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Adverse childhood experiences among women prisoners: Relationships to suicide attempts and drug abuse

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Abstract

Background: Women prisoners are known to suffer from an accumulation of factors known to increase the risk for several major health problems. This study examines the prevalence of adverse childhood experiences (ACE) and the relationship between such experiences and suicide attempts and drug use among incarcerated women in Norway.

Methods: A total of 141 women inmates (75% of all eligible) were interviewed using a structured interview guide covering information on demographics and a range of ACE related to abuse and neglect, and household dysfunction. The main outcome variables were attempted suicide and adult drug abuse.

Results: Emotional, physical and sexual abuse during childhood was experienced by 39%, 36% and 19%, respectively, and emotional and physical neglect by 31% and 33%, respectively. Looking at the full range of ACE, 17% reported having experienced none, while 34% reported having experienced more than five ACEs. After controlling for age, immigrant background and marital status, the number of ACEs significantly increased the risk of attempted suicide and current drug abuse.

Conclusion: The associations observed between early life trauma and later health risk behaviour indicate the need for early prevention. The findings also emphasize the important role of prison health services in secondary prevention among women inmates.

Keywords

Women inmates, childhood adversity, suicide, drug use

Introduction

Women have traditionally constituted a very small proportion of the total prison population, indicated by a median of 4.3% women inmates worldwide in 2006 (van den Bergh, Gatherer, Fraser, & Moller, 2011). During the last decades' general growth in the prison population, some countries have seen an unprecedented increase of women prisoners, to the extent that women have been considered the most rapidly growing segment of the prison population (Browne, Miller, & Maguin, 1999). Although women are still a minority group in prisons, their growing incarceration rates are a cause of concern from a health perspective as women prisoners are known to suffer from complex physical and mental health problems, such as drug use disorder, major depression, post-traumatic stress disorder, personality disorders, HIV and hepatitis B infection, all of which constitute important public health challenges internationally (van den Bergh et al., 2011; Fazel & Baillargeon, 2011; Tye & Mullen, 2006; World Health Organization Regional Office for Europe, 2009). As inmates eventually return to the community after their sentence is served, focusing on health risk factors that may be subjected to preventive interventions during incarceration may serve both public and prisoner health.

In this study, we investigate two health risk behaviours: drug abuse and attempted suicide. Both constitute central health problems in prison populations, also among women prisoners. A systematic review concluded that the prevalence of both substance abuse and dependence is considerably higher among prisoners than in the general population, especially among women inmates (Fazel, Bains, & Doll, 2006). Suicide is known to be the single most common cause of death in correctional settings (Konrad, Daigle, Daniel, et al., 2007), and a history of attempted suicide is

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one of its most important risk factors (Fazel, Cartwright, Norman-Nott, & Hawton, 2008). Knowledge about factors related to these health outcomes is necessary in order to develop effective intervention programmes.

Exposure to abuse, neglect or household dysfunction before the age of 18, often termed adverse childhood experiences (ACE), has been shown to be an important risk factor for many of the leading causes of death in adults (Felitti, Anda, Nordenberg, et al., 1998). The relationship has been shown to have a strong dose response form, in that breadth of exposure to childhood adversity is associated with gradually increased risk for several health risk behaviours and disease conditions in adulthood (such as ischemic heart disease, stroke, chronic bronchitis or emphysema, diabetes), as well as smoking, alcoholism, drug abuse, suicide attempts, obesity, poor self-rated health and adult psychopathology (Felitti et al., 1998; Dube, Cook, & Edwards, 2010; Edwards, Holden, Felitti, & Anda, 2003; Kessler et al. 2010). Estimates of the prevalence of childhood adversity in general population samples differ, depending on how adversity is defined. According to the World Health Organization's (WHO) World Mental Health Surveys, the prevalence of (any) childhood adversity is 38% across the 21 countries investigated (Kessler et al., 2010). In a representative study of the adult Norwegian population, findings indicated that 13% of the women had been sexually abused as children (Tambs, 1994), while Bendixen and colleagues (Bendixen, Muus, & Schei, 1994) found the prevalence of sexual abuse to be 19.4% among women in their student sample. Thus, when measured as single events, current evidence indicates the relative commonness of ACE. However, there is a clear tendency towards accumulation of adversity as the different categories of ACE are strongly interrelated (Felitti et al., 1998; Kessler et al., 2010). This accumulation shows a graded relationship with socio-economic disadvantage, lower educational achievement and difficulties in maintaining employment in adulthood (Dube et al., 2010). As these are characteristics known to mount up in prison populations (Nilsson, 2003; Skardhamar, 2003; Kjelsberg & Friestad, 2008), investigating the extent and consequences of childhood adversity among prisoners is warranted.

