zero. In terms of forms of anger expression, the coefficients for the variable of Anger Expression-Out decreased, meaning a lessening of physical acts (such as pushing, yelling) to express anger while the slope coefficients for Anger Expression-In increased. However, neither of these changes was significantly different than zero. Lastly, the coefficients for Anger Control-Out and Anger Control-In increased. For Anger Control-In, this change was significant, indicating positive changes in skills of managing and defusing anger.

Changes in Mental Health and Anger Variables Over Time by Years Served

The results of MLM analyses for all measures including the covariate of years served are reported in Table 5. Women's number of years served was categorized into less than 10 years (coded 0) and more than 10 years (coded 1). Women who had served less than 10 years started *Beyond Violence* with higher scores on all mental health measures. They were significantly higher on scores of anxiety (-4.08 , standard error [SE] = 1.82, $p = .03$), with scores approaching significant difference for

depression (-3.87 , SE = 2.05, $p = .07$) and PTSD (-3.37 , SE = 1.85, $p = .08$). [Note that the negative coefficients indicate higher levels for this group, which was coded 0.] Also, for women who had served less than 10 years, the rate of change was significantly different than zero for depression (an average decrease of 0.58 points per month, SE = 0.24, $p = .02$), anxiety (an average decrease of 0.47 points per month, SE = 0.21, $p = .03$), and PTSD (an average decrease of 0.48 points per month, SE = 0.21, $p = .03$). The monthly average rate of change for SMI approached significance for women who had been in prison for less than 10 years (-0.41 , SE = 0.23, $p = .08$).

These findings suggest that the number of years served is a variable that could be treated similarly to a control variable. Thus, this allows for revealing the main effects of the *Beyond Violence* intervention. The results displayed in Table 5 show that there were significant decreases in the mental health measures, indicating potential positive effects of the intervention.

Significant interactions of time and length of time incarcerated were found for anxiety ($B = 0.76$, SE = 0.27, $p = .008$) and approached significant for depression ($B = 0.59$, SE = 0.32, $p = .08$), PTSD ($B = 0.49$, SE = 0.27, $p = .08$), and SMI ($B = 0.55$, SE = 0.31, $p = .08$). The simple slopes for anxiety showed that the score for women who had served less time significantly decreased (-0.47 , $z = -2.35$, $p = .02$), while the score for women who had served more time increased and approached significance (0.29 , $z = 1.6743$, $p = .09$). For depression, SMI and PTSD, women who had served a longer period of time did not show changes significantly different from zero.

In regard to the anger variables, women who had served less than 10 years started *Beyond Violence* with higher scores on all anger measures and were significantly higher on scores of Anger Expression-In (-4.27 , SE = 1.81, $p = .02$) than women who had served over 10 years in prison. For women who had served less than 10 years in prison, the rate of change was significantly different than zero on trait anger (an average

decrease of 0.50 points per month, $SE = 0.18, p = .009$) and Anger Expression-Out (an average decrease of 0.26 points per month, $SE = 0.12, p = .03$).

Significant interactions were also found for Anger Control-Out ($B = 0.66, SE = 0.33, p = .05$) and approaching significant for Anger Expression-Out ($B = 0.27, SE = 0.16, p = .09$) and Anger Control-In ($B = 0.66, SE = 0.33, p = .07$). The simple slope for Anger Control-Out showed that the score for women who had served longer amounts of time significantly increased over time ($0.58, z = 2.59, p = .009$) and women who had served less time did not have a significant change. For Anger Expression-Out and Anger Control-In, women who had served a longer period of time did not show changes significantly different from zero in their scores.

Discussion and Applications to Practice

This study examined the mental health and anger-related outcomes for 26 women incarcerated with life sentences who completed a new group intervention entitled *Beyond Violence*. Outcomes were also assessed and compared for women based on their amount of time served in prison (i.e., women who have been in prison less than 10 years and those who have been in prison for 10 or more years). While this study had a small sample, it offers preliminary indications of intervention efficacy with this underserved population of incarcerated women and provides insight into a trajectory of future work in regard to social work practice, policy, and research with women with life sentences.

