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An Analysis of Self-Reported Suicide Attempts and Ideation in a National Sample of Incarcerated Sex Offenders

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Abstract

Suicide is the leading cause of preventable death in US jails and prisons, with rates three to nine times higher than those of the general population. Although suicide in correctional settings has been recognized as a serious problem, the research on suicide among incarcerated individuals remains limited. While the majority of suicide risk factors may be common across all offender types, sex offenders may be at a particularly elevated risk. Specifically, sex offenders have been found to report high rates of hopelessness and depressive mood, which are known predictors of suicidal behavior, and approximately 14% of incarcerated sex offenders have previously reported a suicide attempt at some point in their lives. However, most of this data is based upon official reports and may represent an underreporting of the true prevalence of the problem. The current study provides an analysis of the prevalence and predictors of self-reported suicidal thoughts and behaviors in a large national sample of individuals convicted of a sexually based crime. Overall, 17.9% of sex offenders reported an attempted suicide in their lifetime and 15.1% reported experiencing suicidal ideation. A little more than a half of those who reported a suicide attempt had more than one suicide attempt. Demographic, mental health, and victim characteristics, along with a history of abuse and living environment in childhood, are presented in relation to suicidal behavior, followed by predictive hierarchical logistic regression models. Significant factors in the final model for suicide attempts were a history of psychiatric treatment, impact of a mental disorder, a history of physical abuse, and being in the foster care system in childhood. For suicidal ideation, predictive factors in the final model were a history of psychiatric diagnosis and treatment, and a history of physical abuse. The findings are discussed as they pertain to suicide prevention and intervention efforts among those who have committed sex offenses.

Introduction

Suicide is the leading cause of preventable death in US jails and prisons, with rates three to nine times higher than those of the general population (Hall & Gabor, 2004; Snow, Paton, Oram, & Teers, 2002). The rate of suicide in state prisons between 2001 and 2014 is 16 per 100,000 people; according to the most recently available data, suicide is responsible for 7.1% of all prison deaths—the highest percentage since 2001 (Noonan, 2016). The number of suicides in prison increased by 30% from 2013 to 2014 following a slight decrease of 6% from 2012 to 2013 (Noonan, 2016). Although suicide in correctional settings has been recognized as a serious problem, the research on suicide among incarcerated individuals remains limited (Cramer, Wechsler, Miller, & Yenne, 2017; Huey & McNulty, 2005), in part due to varying definitions of suicidal acts (e.g., attempted suicide, completed suicide, deliberate self-harm) and the complexity of data collection within correctional settings (Tartaro & Lester, 2009).

It is posited that incarcerated individuals are at elevated risk for suicide for two main reasons (Dye, 2010). First, prisoners often possess characteristics that are associated with increased risk for suicide in the community, such as poor educational and employment history, low self-esteem, negative interpersonal relationships, social and economic disadvantage, adverse life events, substance abuse, early contact with the criminal justice system, and poor problem-solving ability (Bronson, Stroop, Zimmer, & Berzofsky, 2017; James, 2004; Liebling, 1998; Liebling & Krarup, 1993). Second, the prison environment can be extremely stressful even for healthy inmates, as it abides by strict rules and deprives individuals of important resources and liberties (Sykes, 1958). Suicidal inmates may experience bullying, conflicts, or disciplinary infractions that aggravate the feeling of hopelessness, which is related to increased suicide risk (Konrad et al., 2007). It is imperative to better understand and prevent suicide in correctional

facilities as it has an enormous impact on other prisoners, correctional officers and staff, prison administrators, policy-makers and politicians, as well as the individuals who are experiencing suicidal thoughts and behaviors, and their loved ones (Konrad et al., 2007).

Suicide Risk Factors in Offender Populations

Risk factors for suicide among incarcerated individuals can be divided into three main categories: static, dynamic, and incarceration-related. Static risk factors are those that do not change over time and are based on the actuarial data of individuals who died by suicide (Welton, 2007). Static risk factors for suicide include demographic variables, such as age (21–42), gender (male), race and ethnicity (White), and marital status (single) (Daniel & Fleming, 2006; Fruehwald, Frottier, Matschnig, & Eher, 2003; Hayes, 2012; Tartaro & Lester, 2009). Additional static factors linked to suicidal behavior are a history of mental health disorders and treatment, a history of trauma and abuse, and childhood environment (out-of-home child welfare care, such as foster care and in-home supervision by social workers) (Blaauw, Arensman, Kraaij, Winkel, & Bout, 2002; Cox, 2003; Dooley, 1990; Encrenaz et al., 2014; Evans et al., 2017; Kovasznay, Miraglia, Beer, & Way, 2004; Tripodi & Bender, 2007). Finally, a previous suicide attempt is one of the strongest clinical predictors of future suicide in both general and incarcerated populations (Fazel, Cartwright, Normal-Nott, & Hawton, 2008; Harris & Barraclough, 1997; Suominen et al., 2004)

Dynamic risk factors are states or situations that are potentially modifiable and can be targeted by clinicians in an effort to reduce suicide risk (Knoll, 2010). Dynamic risk factors for suicide include recent suicidal ideation and the presence of a current mental health disorder, such as depression, psychotic disorders, bipolar disorder, or a personality disorder (Ayhan et al., 2017;

Baillargeon et al., 2009; Cox, 2003; Daniel & Fleming, 2006; Dooley, 1990; Dye, 2010; Fazel et al., 2008; Fazel & Danesh, 2002; Konrad et al., 2007).

In addition, incarcerated individuals face stressors and risk factors related to the incarceration itself. According to Sykes (1958), the stressors of imprisonment can be broadly categorized into the deprivation of liberty, the deprivation of goods and services, the deprivation of relationships, the deprivation of autonomy, and the deprivation of security (Sykes, 1958). High degrees of institutional disorganization, humiliation, indifference, and violence have also been linked to elevated rates of suicide (Liebling, 2017). Incarceration-induced hopelessness may be different between jail and prison inmates. For example, while in jails the initial shock and fear of incarceration play a large part in the development of hopelessness, in prisons hopelessness can occur later in the sentence, as the inmate finds it increasingly more difficult to cope with the prison environment (Fagan, Cox, Helfand, & Aufderheide, 2010). Fears of physical or sexual violence, fear about the future, embarrassment and guilt over the offense, fear or stress related to environmental conditions, conflicts within institution, victimization, legal frustration, and physical and emotional breakdown are generally considered risk factors for suicide in the prison environment (Konrad et al., 2007). These incarceration related risk factors are particularly salient for vulnerable prisoners who may find it especially difficult to cope with the demands of prison environment (Liebling, 1999).

Suicide Risk Among Sex Offenders

The majority of static, dynamic, and incarceration-related factors that contribute to suicidal behavior are common for most prisoners. However, prisoners charged or convicted of sexual crimes are over-represented among inmates who died by suicide compared with the general prison population (Bogue & Power, 1995). Risk factors for suicidal behavior can be

seen throughout sex offenders' personal history as well as during arrest and incarceration. There is some research suggesting that sex offenders may have traumatic childhoods that include experiences of abuse, which increased risk for suicide (Langevin, Wright, & Handy, 1989). Sex offenders are considered to be particularly at risk for suicidal behavior because of the shame and anxiety resulting from their arrest for a sexually based crime (Lester & Danto, 1993). During incarceration, sex offenders are subjected to increased victimization and segregation as a result of aggression against them (Milner, 2010; Webb et al., 2012). Additionally, sex offenders experience elevated levels of stress due to complex legal procedures, lengthy trials, and long-term prison sentences (Rabe, 2012). Finally, suicide prevention in sex offenders may not be a priority in our society due to the nature of the offense (Ayhan et al., 2017), which diminishes the chances to develop suitable prevention efforts.