Evidence gathered so far support the hypothesis that women inmates have experienced childhood adversity to a larger degree compared to the population at large (Browne et al., 1999), and also compared to male inmates (Wolff, Shi, & Siegel, 2009). Studies vary in their prevalence estimates of childhood victimization among women inmates. Clements-Nolle, Wolden and Bargmann-Losche's (2009) results indicate that childhood abuse (emotional, physical or sexual) was reported by more than 50%, while childhood neglect was reported by 41% and 53% (physical and emotional neglect, respectively). These estimates are comparable to those of childhood sexual and physical victimization reported by Wolff et al. (2009), while being generally somewhat higher than those reported by Messina and Grella (2006). Further, there is growing evidence for a strong link between the accumulation of ACE and both illicit drug use (Dube et al., 2003) and attempted suicide, both in the general population (Dube et al., 2001), and in samples of women inmates (Messina & Grella, 2006; Clements-Nolle et al., 2009). Thus, both drug abuse and suicide attempts are highly relevant health outcomes among women prisoners, and need to be studied further in terms of relations to ACE in a non-US sample.

This study investigates the following two questions:

1. What is the prevalence of ACE among incarcerated women in Norway?
2. To what extent is accumulation of ACE related to attempted suicide and drug abuse?

Methods

The present study reports cross-sectional data from a structured interview with women prisoners in Norway. At the time of data collection (March 2010 to February 2011), 187 women were incarcerated in the 13 Norwegian prisons available for women (including prisoners on remand). Of these 187,141 accepted the invitation (indicating a response rate of 75%). Twelve women declined to take part in the study, while the remaining 34 women had the following reasons for not participating: not present (n = 2), illness (n = 5), not able to communicate in Norwegian, German or English (n = 17), had already participated in another prison/department (n = 8) and other reasons (n = 2). Participation was voluntary and based on informed consent. The study protocol was approved by the Committee for Medical Research Ethics, and recruitment and consent procedures and forms were approved by the appropriate correctional agencies.

The structured interview was conducted by one of the authors (ÅBR) and a research assistant. Both interviewers are experienced psychiatric nurses with extensive practice in forensic settings. The interview lasted on average 60 minutes and covered general and background information followed by three main themes: childhood victimization; experience of motherhood when imprisoned; and relationship issues related to criminality. This paper reports on results from the first of these themes. Information about childhood experiences was collected through questions selected from the Adverse Childhood Experiences study (Felitti et al., 1998) (translated into Norwegian and back-translated by Anna Luise Kirkengen, Marianne Nordhov and Synne Stensland), and included the following variables.

Childhood abuse. One question related to the experience of each of the following forms of abuse: physical (exemplified as being hit or beaten); emotional (exemplified as being threatened, frightened, belittled, told that you are not good enough, neglected); and sexual (exemplified as being touched against your will, threatened to do things against your will, being abused sexually). The four response options

were 'often', 'sometimes', 'once' and 'not subject to this form of abuse'. A score of 'often' or 'sometimes' on any of the types of abuse was taken as indicating experience with this sort of abuse.