This new intervention displays some indications of a good fit for this population of women. *Beyond Violence* is a trauma-informed, gender responsive intervention aimed at violence prevention. In terms of this study's sample, all women reported experiencing at least one form of trauma in their lifetimes; a majority of women reported experiences of childhood emotional and physical abuse, sexual abuse, and intimate partner violence. These high rates of trauma experiences are similar to another study of the preprison life experiences of women with life sentences (Leigey & Reed, 2010). Extensive trauma histories are not uncommon for women involved in the perpetration of violence (Swan & Snow, 2006) and have complicated treatment experiences for incarcerated women (Colosetti & Thyer, 2000). Therefore, for social work practice with women with life sentences (and indeed, even more generally, with women convicted of violent offenses), a trauma-informed approach should be considered as a crucial element, especially with a perspective of understanding the multiple and varied forms of violence women may have experienced. Social work practice may also be well suited in capturing the complexity of women being both perpetrators and victims of abuse and violence.

Beyond Violence is intended to decrease symptoms of mental health concerns. While the averages of the mental health outcome scores decreased over time, none of these changes were significant for all women over time. Subgroup analyses displayed specific dynamics for women who had served less

than 10 years of their life sentence. This group of women who had served less time had higher scores for depression, PTSD, and SMI and a significantly higher score of anxiety. Likewise, they showed a significant rate of change for depression, anxiety, and PTSD.

These findings are similar to previous work that has focused on women's distress upon the beginning of their life sentence. For example, in Dye and Aday's (2013) examination of women with life sentences and suicide risk, women with less time served had a higher rate of suicide ideation than women who had been in prison longer. However, time served was not a significant factor in predicting suicide ideation. Other contextual factors, such as level of outside support and mental health concerns, shaped women's suicide risk.

This study and existing work suggest that women may benefit greatly from intervention early in their prison stay, and more insight is needed into treatment engagement and response for women with longer time served. Interestingly, in this current study, women who had served over 10 years showed a significant increase in anxiety over time. This finding may suggest a need for changes within the prison environment. A common coping strategy for women in prison is emotionally shutting down as a way to stay safe due to the dynamics of the prison environment (Greer, 2002). Therefore, asking women with life sentences and with a longer history of time served to examine their life histories (including trauma experiences and crime) may require additional time for processing, changes to the prison environment and staff responses to women's emotions, and a complimentary focus on continued coping with emotional vulnerability. These needs are in alignment with the core principles of gender-responsive services within prison (Bloom, Covington, & Owen, 2003), which require organizational shifts in how prisons operate and function.

Social work practice advancements may include advocacy for gender-responsive changes within prisons, targeting organizational policies and practices, and improved treatment opportunities. Likewise, intervention development work is needed that addresses women's experiences over time in prison and with an intervention design with multiple points of intervention. Ongoing support through peer groups, mentoring, and further treatment opportunities may be especially helpful for this population of women, as prison life both changes and remains monotonous. Any of these efforts requires social work advocacy to improve conditions and treatment opportunities for women serving life sentences. Also, social work practice expertise in engaging women who have been incarcerated over 10 years may inform best practices with this population.

This study used the common notion of a "long-term" sentences as serving 10 years or longer in prison (Thompson & Loper, 2005). However, it is not fully understood how women serving life sentences monitor or conceptualize time—what is the significance of 10 years in prison? For this prison, it was common practice for women to go to a parole board hearing after serving 10 years (regardless of the life sentence). This experience may influence how women view time in prison. However, more information is needed regarding women's

experiences as connected to time served, especially both individual-level and prison-level influences.

Social work research is well suited to explore multilevel influences, incorporating the individual and environment, on women's mental health in prison (Fedock, 2017). Future research may include life event calendars with incarcerated women in order to closely examine their experiences in prison and how their mental health in prison has changed throughout their prison stay. Factors such as fluxes in support, changes in security levels, release-related opportunities (e.g., parole board hearings and legal appeals) and prison programs (e.g., access to visitation programs) could be explored. Such research may inform key intervention timing and content domains for social work practice with incarcerated women with life sentences.

For the anger-related variables examined in this study, desired changes in the average scores occurred over time. However, only trait anger and Anger Control-In were found to significantly change for all women. Trait anger examines a woman's feelings of chronic anger and often presents as a feeling of constant frustration. It has emerged as significantly mediating the relationship between impulsivity and women's use of both intimate partner violence and general violence (Shorey, Brasfield, Febres, & Stuart, 2011). Thus, it has value as a violence prevention intervention variable. However, one aspect of trait anger is a perceived sense of injustice (Spielberger, 1999). Given the conditions of prison in terms of overcrowding, replicating social inequities and human rights violations (Greer, 2000; Labelle, 2008), trait anger as both a conceptualized personality factor and as an indication of perceived injustice within the environment may represent an intersection of importation and deprivation theories, or a rich area for a social work investigation of a person-in-environment perspective of anger.