To date, there is little research on suicidal behavior among incarcerated sex offenders. In a large sample of convicted sex offenders, Jeglic, Spada, and Mercado (2013) reported that 14% of the sample attempted suicide at some point of their life, with 11% attempting suicide before incarceration, 0.5% attempting suicide while incarcerated, and 2.5% attempting suicide both before and during incarceration. Sex offenders who attempted suicide were significantly more likely to have a traumatic life story that included abuse or neglect and were more likely to suffer from psychiatric problems or to be diagnosed with intellectual or neuropsychiatric impairment compared to those who did not make a suicide attempt. Additionally, the authors found that persistent mental illness, abuse and/or neglect, and choosing a male victim predicted suicidal behavior in sex offenders.

There are several suicide risk factors that may be more salient for those who have committed a sexual offense. For instance, sex offenders have been found to have higher rates of

childhood sexual abuse compared to non-sex offenders and non-offenders (Jespersen, Lalumière, & Seto, 2009; Romano & De Luca, 1997). Milner (2010) reported that some male sex offenders have been sexually abused as children, leading to earlier sexualization and perverse understanding of intimacy. Langevin and colleagues (1989) analyzed a sample of sex offenders who were sexually victimized as children and a control community group. The abused group was significantly more likely to have attempted suicide compared to non-abused group—29.2% versus 12.3%, respectively. Similarly, the abused group were more likely to engage in suicidal ideation (45.8%) compared to the non-abused group (33.9%). The abused group showed more signs of emotional instability compared to the non-abused group. As previously described, both past suicide attempts and suicidal ideation increase the possibility of future suicide attempt.

Further, sex offenders may be at a particularly elevated risk for suicide at the time of arrest. In a study of sex offenders who were under investigation or awaiting court appointment, Brophy (2003) found a suicide risk of 1/1,644 for those who committed offenses against adults and 1/24 for those who committed offenses against children—which was significantly higher than the suicide risk in general population (1/5,524; Brophy, 2003). Brophy (2003) emphasized the role of loss of social standing, damage to one's reputation, and shame as possible factors in sex offenders' suicides. Lester and Danto (1993) postulated that sex offenders are at a particular risk for suicide because of the shame, anxiety, and guilt resulting from their arrest, particularly in case of child sex offenses (e.g., child pornography) (Dooley, 1990; Lester & Danto, 1993). There are mixed findings regarding victim selection and suicide risk. Some studies found that child sex offenders were much more likely to complete suicide (Brophy, 2003; Pritchard & King, 2005), while others did not find differences in rates of suicidal behavior by offender type (Jeglic et al., 2013; Webb et al., 2012). Child sex offenders may feel different from others due to their

sexual preferences, leading to isolation; they are subject to increased stigma and shame, especially if they are arrested or convicted of a crime—these factors are related to increased risk for suicide (Hoffer, Shelton, Behnke, & Erdberg, 2010).

Sex offenders may also face additional stressors within the institutional environment. According to Milner (2010), sex offenders are often targeted in prisons, leading to a high degree of victimization. Due to the nature of their crimes, sex offenders are considered "pariahs" (Ayhan et al., 2017) and may be subjected to attacks, bullying, and discrimination while incarcerated (Rabe, 2012), which can increase suicide risk (Blaauw, Winkel, & Kerkhof, 2001; Dye, 2010). Consequently, sex offenders can often be found in a segregated accommodation as a result of these threats (Webb et al., 2012), and segregation in and of itself can lead to increased suicidal ideation (Bonner, 2006). Additionally, Stinson and Gonsalves (2014) found higher rates of both suicide attempts and self-harm behavior in a psychiatric sample of sex offenders compared to psychiatric non-sex offenders. The authors reported that being a sex offender predicted at least one suicide attempt, lending further support to elevated suicide risk among psychiatric sex offenders.

Finally, sex offenders' risk for suicide may also be augmented due to the sex-offender specific restriction and legislation they face upon or nearing release, including civil commitment, residence restrictions, and registration and notification statutes (Jeglic et al., 2013). Primary and secondary collateral consequences of sex offender registration and notification laws, including housing, job, and relationship difficulties along with stigmatization and threats, were found to be related to sex offenders' negative self-worth, reduced self-esteem, and lower opinion of and compliance with registration and notification laws (Bowen, Frenzel, & Spraitz, 2016). Perceived negative impact of community restriction and notification statutes was found to be positively

correlated with elevated depression and hopelessness, as well as isolation, loss of relationships, fear, and shame (Jeglic, Mercado, & Levenson, 2012; Levenson & Cotter, 2005). These consequences may lead to negative emotional effects, which are linked to suicidal behavior. It has been suggested that negative affective states, including depression and hopelessness, may be related to sexual offending as well as increased suicide risk (Jeglic et al., 2012). Overall, levels of depression and hopelessness among surveyed sex offenders are higher than in general population (Jeglic et al., 2012).

Because of strong societal contempt toward sex offenders, preventing sex offenders' suicide may not be viewed as a priority (Ayhan et al., 2017). However, the general value of human life, promotion of "Good Lives", and alleviation of stress that guide society have been cited as reasons for suicide prevention efforts among sex offenders (Jeglic et al., 2013; Ward, 2002). Further, attempted and completed suicides lead to the great social, economic, and medical costs; additionally, they impact the sex offender and their families, victims' families as well as victims themselves, and the criminal justice system (Hoffer et al., 2010; Jeglic et al., 2013). Finally, the factors that are associated with elevated suicide risk and hopelessness among sex offenders are suggested to be the same factors that may lead to initiation of sexual offending and increase in sexual recidivism. A history of childhood sexual abuse and persistent mental illness may be associated with both sexual offending and suicidal behavior in adulthood (Jeglic et al., 2013); general self-regulation problems are one of the strongest predictors of both general and sexual recidivism (Hanson & Morton-Bourgon, 2005); registration and notification requirements, as well as residence restriction statutes, may lead to increased chance of sexual recidivism due to aggravation of the factors related to criminal behavior (Jeglic et al., 2012).

Thus, addressing these risk factors through prevention efforts may not only decrease the risk of suicide, but also decrease the risk of future sexual offending.

Current Study Overview

A recent study by Jeglic and colleagues (2013) found elevated rates of suicidal behavior among incarcerated sex offenders, both before and during incarceration. However, the findings were based on institutional data. Official figures of suicide rates may underestimate the true prevalence of the phenomenon in prisons and jails due to self-inflicted deaths being misclassified as accidents or unknown causes (Crighton, 2010; Lester & Danto, 1993; Liebling, 1999). Self-report data adds an important point of view of the offenders and may provide a more accurate picture of suicidal behavior in incarcerated sex offenders. Thus, the current study investigates self-reported suicidal thoughts and behaviors in a large national sample of individuals convicted of a sexually based crime. The goal of this study was to identify specific risk factors for suicide among incarcerated sex offenders as reported by the offenders in order to contribute to further development of effective suicide prevention strategies for this population. Thus, the aims of the present study were: 1) To analyze the prevalence of self-reported suicidal behavior in a national sample of incarcerated sex offenders; 2) To examine how characteristics of the offenders are related to suicidal behavior; and 3) To contribute to predictive models of suicidal behavior among sex offenders using logistic regression models. The specific hypotheses were: 1) Sex offenders will have elevated levels of self-reported lifetime suicide attempts and suicidal ideation; 2) Sex offenders who reported lifetime suicide attempts of suicidal ideation would also report higher rates of previous sexual and physical abuse, as well as intentional injury in prison during present accommodation than non-suicidal sex offenders; 3) Sex offenders who reported lifetime suicide attempts of suicidal ideation would also report higher rates of mental health

diagnoses, treatment, and characteristics than non-suicidal sex offenders; 4) Sex offenders who reported lifetime suicide attempts of suicidal ideation will be more likely to have been involved in child welfare system in childhood and had negative experiences with their caregivers than non-suicidal sex offenders; 5) Sex offenders who reported lifetime suicide attempts of suicidal ideation will be more likely to have male victims and victims that are known to the offender than non-suicidal sex offenders.

