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Reform of Italian forensic mental health care. Challenges and opportunities following Law 81/2014

Over the last decade, the Italian Parliament has committed to fundamental changes to the pathway that offenders with mental illness follow through forensic mental health services. Historically, six forensic psychiatric hospitals (Ospedali Psichiatrici Giudiziari (OPGs)) operated in Italy but the quality of care delivered in these units was poor. Resources were heavily directed towards custodial rather than therapeutic aims and a general consensus developed that major changes were needed. Initially, Law 09/2012 was passed and required small scale therapeutic facilities (Residenze per la Esecuzione della Misura di Sicurezza (REMS)) to be opened to replace OPGs, but in response to delays, Law 81/2014 set deadlines and operational procedures to conclude this process. Previous articles give a fuller account of the law change and highlight some criticisms of Law 81/2014, including the lack of a strong clinical or economic evidence base and reliance on the amorphous concepts of criminal responsibility and social dangerousness (Barbui and Saraceno, 2015). This paper therefore aims to present further consideration of both the challenges and opportunities that this legislation presents.

The reform has rightly been recognised as an attempt to improve the quality of care for offenders with mental illness, both through improving conditions for offenders who need detention in psychiatric units and through increased use of diversion from court to community mental health services. This reflects the call for strengthened diversion across Europe (Srivastava et al., 2013) and conforms to international guidelines on good practice (World Health Organization, 2014). Evidence supports this approach with smaller therapeutic units, like REMS, shown to be more effective than larger custodial units or prison. Diversion from court increases the levels of engagement with mental health services whilst decreasing contacts with criminal justice agencies (Sainsbury Centre for Mental Health, 2009).

Yet there are a number of challenges presented by the reform that may undermine its beneficial impact. First, there have been concerns about the preparedness of the Italian forensic mental health system and REMS, especially in light of the deadlines enforced by Law 81/2014. Delays in construction of REMS and lack of transitional arrangements raised questions about the placement of existing patients from OPGs and the cost of building and running REMS may divert resources from already stretched community mental health services. Similarly, if regions have delays in providing REMS beds then newly referred patients may not be placed in the locality of their community mental health service. In addition, there appears to be a lack of recognition of the risk that this group of offenders with mental illness pose in secure settings and appropriate training and security measures are needed to ensure that REMS provide a safe environment for patients and staff. It has been suggested that if these issues are not considered then REMS could become “little OPGs” and offenders with mental illness could continue to be treated according to the inadequate standards that this reform seeks to replace (Casacchia et al., 2015).

Second, the pathways defined by the reform rely on the legal concepts of social dangerousness and criminal responsibility, but the use of these terms may prove problematic. Initiatives in England that merged legal and psychiatric concepts have been criticised on the basis that there is a lack of evidence to support ratings of dangerousness and these assessments are not predictive of future risk (Duggan, 2011). Similarly, criminal responsibility as a legal concept does not explicitly relate to psychiatric definitions or practice (Wilson, 2009), and this conflicts with human rights directives which require mental disorder for involuntary detention in psychiatric settings (Council of Europe, 2004).
Third, it is possible that the Italian criminal justice system will come under pressure to restrict the number of offenders with mental illness who are diverted to community services and an unintended consequence of the policy may be an increase in the use of custodial sentences for this population. The flexibility of the concept of insanity and the lack of emphasis on psychiatric diagnosis may become a mechanism to enact this, with informal thresholds changing over time (Large et al., 2008). At the same time, political pressure may lead to further legislation which permits detention in custody. Evidence on whether similar initiatives in other countries have increased the burden of mental illness in prison is incomplete and evidence from the closure of non-forensic psychiatric inpatient units may not be generalisable to this issue (Winkler et al., 2016; Yoon et al., 2013). However, a trend towards risk containment has been found across Europe and in the USA, and Italy has been found to follow this trend, albeit with larger increases in supported housing compared to involuntary detention and the use of prison (Priebe et al., 2005). Italian prisons are not equipped to effectively manage mental illness and already have a substantial number of prisoners with mental illness, with even greater numbers requesting psychiatric intervention (Zoccali et al., 2008). If custodial disposals were used more frequently for offenders with mental illness this would exacerbate problems in prisons, fail to address the reasons for closing OPGs and enforce re-institutionalisation.