Childhood neglect. Divided into emotional and physical neglect experienced before the age of 18, measured by five questions each, with five response options ranging from 'very often' (1) to 'never' (4). The questions measuring *emotional neglect* were: (1) 'There was someone in my family who helped me feel important or special'; (2) 'I felt loved'; (3) 'People in my family looked out for each other'; (4) 'People in my family felt close to each other'; (5) 'My family was a source of strength and support'. All items were summed. Based on Dube et al. (2003), scores of ≥ 15 were defined as indicating experiences of emotional neglect. The questions measuring *physical neglect* were: (1) 'I didn't have enough to eat'; (2) 'I knew there was someone there to take care of me and protect me'; (3) 'My parents were too drunk or too high to take care of me'; (4) 'I had to wear dirty clothes'; (5) 'There was someone to take me to the doctor if I needed it'. Items 1, 3 and 4 were reverse-scored, then summed. Based on Dube et al. (2003), scores of ≥ 10 were defined as indicating experiences of physical neglect.

Household dysfunction was measured by the following variables:

Witnessing intimate partner violence: (1) 'Before the age of 17, did you ever see or hear your father or your mother's partner abusing your mother physically, emotionally or sexually?'; (2) 'Before the age of 17, did you ever see or hear your mother or your father's partner abusing your father physically, emotionally or sexually?' Responding 'often' or 'sometimes' to one or both of these questions was considered evidence of having witnessed intimate partner violence.

Household substance abuse was measured by two questions asking whether the respondent had ever lived with (1) an alcoholic or problem drinker or (2) someone using drugs. Affirmative responses to one or both of these questions were taken as evidence of being exposed to household substance abuse.

Parental separation or divorce was measured by responding 'yes' to the question 'Were your parents separated or divorced (before you reached the age of 18)?'

Incarceration of household member was measured by responding 'yes' to the question 'Did anyone in your household ever go to prison?'

Mental illness among household members was measured by responding 'yes' to one or both of the following questions: (1) 'Was anyone in your household ever depressed or mentally ill?'; (2) Did anyone in your household ever attempt to commit suicide?'

ACE was measured by an additive sum score of the following 10 items (their presence scored as described above): physical abuse, emotional abuse, sexual abuse, emotional neglect, physical neglect, witnessing intimate partner violence, parental separation or divorce, household substance abuse, mental illness among household members, and incarceration of household member. Valid scale scores range from 0 (none of the ACE present) to 10 (all ACE present).

Background information about the sample included age, marital status, immigrant origin (defined as having one or both parents with foreign citizenship), education and previous prison convictions.

Health risk was measured by the following indicators:

Drug abuse was defined as having used illegal drugs (of any sort) in the four weeks prior to the current incarceration and/or been drunk weekly or more often in the last 12 months.

Suicide attempts were measured by the question 'Have you ever tried to commit suicide?' (yes/no).

Analyses

Uni- and bivariate analyses (χ^2 tests and analyses of variance (ANOVA)) were conducted to assess the prevalence of exposure to ACE by background variables and variables measuring health risk indicators. Multiple logistic regression analyses were conducted in order to investigate whether exposure to accumulation of ACE was related to health risk markers, including age, immigrant background and marital status as covariates. As a general rule, percentages are not calculated for cell counts less than 5. All analyses were conducted using SPSS19.

Results

The distribution of background characteristics by ACE is presented in Table 1.

As seen from the total figures, about half the sample had immigrant background, defined as having one or both parents with foreign citizenship. Six out of 10 were married or involved in a marriage-like relationship. Many had low formal educational qualifications and three out of 10 reported having been sentenced to prison before. Of these background characteristics, only education is significantly related to ACE, in terms of lower education among those having experienced the most adversity.

Table 2 presents the prevalence of ACE.

The most prevalent indicators of childhood adversity are parental separation or divorce and mental illness among someone in one's household, both reported by close to half the sample. Childhood adversity was prevalent, as only 17% of the sample reported having experienced none of the experiences presented.

Table 3 shows the result of two separate logistic regression analyses, predicting attempted suicide and drug abuse, respectively. Both analyses include ACE as the independent

Table 1. Background characteristics (%) by number of adverse childhood experiences (ACE).

		No. of ACE				
		0 (n = 21)	1–2 (n = 42)	3–4 (n = 20)	≥ 5 (n = 43)	Total (n = 126)
Immigrant background						
	Yes	62	57	50	48	54
	No	38	43	50	52	46
Marital status						
	Single	52	31	21	45	38
	Married or otherwise involved in a relationship	48	68	79	55	62
Education*						
	Elementary education or less	40	52	42	74	58
	Secondary education (lower or upper)	53	45	33	21	35
	College- or university-level education	7	3	25	5	7
Previously convicted to prison[a]						
	Yes	33	20	30	42	31
	No	67	81	70	58	69
Mean age		36.0	31.3	34.3	33.5	33.3

[a]Previous convictions include both conditional and unconditional prison sentences.
*$p \leq .05$.