Methods

Research Design

This study employed a cross-sectional exploratory design using publicly available archival records of the 2004 Survey of Inmates in State Correctional Facilities. The data available in the dataset and corresponding codebook (Bureau of Justice Statistics, 2004) was collected through a computer-assisted personal interviewing (CAPI) and included demographic information, criminal history, current offense information, family history, substance abuse history, and medical and mental health histories.

Participants

The participants were chosen from the archival records of a large national sample of 14,499 offenders incarcerated in state correctional facilities (Bureau of Justice Statistics, 2004). The 2004 Survey of Inmates in State Correctional Facilities (SISCF) was conducted for the Bureau of Justice Statistics by the Bureau of the Census. The main mission of the survey was to provide nationally representative data on inmates that occupy state facilities. The computer-assisted personal interviews were conducted starting October 2003 through May 2004. The sample of inmates for the 2004 Survey of Inmates in State Correctional Facilities was obtained using a two-stage sample design. In the first stage, sample correctional facilities were selected

from two SISCF files. The first SISCF file was obtained from the Bureau of Justice Statistics 2000 Census of State and Federal Correctional Facilities and contained 1,549 State facilities; the second SISCF file contained 36 prisons which had been opened between June 30, 2000, and April 1, 2003 (Bureau of Justice Statistics, 2004). In the second stage of sample selection in state prisons, inmates within sampled prisons were selected from a list provided by the facility. Each inmate on the list was assigned a number, the computer selected inmates for interview by selecting the numbers corresponding to the facility list using computerized procedures, including a randomly selected starting point and a predetermined skip interval. In total, 13,098 male and 3,054 female inmates were sampled. Further in-depth details of how the survey procedure was conducted are provided in the codebook (Bureau of Justice Statistics, 2004).

From the total number of state inmates in the 2004 SISCF, the participants for this study were identified using selection criteria based upon offense group. As the group of interest for this study is sex offenders, the included offense groups were: Rape using force, Forcible sodomy, Statutory rape without using force, Lewd act with children, Moral/Decency offense, and Other sexual assault. The list of specific offenses included in these groups can be found in the codebook (Bureau of Justice Statistics, 2004). In total, 1,118 male offenders who were sentenced to serve time for at least one sexual offense at the time of the survey were identified for the study's purposes. Originally, the sample included an additional 40 female sex offenders, however, given the small number of female participants, potentially different characteristics of male and female sex offenders (such as recidivism rates, victim characteristics, history of previous abuse; Freeman & Sandler, 2008; West, Friedman, & Kim, 2011), and potentially different issues related to suicidal behavior among female inmates (such as lethal suicidal

behavior; Daigle & Cote, 2006, and elevated distress levels among female inmates; Liebling, Durie, Stiles, & Tait, 2005), female offenders were omitted from the analysis.

The final sample comprised 1,118 male offenders aged 18 to 81 years (M = 41.53, SD = 11.94). The participants were primarily White and never married or divorced (see Table 1). Approximately 57% (n = 450) reported having children, including adopted and stepchildren. Almost 37% (n = 483) reported having a high school diploma, 6.3% (n = 70) reported receiving a GED, 16% (n = 177) attended some or full college program, and 2.9% (n = 32) attended one or two years of graduate school. One month before their arrest, 83% (n = 916) of the offenders reported having a job or business, and 88.6% (n= 812) reported having worked full time. Out of all respondents, 4.9% (n = 54) stated they were homeless at some point in their lives. The vast majority of the offenders, 90.4% (n = 1002), were not habitual offenders (i.e., they were not previously convicted of crimes); and approximately one third (33.4%; n = 366) of the offenders did not have prior arrests. Approximately 30% (n = 340) of the sample reported having been diagnosed with a psychiatric disorder, 28.9% (n = 320) reported receiving medication for psychiatric diagnosis, and 15.8% (n = 174) reported having been hospitalized due to mental health issues.

In terms of victim characteristics, the majority, 80.9% (n = 878) of the offenders, committed a current offense against one victim, while 18.7% (n = 203) had more than one victim. In cases where there was only one victim, the victims were predominantly female (90.7%, n = 790), under 18 years of age (72.4%, n = 619), with 28.4% (n = 243) of victims being under the age of 12 and 44.0% (n = 376) between the ages of 12 and 17. Additionally, the victims were largely known to the offender (84.1%, n = 734).

In cases with multiple victims, offenders who chose to answer the questions reported that the victims were mostly female or equally divided in terms of gender (71.9%, n = 23); the youngest victims were primarily under the age of 12 (56.2%, n = 109), followed by the age category of 12 to 17 years of age (27.8%, n = 54); the oldest victims were 12 to 17 years old (45.8%, n = 88) followed by the victims under the age of 12 (30.7%, n = 59). The offenders reported that in 80.9% (n = 161) of the offenses all or some of the victims were known to them.

The majority of the offenders reported that as far as they are aware they have never received a psychiatric diagnosis (69.6%, n = 778). Approximately 16% (n = 182) of the sample reported receiving a mixed diagnosis that consisted of two of more conditions, 7.9% (n = 88) reported diagnosis of depressive disorder, 1.2% (n = 13) reported diagnosis of anxiety disorder, 1.1% (n = 12) were given the diagnosis of personality disorder, 0.9% (n = 10) were diagnosed with bipolar disorder or mania, another 0.9% (n = 10) were diagnosed with posttraumatic stress disorder, 0.8% (n = 9) reported diagnosis of schizophrenia or psychotic disorder, and 1.4% (n = 16) reported having other mental or emotional conditions.

Materials

The materials used in this study were the questionnaire, the dataset, and the codebook that are publically available in the 2004 Survey of Inmates in State Correctional Facilities (Bureau of Justice Statistics, 2004).

Suicidal behavior. Two questions in mental health section assessed suicidal behavior: (1) “Have you ever attempted suicide?” (Yes/No); (2) “Have you ever considered suicide?” (Yes/No). The categories of suicide attempt and suicidal ideation were mutually exclusive: Suicidal ideation was coded only for those participants who did not report making a suicide attempt.

Demographic variables. The self-reported variables included race and ethnicity, age, gender, marital status, and number of children including step or adopted children. Other variables included education, previous convictions and arrests, vocational background ("During the month before your arrest on (present date), did you have a job or business?" (Yes/No); "Was this full-time, part-time, or occasional work?" (Full-time, Part-time, Occasional)), and residence status ("In the (number of months or 12) months before your arrest on (present), had there been a time when you were homeless, living on the street or in a shelter?" (Yes/No)).

Additional analyzed variables included childhood environment, a history of abuse, mental health characteristics, and victim characteristics. Childhood environment described who the participant grew up with using the following questions: "When you were growing up, who did you live with most of the time? (Both parents (including one step parent), Mother, Father, Grandparents, Other relatives (include step-relations), Friends, Foster homes, Agency or institution (including religious institution), Someone else)"; "Was there ever a time while you were growing up that you lived in a foster home, agency, or institution?" (Yes/No); "Was it a foster home, agency, institution, or both?" (Foster home, Agency or institution, Both). A history of abuse included sexual abuse, physical abuse, and whether caregivers abused substances when the participant was growing up. Intentional injury in prison included intentionally injury since the most recent admission to correctional facility. Mental health characteristics included reports of diagnosed mental disorder ("Have you ever been told by a mental health professional, such as a psychiatrist or psychologist, that you had (list of psychiatric conditions)?"), a history of taking prescribed medication to deal with mental disorder, a history of hospitalization due to mental disorder, presence of learning disability ("Do you have a learning disability, such as dyslexia or attention deficit disorder?" (Yes/No)), and a history of special education enrollment ("Have you

ever been enrolled in special education class or SPED?" (Yes/No)). Victim characteristics were assessed initially by asking whether the offender had one or multiple victims; depending on the answer, the questions regarding victim's age, gender, and whether the offender knew the victim were in singular or plural form.