The Italian reform is based upon sound principles and represents an opportunity to improve the care of offenders with mental illness, but it should be supported by wide-ranging attempts to monitor its impact. This is needed to ensure that the number of REMS units and beds are sufficient and that discharges to the community are used. It would also allow an assessment of whether the laws have been successful in improving care for this group, whether increased capacity in REMS is needed to allow detention in psychiatric settings, and whether the reform has led to unintended consequences, increased use of custodial sentences or use of out-of-area placements. In addition, the reforms represent an opportunity for researchers to evaluate the effect of community management of offenders with mental illness and diversion from the criminal justice system. Evidence on the use of this approach is limited and high-quality evidence could have wide-ranging implications, particularly if an economic evaluation was included, at a time when many countries are developing systems that aim to reduce the number of offenders with mental illness in prison and both justice and healthcare costs must be curtailed. To our knowledge, there is currently only one observational study in Italy with the aim of evaluating the critical issues following the discharge of forensic patients and their transfer to the community psychiatry – the PERSON Project (ProcEss, Rehabilitation, Service use, Outcome and Needs in community forensic patients) (Ruggeri et al., in progress) and further exploration is needed.

The reform of the Italian forensic mental health care has the potential to change the landscape of care of offenders with mental illness and to provide a blueprint for other countries to follow. However, problems with the implementation of the reform require consideration by national and local policymakers and the effect of the reform on court decisions should be monitored to ensure that the aims of the policy are met. The reform also represents an opportunity to establish an evidence base for diversion and community management which could inform attempts to reduce the number of prisoners with mental illness across Europe.

References


Social determinants of health among Canadian inmates

Lynn A. Stewart, Amanda Nolan, Jennie Thompson and Jenelle Power

Abstract

Purpose – International studies indicate that offenders have higher rates of infectious diseases, chronic diseases, and physical disorders relative to the general population. Although social determinants of health have been found to affect the mental health of a population, less information is available regarding the impact of social determinants on physical health, especially among offenders. The purpose of this paper is to examine the relationship between social determinants and the physical health status of federal Canadian offenders.

Design/methodology/approach – The study included all men admitted to federal institutions between 1 April 2012 and 30 September 2012 (n = 2,273) who consented to the intake health assessment. Logistic regression analyses were used to explore whether age group, Aboriginal ancestry, and each of the individual social determinants significantly predicted a variety of health conditions.

Findings – The majority of men reported having a physical health condition and had experienced social determinants associated with adverse health outcomes, especially men of Aboriginal ancestry. Two social determinants factors in particular were consistently related to the health of offenders, a history of childhood abuse, and the use of social assistance.

Research limitations/implications – The study is limited to the use of self-report data. Additionally, the measures of social determinants of health were indicators taken from assessments that provided only rough estimates of the constructs rather than from established measures.

Originality/value – A better understanding of how these factors affect offenders can inform strategies to address correctional health issues and reduce the impact of chronic conditions through targeted correctional education and intervention programmes.

Keywords Prisoner health, Poverty, Child abuse, Social determinants of health, Correctional health, Offender’s health status

Paper type Research paper

Introduction

There is a growing body of evidence to suggest that the availability of good quality health services is only one factor among many affecting the overall health of a population (e.g. Raphael, 2009). For example, the average age of a population affects the prevalence rates of many age-related chronic health conditions such as arthritis, cardiovascular disease, central nervous system problems, and cancer (Denton and Spencer, 2010). Considering the latest census data have indicated that 15 per cent of the Canadian aging population are currently over 65 (Statistics Canada, 2011), with this percentage expecting to rise to 24 per cent by 2030 (Denton and Spencer, 2010), it is crucial for Canada to plan the accommodation of health needs of its aging population.

It has also been noted that social and environmental factors are as important as commonly considered behaviours such as smoking, excessive alcohol use, poor dieting, and lack of exercise in influencing the health of individuals (Raphael, 2009). These factors are referred to as social determinants of health, which the World Health Organization (WHO) (2008) broadly defines as “the conditions in which people are born, grow, live, work and age […] shaped by the distribution of money, power and resources at global, national and local levels”. Specifically in Canada, a consensus meeting convened in 2002 developed the following social determinants of
health: Aboriginal status, gender, disability, housing, early life, income and income distribution, education, race, employment and working conditions, social exclusion, food insecurity, social safety net, health services, unemployment, and job security (Mikkonen and Raphael, 2010; Raphael, 2009). Academics and public health researchers have completed extensive work on the social determinants of health in the Canadian context (e.g. Pampalon et al., 2014; Public Health Agency of Canada, 2003).