Table 2. Prevalence of drug abuse, history of suicide attempt(s) and each category of adverse childhood experiences (ACE) and total ACE score.

		%	n
Drug abuse	Yes	52	72
	No	48	68
Ever attempted suicide	Yes	46	64
	No	54	75
Childhood abuse			
	Emotional	39	55
	Physical	36	51
	Sexual	19	27
Childhood neglect			
	Emotional	31	41
	Physical	33	46
Childhood household dysfunction			
	Witnessing domestic abuse	27	38
	Parental separation or divorce	48	67
	Mental illness in household	47	64
	Substance abuse in household	40	57
	Incarcerated household member	25	35
ACE score			
	0	17	21
	1	18	23
	2	15	19
	3	6	7
	4	10	13
	≥ 5	34	43

variable (measured as a continuous variable varying from 0 to 10), and age, immigrant background and marital status as covariates.

Number of ACE significantly increased the risk for having attempted suicide and adult drug abuse. For each ACE experienced, the odds of having attempted suicide increased

Table 3. Multivariate logistic regression of health risk behaviours by number of adverse childhood experiences (ACE).

	Suicide (n = 121)		Drug use (n = 122)	
	OR (95% CI)	p	OR (95% CI)	p
Immigrant background	1.32 (0.6–2.9)	.49	0.21 (0.1–0.5)	≤ .0001
Age	1.0 (0.9–1.1)	.31	0.98 (0.9–1.0)	.25
Marital status	0.42 (0.2–0.9)	.04	1.1 (0.5–2.5)	.85
ACE score	1.25 (1.1–1.4)	.001	1.25 (1.1–1.4)	.002

OR = odds ratio; CI = confidence interval.

by 25%. Similarly, the risk for adult drug abuse also increased by 25% with each increase of one childhood traumatic event. Being single significantly increased the risk of having attempted suicide, while immigrant background indicated a lower risk of drug abuse.

Discussion

ACE was reported by a considerable proportion of women inmates in Norway. Emotional abuse was the most prevalent form of abuse, reported by 39%, while sexual abuse was the least prevalent (19%). Close to half the sample reported having grown up with someone in their household being mentally ill and a similar percentage reported substance abuse among household members. Looking at the full range of ACE, 17% reported having experienced none, while 34% reported having experienced five or more ACEs. Thus, the findings support previous research on prison populations, indicating histories of substantial exposure to childhood adversity. Further, about half of women inmates have a history of drug abuse and suicide attempts. ACE is cumulatively related to both of these factors: the more ACE, the greater the odds of having attempted suicide and of abusing drugs. Evidence of such cumulative risk increase is one of the central findings in studies investigating the relationship between childhood adversity and adult health problems, found both in the general population (see Edwards et al., 2003; Felitti et al., 1998; Kessler et al., 2010) and in prison samples (see Messina and Grella, 2006). Several aspects of these findings warrant further discussion.