Results

Prevalence of Suicidal Behavior

Overall, 17.9% (n = 200) of 1,118 respondents reported a lifetime suicide attempt, and of those, 53.1% (n = 103) reporting more than one suicide attempt. In addition, 15.1% (n = 169) reported ever experiencing suicidal ideation but did not report making an attempt. As the categories of suicide attempt and suicide ideation were mutually exclusive, there is no overlap in these figures.

Demographic Characteristics

Demographic attributes including age, race/ethnicity, and marital status of the respondents who reported attempting suicide and experiencing suicidal ideation were compared to the non-attempters/non-ideators through chi-square analyses (see Tables 2 and 3). Offenders who attempted suicide were younger (under the age of 31); ($\chi^2 = 17.190$, $df = 4$, $p < .01$). Individuals who reported suicidal ideation were more likely to be divorced ($\chi^2 = 11.328$, $df = 4$, $p < .05$). In terms of race and ethnicity, White respondents were significantly more likely to attempt or consider suicide than Black or Latino respondents, ($\chi^2 = 46.382$, $df = 6$, $p < .01$ (attempt); $\chi^2 = 21.154$, $df = 6$, $p < .01$ (ideation); the tests were conducted using Monte Carlo simulation—Fisher-Freeman-Halton test values are reported).

Childhood Environment

Childhood environment of those who reported attempting suicide/experiencing suicidal ideation were compared to the non-attempters/non-ideators through chi-square analyses (see Tables 4 and 5). Overall, offenders who attempted suicide were more likely to have grown up in a foster home as their primary living arrangement ($\chi^2 = 18.402$, $df = 8$, $p < .05$) or have ever lived in foster home/agency at some point in their childhood ($\chi^2 = 46.235$, $df = 1$, $p < .01$). No significant differences in childhood environment were found between those who reported suicidal ideation and those who did not.

History of Abuse

The abuse history of the offenders who attempted suicide and experienced suicidal ideation was compared to the non-attempters/non-ideators through chi-square analyses (see Tables 6 and 7). Respondents who attempted suicide or experienced suicidal ideation were more likely to have experienced sexual abuse ($\chi^2 = 42.407$, $df = 1$, $p < .01$ (attempt); $\chi^2 = 28.751$, $df = 1$, $p < .01$ (ideation)) and physical abuse ($\chi^2 = 87.495$, $df = 1$, $p < .01$ (attempt); $\chi^2 = 36.746$, $df = 1$, $p < .01$ (ideation)) than those who did not attempt suicide. Moreover, persons who attempted or had suicidal ideation were more likely to have had caretakers who abused drugs or alcohol ($\chi^2 = 38.508$, $df = 1$, $p < .01$ (attempt); $\chi^2 = 8.427$, $df = 1$, $p < .01$ (ideation)).

Intentional Injury in Prison

The reports of intentional injury in the present correctional facility of the offenders who attempted suicide and experienced suicidal ideation were compared to the non-attempters/non-ideators through chi-square analyses. Participants who attempted suicide were more likely to have been intentionally injured since the most recent admission to correctional facility ($\chi^2 = 9.819$, $df = 1$, $p < .01$) compared to the participants who did not attempt suicide. No significant

difference was found between the offenders who experienced suicidal ideation and those who did not.

Mental Health Characteristics

The mental health and learning disability history of the offenders who attempted suicide and experienced suicidal ideation were compared to the non-attempters/non-ideators through chi-square analyses of the variables (see Tables 8 and 9). Regarding psychiatric diagnoses, respondents who attempted suicide or experienced suicidal ideation were more likely to have been diagnosed with a mental disorder and suffer from a depressive disorder or combination of two or more psychiatric conditions; individuals who experienced suicidal ideation were also more likely to have received a diagnosis of posttraumatic stress disorder ($\chi^2 = 154.405$, $df = 8$, $p < .01$ (attempt); $\chi^2 = 85.566$, $df = 8$, $p < .01$ (ideation); the tests were conducted using Monte Carlo simulation—Fisher-Freeman-Halton test values are reported). Participants who attempted suicide or experienced suicidal ideation were more likely to have ever taken a medication for any psychiatric disorder ($\chi^2 = 134.042$, $df = 1$, $p < .01$ (attempt); $\chi^2 = 60.967$, $df = 1$, $p < .01$ (ideation)). Participants who attempted or considered suicide were more likely to have been hospitalized due to emotional or mental problem ($\chi^2 = 128.986$, $df = 1$, $p < .01$ (attempt); $\chi^2 = 55.620$, $df = 1$, $p < .01$ (ideation)), their mental health condition was impactful enough to keep them from participating fully in work, school, or other activities ($\chi^2 = 45.496$, $df = 1$, $p < .01$ (attempt); $\chi^2 = 17.611$, $df = 1$, $p < .01$ (ideation)), they were more likely to have a learning disability ($\chi^2 = 27.739$, $df = 1$, $p < .01$ (attempt); $\chi^2 = 6.357$, $df = 1$, $p < .05$ (ideation)), and offenders who attempted suicide, but not those who experienced suicidal ideation, were significantly more likely to have ever been enrolled a special education class ($\chi^2 = 16.815$, $df = 1$, $p < .01$).

Victim Characteristics

Offenders who had one victim and reported attempting suicide were more likely to have known their victim ($\chi^2 = 4.455$, $df = 1$, $p < .05$) than those who had not attempted suicide. No other victim characteristics were found to be significant in the analyses.

Predictive Models of Suicidal Behavior

In order to better understand the predictors of suicide attempts, a hierarchical logistic regression was performed—the dependent variables were dichotomous ("Have you ever attempted suicide?" (Yes/No); (2) "Have you ever considered suicide?" (Yes/No)), and the hierarchical structure allowed to examine additional contributions of specific variables over those that were added previously. Based on existing literature, variables pertaining to psychological diagnosis and treatment were entered into the first block in the following order: psychiatric diagnosis, psychiatric treatment, impact of mental health condition, followed by the sexual abuse and physical abuse factors in the second block, and finally the childhood environment variables in the third block in the following order: living arrangements in childhood with or without both parents, ever spending time in a foster care system (see Tables 10, 11, 12). After the first block, 12.6% of those who attempted suicide were correctly classified by the model, which explained 25.4% of the variance in the suicide attempt ($\chi^2 = 175.504$, $p < .01$; Table 10). Factors of the abuse were entered as a second block, as a history of abuse has been previously shown to increase potential risk for suicidal behavior. The model including the second block correctly classified 20.9% of individuals who reported suicide attempts and explained 29.1% of the variance ($\chi^2 = 203.560$, $p < .01$; Table 11).

The final model included childhood environment variables that were entered based on previously presented data that issues in childhood may influence behavior and psychological

well-being in adulthood (Table 12). This model was the most accurate: The classification accuracy of those who attempted suicide went up to 23.1% and of those who did not attempt suicide—97.5%; the overall predictive accuracy was 84.7%, and the model explained 30.7% of the variance ($\chi^2 = 216.262$, $p < .01$). The significant contributors to the model were: A history of at least one type of psychiatric treatment (OR = 4.80), whether or not mental health problem prevented participation in daily activities (OR = 2.33), physical abuse (OR = 2.32), and spending at least some time in a foster care system while growing up (OR = 2.47).

Hierarchical logistic regression was also performed in order to understand the variables that are helpful in predicting suicidal ideation among incarcerated sex offenders—see Tables 13, 14, 15. The process was similar to that previously outlined for predicting suicide attempts. In accordance with literature, variables pertaining to psychological diagnosis or treatment were entered into the first block, followed by the sexual/physical abuse factor, and finally the childhood environment variables. Variables in the first block explained 17.8% of the variance in the suicide attempt ($\chi^2 = 101.414$, $p < .01$; Table 13). Second block model explained 20.0% of the variance, which points to enhancement of prediction capability over the first block variables ($\chi^2 = 114.636$, $p < .01$; Table 14).