Thus, anger, for some women, may be an appropriate response given the context. However, the concept of decreasing feelings of anger for women in prison may benefit from examination of the personal and political context. Future social work research would benefit from exploring women's perceptions of injustice, prison conditions, and histories of anger as well as how they navigate these factors while incarcerated. This may also warrant a more nuanced and tailored definition of "healthy anger" specifically for women in prison. Such definitions would inform social work practice with this population of women as well as future research.

Anger Control-In significantly increased in the analysis of all women, which is a desired change considering it reflects a skill in anger management (e.g., the ability to cool off, calm down, and self-regulate one's anger). Women with high levels of perpetration of intimate partner violence report suppressed anger with low anger control in addition to experiences of victimization, mental health concerns, and substance use (Swan & Snow, 2003). Therefore, *Beyond Violence* appears to be successfully targeting a form of anger and an anger expression connected with women's involvement in violence. In a prison environment where women are deprived of numerous external resources, the procurement of skills in internal

management of anger is seemingly a positive gain and appropriate for the setting.

Anger Control-Out and Anger Control-In are connected to behavioral changes in the sense of relating to the expression of feelings of anger. Notably, women with longer time served showed a significant increase in their Anger Control Out scores, which display their ability to gain new coping skills and utilize them within the prison. Future research may benefit from exploring further how women navigate their feelings of anger within prison and how they safely express anger in an environment incompatible with emotional expression, especially anger (Greer, 2002).

Lastly, while *Beyond Violence* offers preliminary indicators of efficacy, an overarching issue is the need for social work policy advocacy to improve prison policies and the treatment of incarcerated women with life sentences. One tangible and crucial policy implication is the need to modify policies that restrict eligibility for women with life sentences for treatment-based programming within prisons. Based on a national survey, approximately 62% of prisoners with a life sentence were not involved in treatment-based programming—mainly due to prison-based policies prohibiting those with life sentences from participating (Nellis, 2012). State-level and prison-specific policies may differ, and social workers should critically evaluate these policies for issues of inclusion and exclusion, quality and duration of treatment, and provision details.

As a preliminary and novel study, several limitations require attention. First, this study used a small sample from one prison, making these results nongeneralizable. Likewise, the results must be viewed in light of the limited power of the sample size. However, other studies of new interventions have utilized MLM with similar sized samples in order to ascertain outcomes over time (e.g., Goodkind, 2005), and this study sought to utilize rigorous methods in order to most appropriately analyze the data. Thus, this work should be considered preliminary and guide future intervention implementation and testing with this population of women. In particular, larger samples with attention to the length of time women have served will yield further examination into the efficacy of this intervention with this population of women. Given this study was performed in one state prison, deprivation factors (e.g., factors related to the prison climate/environment, policies, and procedures) could not be examined in relation to women's outcomes. Future studies may include testing *Beyond Violence* at multiple prisons and within varying security levels in order to assess these factors and compare outcomes.

Second, this study did not have a control group which limits the ability to attribute the changes in measures to *Beyond Violence* specifically. Given few women had been in a treatment group prior to *Beyond Violence*, simply the opportunity to be in a group may have influenced their outcomes. Thus, future studies including a control group will allow for comparisons of results with an ability to ascertain the specific effect of *Beyond Violence*.

Lastly, *Beyond Violence* is primarily a violence prevention intervention. Typically, prison-based studies focused on

prisoner behavioral change focus on reductions in the number of misconduct tickets as this is especially important for prison administrators (Van Tongeren & Klebe, 2010). For this study, the sample was ultimately authorized by prison administrators and given the novelty of such an opportunity, only women in “good standing” with administrators were approved. Therefore, future studies can consider examining this type of outcome, with an understanding of the often arbitrary and inconsistent nature of tickets (Acevedo & Bakken, 2003), and assessing positive changes in women’s daily functioning within the prison.

This preliminary study examines the mental health and anger-related outcomes for incarcerated women with life sentences who completed *Beyond Violence*. While this study shows some positive results nuanced by women’s amount of time served, it also highlights directions for future social work research, practice, and policy for this underserved population of incarcerated women.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

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