When reporting prevalence estimates, the question of how they compare to other relevant populations soon arises. First, are the estimates among women inmates high compared to the Norwegian population at large? Comparison is difficult, as ACE has not been measured in similar ways in other Norwegian population groups. Thus, comparisons must be made with caution as figures are not directly comparable. Looking at one of the indicators, childhood sexual abuse, the 19% reported in the present study seem to be quite similar to the 13% estimate from the general adult population as reported by Tambs (Tambs, 1994) and very similar to the 19.4% reported in the student sample reported by Bendixen and colleagues (Bendixen et al., 1994). A more recent study of self-reported victimization among Norwegian youth (aged 18–19) (Mossige & Stefansen, 2007) may also be a relevant comparison, as data on several of the adversities included in the present study were also investigated; among girls, 10% reported having experienced physical abuse more than twice, considerably lower than the 36% among women inmates reporting physical abuse sometimes or often during their childhood. Further, 10% of the women reported (ever) witnessing violence against a parent (Mossige & Stefansen, 2007); also considerably lower than the 27% having experienced this sometime or often during childhood in our prisoner sample. As for sexual abuse, 35% of the women in Mossige and Huang's study (Mossige & Huang, 2010) reported having experienced one or more of a series of predefined sexual offences. The estimate is reduced to 6% when including only those having experienced sexual offences more than four times, which may be more comparable to our group consisting of those having experienced sexual abuse 'often' or 'sometimes'. In sum, our findings seem to support the notion of a higher prevalence of childhood adversity in women inmates than in the general female population from which the prisoners are recruited. A history of childhood sexual abuse seems to be far more prevalent among US women inmates, as seen by the 51% reported by Clements-Nolle and colleagues (Clements-Nolle et al., 2009) and the 45% reported by Messina and colleagues (Messina et al., 2006) – both considerably higher than the 19% reported in the present study. However, the way that the question was posed in the present study may involve a bias towards the most serious forms of abuse, as the introductory question used the wording 'abuse' and later probed into different forms of sexual behaviour (only) among those responding affirmatively to the introductory question. Consequently, we do not recommend comparison with other findings item by item, but rather encourage comparison of the accumulated measure of childhood adversity, which is the focus of this paper. Irrespective of differences in prevalence estimates on single indicators, our overall conclusions from the multivariate analyses seem to correspond to those of other studies among prison inmates: ACE is a risk factor for health risk behaviours in adulthood. The cumulative increase in risk for both attempted suicide and adult drug abuse by each additional adverse event experienced in childhood is also in line with previous research (Dube et al., 2001; Dube et al., 2003).

Uncovering the extent of childhood victimization among prison inmates and its relationship to health outcomes in adult life is necessary in order for the prison health service to be able to target the inmates' needs. Both drug abuse and suicide attempts are serious problems commonly met in prison populations (Fazel et al., 2011; Konrad et al., 2007). Effective strategies to help inmates overcome such problems must be based on knowledge about their correlates, such as a history of childhood adversity. We support Messina and Grella's (Messina et al., 2006) conclusion that the availability of appropriate trauma treatment is important in correctional settings serving women inmates. Greater attention to the important role of correctional health care in public health promotion is called for (Glaser & Greifinger, 1993; Restum, 2005; Fazel et al., 2011). From a public health point of view, active strategies to treat trauma and its health consequences among women while they are incarcerated may have an important impact on the lives of the women both while in prison and after release. Furthermore, for those women inmates who have children, focusing in-prison treatment on the mothers' histories of childhood adversity may be a positive contribution to their ability to take care of their children after release, and thus also benefit their children, who are otherwise known to suffer from long-term effects of their mothers' ACE (see e.g. Roberts, O'Connor, Dunn, Golding, & The ALSPAC Study Team, 2004).

Limitations

The fact that 75% of all women inmates in Norway participated in this study must be considered an important strength. Some possible limitations should also be mentioned. First, the findings presented in this paper are based on the respondents' retrospective recall of events that happened during their childhood. There is no way we can control the accuracy of the information given by our respondents, and consequently neither over- nor under-reporting of childhood abuse can be corrected for. It could be that women inmates over-report childhood abuse in the interview setting in order to elicit sympathy from the interviewer, or justify their present situation as incarcerated. However, according to previous research, under-reporting of childhood abuse is assumed to be more likely: known victims of childhood abuse fail to report those experiences when asked as adults (Williams, 1994), causing retrospective research to *underestimate* the actual prevalence of childhood abuse (Hardt & Rutter, 2004). If this holds true in the present study, our findings should be interpreted as a conservative estimate of the prevalence of ACE. Second, as this study is cross-sectional in nature, causal conclusions cannot be drawn.

Conclusion

Childhood adversity is experienced by a considerable proportion of women inmates in Norway. Accumulation of childhood adversity is related to increased odds of a history of drug abuse and suicide attempts. In order to further our understanding of how and why childhood victimization is related to criminal behaviour and health adversity among women, studies with a longitudinal design are needed.

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