The final model was the most accurate (Table 15): The classification accuracy of those who experienced suicidal ideation suicide was 16.3% and of non-ideators—96.5%, the overall predictive accuracy was 81.9%, and the model explained 21.1% of the variance, which is an improvement over two previous models ($\chi^2 = 121.546$, $p < .01$). The significant contributors to the final model were a history of mental health diagnosis (OR = 2.17), at least one type of psychiatric treatment (OR = 3.06), and previous physical abuse (OR = 1.98).

Discussion

The present study examined the prevalence and predictors of self-reported suicide attempts and suicidal ideation among incarcerated sex offenders. Overall, we found higher rates of lifetime suicide attempts and ideation among incarcerated sex offenders than previously reported using institutional data. We also found several risk factors that are significant in prediction of suicidal behavior, including a history of psychiatric diagnosis and treatment, a history of physical abuse, and involvement in the child welfare system.

Approximately 18% of the sample reported a lifetime suicide attempt, which is higher than previously reported (Jeglic et al., 2013) and higher than a lifetime percentage of self-reported suicide attempts in a general population across 17 countries—17.9% versus 2.7% (Nock et al., 2008)—this finding supports our first hypothesis. In addition, the lifetime prevalence of suicidal ideation reported by this sample was significantly higher than that reported in a general population across 17 countries—15.1% versus 9.2% (Nock et al., 2008). Suicidal ideation rates in the present study included only reports of the offenders who did not report making a suicide attempt. Suicide attempts and ideation rates in present study are lower than those found in general prison populations in other countries—20.1% reported lifetime suicide attempts and 36.1% reported a lifetime suicidal ideation in UK (Jenkins et al., 2005), 20.5% reported suicide attempts and 33.7% reported suicidal ideation in New South Wales, Australia (Larney, Topp, Indig, O'Driscoll, & Greenberg, 2012), 20.3% have reported suicide attempts and 43.1% have reported suicidal ideation in Flanders, Belgium (Favril, Vander Laenen, Vandeviver, & Audenaert, 2017). This finding may be accounted for by taking into consideration the differences between the countries and the mixed offender types within the comparison samples that constitute general prison population. It is, however, evident that offenders in general

population and sex offender population in particular have significantly higher lifetime rate of suicide attempts and ideation compared to the general population globally. The finding that the prevalence of reported suicide attempts and ideation among sex offenders was elevated compared to institutional data (Jeglic et al., 2013) supports the existing research on underreporting of suicide in official channels. This could be due to several reasons, such as misclassification of cause of death and non-detection of suicide attempt that does not require medical attention (Crighton, 2010; Lester & Danto, 1993). Self-reported information on suicide attempts and ideation provides an important addition to institutional data and provides a fuller picture of actual prevalence of suicidal behavior in correctional settings, while highlighting that this population may be at a particular risk for engaging in suicidal behavior as compared to those who are not incarcerated.

Incarcerated sex offenders who reported attempting suicide or experiencing suicidal ideation were more likely to be White and less likely to be Black or of Latino/Hispanic/Spanish origin, which is in line with previous research (Daniel & Fleming, 2006; Hayes, 2012). This finding suggests that White individuals who commit a sexual offense may be at a higher risk for suicidal behavior. It is plausible that this is because of increased risk factors, such as lack of social support, higher suicide acceptability, and lack of religious coping mechanisms or the presence of fewer protective factors for suicide, such as religiosity, self-expressionism, and culture-specific constructs, which are more prevalent among Black and Latino individuals (Oquendo et al., 2005; Stack & Kposowa, 2011). Additionally, this finding is in line with the general suicide literature that suggests that White individuals have higher suicide rates that other racial and ethnic groups (National Center for Health Statistics, 2017).

Similar to some previous research, respondents who attempted suicide were younger (under the age of 31) than those who did not make a previous attempt (Daniel & Fleming, 2006). However, this is in contrast to other studies suggesting that older inmates are at increased risk (Hayes, 2012; Fruehwald et al., 2003). As these figures pertain to general prison population, it may be argued that sex offenders possess factors that predispose them to attempting suicide/experiencing suicidal ideation at a younger age, such as shame, guilt, and anxiety due to the offense, or frequent victimization and threats by other prisoners (Lester & Danto, 1993).

Offenders who have reported experiencing suicidal ideation were significantly more likely to be divorced (Daniel & Fleming, 2006), however, marital status did not significantly differentiate between attempters and non-attempters. This is contrary to previous research that found that most offenders who die by suicide tend to be single (Hayes, 2012). This finding is interesting, particularly considering that never married and divorced participants constituted the majority of the sample. Kyung-Sook, Sangsoo, Sangjin, & Young-Jeon (2018) found that marital status as a form of social integration interacts with a risk of suicidal behavior: The risk increases for non-married individuals, with divorce being a particularly salient risk factor compared to other non-married statuses. Marriage increases social and emotional support, which are considered to be protective factors for suicidal behavior (Kleiman & Liu, 2013). It is possible that the discovery of the committed sex offense played a role in further disconnect from society and families. Future studies should examine the significance of marital status representing connectedness to a larger society as a potential suicide risk factor.

In support of our fourth hypothesis, offenders who reported suicide attempts or suicidal ideation were significantly more likely to grow up primarily in a foster home. These findings corroborate previous research regarding increased suicide risk among individuals who were in

child welfare system or removed from their homes (Evans et al., 2017; Jeglic et al., 2013), and suggest that evaluating family environment during childhood should be accounted for when assessing suicide risk. Studies have found that being in the foster care system was related to an increased risk for self-harm behavior and severe psychiatric morbidity as well as impulsivity, all of which are related to suicidal behavior (Vinnerljung, Hjern, & Lindblad, 2006; Wadman et al., 2017). It can be argued that some of the reasons for which children are placed in foster care, namely actual or potential risk of abuse or neglect, increase the risk for future suicide attempts or ideation in this group.

Offenders who committed sexual crimes and who reported suicide attempts or ideation also reported that their caregivers were more likely to have abused substances compared with offenders who did not attempt or consider suicide—this finding supports our fourth hypothesis. This is in line with previous findings by Alonzo, Thompson, Stohl, and Hasin (2014), who found that parental alcohol abuse increased the likelihood of offspring lifetime suicide attempt by 85% in general population. Parental substance abuse is linked to general lack of involvement and supervision, lack of affection, high levels of criticism, chaotic home environment, and parental lack of problem solving strategies, which can be internalized by children and lead to elevated risk for suicide attempt (Alonzo et al., 2014; Child Welfare Information Gateway, 2009). These findings shed a light on traumatic life experiences that are related to increased suicidal behavior among incarcerated sex offenders. The presence of these experiences should be taken into account when screening for possible suicidal behavior and risk in sex offender population. Moreover, trauma-informed care may be salient to provide necessary treatment, as it acknowledges the role negative experiences play in the development of high-risk behaviors and concentrates on subjective interpretation of trauma (Levenson, Willis, & Prescott, 2016).

A history of abuse was found to be a significant factor in assessing suicidal behavior among sex offenders. Participants who attempted or considered suicide were significantly more likely to have experienced sexual and physical abuse compared to those who did not report any suicidal behavior—this is in support of our second hypothesis. This finding is in line with previous research which found that traumatic life events are more prevalent among inmates who exhibit suicidal behavior (Blaauw et al., 2002). Thus, sex offenders in our sample had abusive experiences that may have played a role in their suicidal behavior as well as sexual offense—it has been previously noted that sex offenders are more likely to have been victimized in childhood compared to non-offenders and non-sex offenders, which may lead to emotional instability (Jespersen et al., 2009; Langevin et al., 1989; Milner, 2010; Romano & De Luca, 1997).

In addition to traumatic experiences, sex offenders who reported suicide attempts were significantly more likely to have been intentionally injured since the last admission to correctional facility—this finding is in line with previous research that point to elevated victimization among incarcerated sex offenders that can increase risk for suicidal behavior (Milner, 2010; Dye, 2010) and supports our second hypothesis. This finding points to need for increased security for sex offender population that would not involve segregated accommodation, which has been previously described as related to elevated suicide risk (Bonner, 2006). A protective accommodation may involve segregated sex offender prisons containing only individuals convicted of sex offenses, and no other vulnerable populations (e.g., individuals who were police informers). There are varying levels of violence among sex offenders (e.g., offenders with a long history of violent rapes versus first-time offenders convicted of possessing

child pornography), so this aspect of incarceration should also be explored in terms of housing prisoners.

Approximately one third of the sample reported a psychiatric history. This is slightly higher than the prevalence reported among state and federal prisoners in 2004 Survey of Inmates in State and Federal Correctional Facilities—one fourth of all inmates (state and federal) in that sample reported receiving a psychiatric diagnosis in their lifetime (Gonzalez & Connell, 2014). The most prevalent disorder among the present sample of offenders was depressive disorder. Offenders who reported suicidal attempts or ideation were more likely to report having a psychiatric diagnosis; specifically, they were more likely to report that they suffer from depressive disorder or combination of two or more psychiatric disorders, and they were also significantly more likely to have ever received psychiatric treatment as compared to those who did not make a suicide attempt. These participants were additionally more likely to have an impactful psychiatric disorder that prevented their active participation in daily activities. These findings are in line with previous literature regarding psychiatric picture of inmates who exhibit suicidal behavior (Ayhan et al., 2017; Cox, 2003; Dooley, 1990; Jeglic et al., 2013; Kovasznay et al., 2004; Tripodi & Bender, 2007) and in support of our third hypothesis. The implications of these results concern the need for increased supervision in terms of suicide risk for sex offenders who have received psychiatric diagnosis and treatment, particularly those who have reported high impact of the mental disorder on their daily activities.

Additional available mental health factors were also examined. The participants who attempted suicide or experienced suicidal ideation were significantly more likely to have a learning disability; offenders who attempted suicide were also more likely to have been enrolled in a special education class—both of these findings are in line with previous research regarding

intellectual and cognitive characteristics of suicidal sex offenders (Jeglic et al., 2013) and in line with our third hypothesis. These cognitive characteristics may be relevant for assessing suicide risk as well as future offending risk: Intellectual disabilities in sex offenders are associated with cognitive-behavioral deficits such as denial and victim empathy deficits, as well as background factors such as dysfunctional family environment, school adjustment problems, and problems in relationships (McBrien, Newton, & Banks, 2010); Sex offenders with learning disability may experience difficulties in impulse control and emotional development, social environment discord, and may re-offend at higher rates than non-disabled individuals (Craig & Hutchinson, 2005). These offenders may be excluded from mainstream treatment programs, and may require programs that are adapted to their needs (e.g., with a focus on adequate information presentation; Craig & Hutchinson, 2005). Additionally, these factors may not always be accounted for during intake process and initial suicide risk assessment, but they appear to be relevant in sex offender population, and therefore should be a part of inmates' official history.

Similar to previous research (Jeglic et al., 2013), there was no significant difference in suicidal behavior between child and adult sex offenders: It was pointed out that previous findings highlighting child sex offenders as being at increased risk for suicide are based on completed suicides (e.g., Pritchard & King, 2005), and this data may not apply to individuals who experience suicidal ideation or who had non-lethal suicide attempts (Jeglic et al., 2013), such as those in this sample. Non-lethal suicidal behavior of child and adult sex offenders is to be explored further in order to understand if they are in fact fueled by different factors. Nevertheless, past suicide attempts remain the strongest predictor of future suicide attempt and completed suicide (Fazel et al., 2008; Harris & Barraclough, 1997; Suominen et al., 2004), and should be carefully examined in terms of suicide prevention.

Regarding victim choice, our fifth hypothesis was partially supported. Sex offenders who reported attempted suicide and reported having one victim were significantly more likely to know their victim—this is in line with previous finding that sex offenders who exhibit suicidal behavior tend to know their victim (Jeglic et al., 2013). This finding may point to suicidal behavior being possibly related to the shame and guilt over sex offense of a familiar victim (Lester & Danto, 1993). This finding was the only significant finding regarding criminal background of sex offenders, possibly suggesting that the data collected did not fully reflect the attributes unique to sexual offenses.

Clinical Implications

Overall, the findings of this study suggest that there are several risk factors for suicide that may be more salient for those who have committed sexual offenses. In order to improve suicide prevention strategies among incarcerated sex offenders, the correctional staff should provide proper suicide risk assessment as a part of intake process, while paying particular attention to a history of abuse, involvement in foster care system during childhood, psychiatric history, and past suicide attempts or reports of suicidal ideation. During incarceration, it is important to come up with proper protection for sex offenders from other inmates' aggression that does not include segregation. Finally, sex offenders should be taught strategies for coping with reintegration into community, as they will encounter many legislative barriers upon release that may lead to increased suicidal behavior; due to negative life experiences, trauma-informed care may be particularly suitable for treating individuals convicted of sexual offenses.

In addition to the current findings, there are several other recommendations for correctional settings that were shown to greatly reduce risk for suicidal behavior. These include, but are not limited to, suicide prevention training for all correctional staff, sharing information

during critical points such as transition or transference of prisoners, a safe physical environment that eliminates access to lethal means, emergency response protocols, notification of suicidal behavior through the chain of command in the correctional facility, and critical incident death debriefing and death review (Stone et al., 2017). All of these strategies would help in providing a safer environment for prisoners who are at risk for suicidal behavior.

Limitations and Future Research

Our study is not without limitations. Although utilizing secondary data source with self-report methods yielded important results, the current archival data focused on the general adjustment of the prisoners, and not on suicide risk specifically, thus, we were limited to what was already queried as a part of that survey. Future research should be conducted specifically focusing on self-reported suicidal behavior and associated risk factors among incarcerated sex offenders. Moreover, as the survey data pertains to all inmates, several questions that are specific to sex offenders were not asked: For example, the influence of the offense on the offender and their social ties, the level of assault (verbal and physical) encountered in prison and its role in suicidal behavior, and whether the accommodation status (general versus segregation) influenced the suicidal behavior. The percentage of lifetime suicide attempts and ideation is lower than previously reported in general prison samples in other countries: Future research would benefit from focusing on lifetime suicide attempt and ideation in United States prisons; moreover, as general prison samples consist of all types of offenders, more accurate data is required regarding suicidal behavior among various types of offenders and how it compares to suicidal behavior in sex offenders. Additionally, as previously mentioned, female offenders were excluded from this sample. However, as there are increased numbers of women coming into contact with the criminal justice system for sex crimes, understanding suicidal behavior in

this population would also be important. Finally, the present sample was gathered in 2003–2004; since then, more restrictive laws concerning sex offenders have been put in place, such as the Sex Offender Registration and Notification Act (SORNA), which is Title I of the Adam Welsh Child Protection and Safety Act of 2006, and more states have implemented civil commitment of sex offenders. Thus, currently we do not possess data on how these legislative changes have impacted suicidal behavior among sex offenders.

Conclusion

This study aimed to contribute to the research in the field of suicidal behavior among sex offenders, including exploration of possible risk factors disclosed via self-report measure as well as examination of factors that can potentially predict suicidal behavior and aid suicide prevention strategies. Self-report allows the researchers to understand sex offenders' own perceptions of their suicidal behavior and personal history that may go unmentioned in the institutional reports. Therefore, this study based on self-report of incarcerated sex offenders provides an important addition to the existing official data on suicidal behavior. This field is in dire need of future research, as sex offenders are one of the most vulnerable populations in correctional settings—as such, they possess less resources to adequately cope with prison environment, which may lead to elevated suicide risk. Although the public may not always see the value of sex offender's life, the humanistic approach dictates promoting good lives among incarcerated individuals as well as among the general public (Ward, 2002); in addition, several risk factors were found to be common for suicidal behavior and future sexual recidivism (Jeglic et al., 2013)—these reasons drive us to develop better, more precise suicide prevention strategies that can fit specifically the needs of population of incarcerated sex offenders in hopes of promoting better quality of life and protecting the society from future offending. This study provides another step in a long and

complicated road toward effective suicide prevention with the hopes that future studies will be able to address current limitations and further promote our knowledge on the subject.

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Table 1. Demographic characteristics of the participants.

Variable	n (%)
Age	
<=31	234 (20.9)
32–38	237 (21.2)
39–43	195 (17.4)
44–52	243 (21.7)
53+	209 (18.7)
Race / Ethnicity	
White non-Hispanic	610 (54.6)
Black non-Hispanic	275 (24.6)
Latino/Hispanic/Spanish origin	135 (12.1)
American Indian / Alaska Native	35 (3.1)
Multiracial, non-Hispanic	44 (3.9)
Asian / Pacific Islander / Native Hawaiian	14 (1.3)
Other	5 (0.4)
Marital status	
Married	216 (19.4)
Widowed	30 (2.7)
Divorced	405 (36.4)
Separated	41 (3.7)
Never married	422 (37.9)

Table 2. Demographic characteristics of sex offenders who attempted versus not attempted suicide.

	Attempted Suicide	Not Attempted Suicide		
	n (%)	n (%)	χ^2	*df*
Race/Ethnicity			46.382**	6
White	145 (23.9)	462 (76.1)		
Black	21 (7.7)	251 (92.3)		
Latino/Hispanic/Spanish	13 (9.7)	121 (90.3)		
American Indian / Alaska Native	6 (18.2)	27 (81.8)		
Asian / Pacific Islander / Native Hawaiian	2 (14.3)	12 (85.7)		
Multiracial	12 (27.9)	31 (72.1)		
Other	1 (20.0)	4 (80.0)		
Marital status			2.009	4
Married	36 (16.7)	179 (83.3)		
Widowed	6 (20.0)	24 (80.0)		
Divorced	79 (19.6)	324 (80.4)		
Separated	9 (22.0)	32 (78.0)		
Never married	69 (16.6)	347 (83.4)		
Age			17.190**	4
<=31	55 (23.9)	175 (76.1)		
32–38	52 (21.9)	185 (78.1)		
39–43	36 (18.8)	156 (81.3)		
44–52	34 (14.0)	208 (86.0)		
53+	23 (11.1)	184 (88.9)		

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

Table 3. Demographic characteristics of sex offenders who experienced suicidal ideation versus those who did not.

	Suicidal Ideation	No Suicidal Ideation		
	n (%)	n (%)	χ^2	*df*
Race			21.154**	6
White	112 (24.2)	350 (75.8)		
Black	30 (12.0)	220 (88.0)		
Latino/Hispanic/Spanish	15 (12.4)	106 (87.6)		
American Indian / Alaska Native	4 (14.8)	23 (85.2)		
Asian / Pacific Islander / Native Hawaiian	1 (8.3)	11 (91.7)		
Multiracial	6 (19.4)	25 (80.6)		
Other	1 (25.0)	3 (75.0)		
Marital status			11.328*	4
Married	29 (16.2)	150 (83.8)		
Widowed	3 (12.5)	21 (87.5)		
Divorced	76 (23.5)	247 (76.5)		
Separated	9 (28.1)	23 (71.9)		
Never Married	52 (15.0)	295 (85.0)		
Age			4.268	4
<=31	29 (16.6)	146 (83.4)		
32–38	35 (19.0)	149 (81.0)		
39–43	28 (17.9)	128 (82.1)		
44–52	48 (23.1)	160 (76.9)		
53+	29 (15.8)	155 (84.2)		

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

Table 4. Living arrangements while growing up for offenders who attempted versus not attempted suicide.

	Attempted Suicide	Not Attempted Suicide		
	n (%)	n (%)	χ^2	*df*
Lived with growing up			18.402*	8
Both parents	97 (16.1)	506 (83.9)		
Mother	61 (19.7)	249 (80.3)		
Father	16 (25.8)	46 (74.2)		
Grandparents	8 (12.3)	57 (87.7)		
Other relatives	3 (12.0)	22 (88.0)		
Friends	0 (0.0)	3 (100.0)		
Foster homes	10 (40.0)	15 (60.0)		
Agency or institution	3 (42.9)	4 (57.1)		
Someone else	2 (40.0)	3 (60.0)		
Ever lived in a foster home/agency/both			46.235**	1
Yes	48 (39.3)	74 (60.7)		
No	139 (14.6)	815 (85.4)		
Foster home, agency, or both			7.016*	2
Foster home	20 (37.7)	33 (62.3)		
Agency	20 (35.1)	37 (64.9)		
Both	8 (80.0)	2 (20.0)		

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

Table 5. Living arrangements while growing up for offenders who experienced suicidal ideation versus those who did not.

	Suicidal Ideation	No Suicidal Ideation		
	n (%)	n (%)	χ^2	*df*
Lived with growing up			8.917	8
Both parents	99 (19.6)	407 (80.4)		
Mother	44 (17.7)	205 (82.3)		
Father	9 (20.0)	36 (80.0)		
Grandparents	6 (10.5)	51 (89.5)		
Other relatives	3 (13.6)	19 (86.4)		
Friends	0 (0.0)	3 (100.0)		
Foster homes	6 (40.0)	9 (60.0)		
Agency or institution	1 (25.0)	3 (75.0)		
Someone else	1 (33.3)	2 (66.7)		
Ever lived in a foster home/agency/both			0.025	1
Yes	13 (17.6)	61 (82.4)		
No	149 (18.3)	665 (81.7)		
Foster home, agency, or both			2.386	2
Foster home	8 (24.2)	25 (75.8)		
Agency	4 (10.8)	33 (89.2)		
Both	0 (0.0)	2 (100.0)		

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

Table 6. History of abuse in offenders who attempted versus not attempted suicide.

	Attempted Suicide	Not Attempted Suicide		
	n (%)	n (%)	χ^2	*df*
Sexual abuse			42.407**	1
Yes	68 (33.8)	133 (66.2)		
No	129 (14.3)	770 (85.7)		
Physical abuse			87.495**	1
Yes	98 (37.4)	164 (62.6)		
No	101 (12.0)	742 (88.0)		
Caretakers abused substances			38.508**	1
Yes	103 (28.1)	264 (71.9)		
No	94 (12.8)	638 (87.2)		
Intentionally injured in prison			9.819**	1
Yes	57 (25.2)	169 (74.8)		
No	143 (16.2)	738 (83.8)		

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

Table 7. History of abuse in offenders who experienced suicidal ideation versus those who did not.

	Suicidal Ideation	No Suicidal Ideation		
	n (%)	n (%)	χ^2	*df*
Sexual abuse			28.751**	1
Yes	47 (35.3)	86 (64.7)		
No	121 (15.7)	648 (84.3)		
Physical abuse			36.746**	1
Yes	58 (35.4)	106 (64.4)		
No	111 (15.0)	630 (85.0)		
Caretakers abused substances			8.427**	1
Yes	65 (24.6)	199 (75.4)		
No	104 (16.3)	533 (83.7)		
Intentionally injured in prison			0.294	1
Yes	34 (20.1)	135 (79.9)		
No	135 (18.3)	602 (81.7)		

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

Table 8. Mental health factors for offenders who attempted versus not attempted suicidal behavior.

	Attempted Suicide	Not Attempted Suicide		
	n (%)	n (%)	χ^2	*df*
Psychiatric diagnosis			154.405**	8
Depressive disorder	29 (33.3)	58 (66.7)		
Bipolar disorder	4 (40.0)	6 (60.0)		
Schizophrenia	2 (22.2)	7 (77.8)		
PTSD	1 (10.0)	9 (90.0)		
Anxiety disorder	0 (0.0)	13 (100.0)		
Personality disorder	4 (33.3)	8 (66.7)		
Mixed diagnosis	87 (48.1)	94 (51.9)		
No diagnosis	70 (9.1)	700 (90.9)		
Other	3 (18.8)	13 (81.3)		
Psychiatric medications			134.042**	1
Yes	125 (39.1)	195 (60.9)		
No	75 (9.5)	712 (90.5)		
Hospitalization			128.986**	1
Yes	84 (48.3)	90 (51.7)		
No	114 (12.3)	815 (87.7)		
Prevented participation			45.496**	1
Yes	33 (48.5)	35 (51.5)		
No	167 (16.1)	873 (83.9)		
Learning disability			27.739**	1
Yes	63 (30.9)	141 (69.1)		
No	136 (15.2)	761 (84.8)		
Special education			16.815**	1
Yes	70 (26.6)	193 (73.4)		
No	130 (15.5)	711 (84.5)		

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

Table 9. Mental health factors for offenders who experienced suicidal ideation versus those who did not.

	Suicidal Ideation	No Suicidal Ideation		
	n (%)	n (%)	χ^2	*df*
Psychiatric diagnosis			85.566**	8
Depressive disorder	22 (37.9)	36 (62.1)		
Bipolar disorder	2 (33.3)	4 (66.7)		
Schizophrenia	2 (28.6)	5 (71.4)		
PTSD	4 (44.4)	5 (55.6)		
Anxiety disorder	5 (38.5)	8 (61.5)		
Personality disorder	1 (12.5)	7 (87.5)		
Mixed diagnosis	45 (48.4)	48 (51.6)		
No diagnosis	85 (12.1)	615 (87.9)		
Other	3 (23.1)	10 (76.9)		
Psychiatric medications			60.967**	1
Yes	74 (37.9)	121 (62.1)		
No	95 (13.4)	616 (86.6)		
Hospitalization			55.620**	1
Yes	43 (47.8)	47 (52.2)		
No	126 (15.5)	688 (84.5)		
Prevented participation			17.611**	1
Yes	16 (45.7)	19 (54.3)		
No	153 (17.5)	719 (82.5)		
Learning disability			6.357*	1
Yes	37 (26.2)	104 (73.8)		
No	131 (17.2)	629 (82.8)		
Special education			3.598	1
Yes	45 (23.3)	148 (76.7)		
No	123 (17.3)	587 (82.7)		

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

Table 10. Model 1: Effects of psychiatric history on suicide attempts

					95% Confidence Interval	
	B	SE	Wald	Exp(*B*)	Lower	Upper
Psychiatric diagnosis	0.685**	.214	10.241	1.983	1.304	3.015
Psychiatric treatment	1.734**	.238	53.114	5.666	3.554	9.033
Prevention from participation	0.649*	.287	5.101	1.913	1.090	3.359
Constant	−2.906	.174	279.709	0.055		
χ^2	175.504**					
−2 log likelihood	797.414					
Nagelkerke R^2	0.254					

Note: $\chi^2 = 175.504$, $df = 3$, $p < .01$

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

Table 11. Model 2: Effects of psychiatric history and abuse factors on suicide attempts

					95% Confidence Interval	
	B	SE	Wald	Exp(*B*)	Lower	Upper
Psychiatric diagnosis	0.477*	.221	4.660	1.610	1.045	2482
Psychiatric treatment	1.595**	.242	43.428	4.929	3.067	7.921
Prevention from participation	0.768**	.295	6.770	2.155	1.209	3.841
Sexual abuse	0.228	.215	1.132	1.257	0.825	1.914
Physical abuse	0.952**	.201	22.439	2.591	1.747	3.841
Constant	–3.102	.182	289.318	0.045		
χ^2	203.560**					
–2 log likelihood	769.358					
Nagelkerke R^2	0.291					

Note: $\chi^2 = 203.560$, $df = 5$, $p < .01$
*p<.05. **p<.01

Table 12. Final Model: Effect of psychiatric history, abuse factors, and developmental variables on suicide attempts

					95% Confidence Interval	
	B	SE	Wald	Exp(*B*)	Lower	Upper
Psychiatric diagnosis	0.415	.224	3.420	1.514	0.975	2.351
Psychiatric treatment	1.569**	.245	41.172	4.802	2.974	7.755
Prevention from participation	0.845**	.298	8.018	2.327	1.297	4.176
Sexual abuse	0.233	.218	1.143	1.263	0.823	1.938
Physical abuse	0.842**	.206	16.644	2.322	1.549	3.480
Two-parent household	0.142	.191	0.553	1.153	0.793	1.677
Foster care system	0.904**	.250	13.106	2.469	1.514	4.028
Constant	–3.250	.222	214.095	0.039		
χ^2	216.262**					
–2 log likelihood	756.656					
Nagelkerke R^2	0.307					

Note: $\chi^2 = 216.262$, $df = 7$, $p < .01$

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

Table 13. Model 1: Effects of psychiatric history on suicidal ideation

					95% Confidence Interval	
	B	SE	Wald	Exp(*B*)	Lower	Upper
Psychiatric diagnosis	0.915**	.231	15.699	2.497	1.588	3.926
Psychiatric treatment	1.161**	.224	26.817	3.193	2.058	4.955
Prevention from participation	0.194	.397	0.240	1.214	0.558	2.643
Constant	−2.290	.139	272.827	0.101		
χ^2	101.414**					
−2 log likelihood	732.669					
Nagelkerke R^2	0.178					

Note: $\chi^2 = 101.414$, $df = 3$, $p < .01$
*p<.05. **p<.01

Table 14. Model 2: Effects of psychiatric history and abuse factors on suicidal ideation

					95% Confidence Interval	
	B	SE	Wald	Exp(*B*)	Lower	Upper
Psychiatric diagnosis	0.764**	.236	10.450	2.147	1.351	3.411
Psychiatric treatment	1.066**	.227	22.028	2.903	1.860	4.529
Prevention from participation	0.334	.400	0.699	1.397	0.638	3.059
Sexual abuse	0.455	.241	3.581	1.577	0.984	2.526
Physical abuse	0.588*	.231	6.498	1.800	1.146	2.829
Constant	–2.423	.146	273.754	0.089		
χ^2	114.636**					
–2 log likelihood	719.447					
Nagelkerke R^2	0.200					

Note: $\chi^2 = 114.636$, $df = 5$, $p < .01$
*p<.05. **p<.01

Table 15. Final Model: Effect of psychiatric history, abuse factors, and childhood environment variables on suicidal ideation

					95% Confidence Interval	
	B	SE	Wald	Exp(*B*)	Lower	Upper
Psychiatric diagnosis	0.774**	.238	10.539	2.168	1.359	3.460
Psychiatric treatment	1.117**	.229	23.786	3.057	1.951	4.789
Prevention from participation	0.320	.404	0.628	1.378	0.624	3.042
Sexual abuse	0.461	.243	3.599	1.585	0.985	2.551
Physical abuse	0.683**	.235	8.433	1.980	1.249	3.140
Two-parent household	0.329	.198	2.760	1.390	0.943	2.049
Foster care system	–0.632	.368	2.949	0.532	0.259	1.093
Constant	–2.614	.199	172.920	0.073		
χ^2	121.546**					
–2 log likelihood	712.538					
Nagelkerke R^2	0.211					

Note: $\chi^2 = 121.546$, $df = 7$, $p < .01$
*p<.05. **p<.01