The impact of social determinants on health has been well established for several decades. Within wealthy countries, influential studies have demonstrated the strong impact of social status and early life experiences on later health outcomes. The seminal Whitehall study (Marmot et al., 1978), for example, conducted long-term longitudinal research on British civil servants, and demonstrated that the prevalence of cardiovascular disease and mortality rates were strongly, and incrementally, associated with employment grade (classification level). This pattern persisted for cardiovascular disease even when controlling for other risk factors such as obesity, smoking, reduced leisure time, lower levels of physical activity, higher prevalence of underlying illness, higher blood pressure, and shorter height. The researchers concluded that there was an inverse association between social class, as assessed by grade of employment, and mortality from a wide range of diseases. Other studies, including a longitudinal study of graduates from a Wisconsin high school (Marks, 1996), and a Canadian study of 2,000 male respondents to the Canadian Health Survey (Hay, 1988) all drew a similar conclusion that there is a social gradient in self-reported health status. Social inequality is associated not only with material deprivation, but also with loss of a sense of autonomy, status, and greater psychosocial stress (Marmot and Bell, 2010; Mullanathan and Shafir, 2013; Wilkinson and Pickett, 2006). Such conditions are linked to family discord and child abuse (Eckenrode et al., 2014), factors that are, in turn, associated with later physical and mental health problems among adults with this early history (Gilbert et al., 2009; Norman et al., 2012). Recent large-scale longitudinal projects like the Adverse Childhood Experiences Study have produced many peer reviewed articles illustrating the later physical and health consequences for adults exposed to childhood maltreatment and neglect (Child Welfare Information Gateway, 2013). The life course perspective has accumulated an influential body of research that has illustrated the complicated interaction of social context as well as biological, behavioural, and psychosocial processes that operate across an individual’s lifespan to influence health outcomes (Kuh et al., 2003).

There is evidence that within wealthy countries, the health of indigenous peoples may be particularly marked by the impact of social inequalities (Gracey and King, 2009). Higher rates of injuries, non-communicable disease, and violence contribute to the difference in life expectancies among the Australian Aboriginal and Torres Strait Islander peoples where the life expectancy is 56 years for men compared to 77 years for all Australian men (Australian Bureau of Statistics, 2005). The Aboriginal people of Canada (i.e. First Nations, Métis, and Inuit) also have lower life expectancies than Canadians in general, and report poorer overall health, despite being, on average, younger (Gionet and Roshanafshar, 2013; Reading and Wien, 2009).

Many health studies indicate that offenders have high rates of many chronic health conditions; in particular, rates of infectious diseases, brain injury, and psychiatric disorders are elevated relative to the general population (Fazel and Baillargeon, 2011; Harmon, 2012; McIsaac et al., 2016; Stewart et al., 2015; Wiper et al., 2009; Zakaria et al., 2010). Several factors may contribute to these elevated rates. For instance, offenders engage in more high-risk health behaviours such as intravenous drug use (IDU), tattooing, smoking, physical aggression, multiple sexual partners, and alcohol abuse than members of the general population (e.g. Tolou-Shams et al., 2010). In addition, many of the above noted socio-economic factors known to be associated with poorer health including poverty, low educational attainment, substandard housing, and unemployment or underemployment are also more common among offender populations (Hamilton and Bhatti, 1996; Public Health Agency of Canada, 2003; WHO, 2008). Furthermore, in some cases, incarceration itself, with the stressors of prison life, increased exposure to individuals with higher rates of infection, and continued risky behaviours while in correctional facilities, may contribute to generally poorer health of offenders (Awofeso, 2010; de Viggiani, 2006; Patterson, 2013).

A recent study examined the self-reported physical health status of incoming federally sentenced offenders to the Correctional Service of Canada (CSC; Stewart et al., 2015). Although offenders
did not report having chronic health problems at rates as high as those cited in American (Fazel and Baillargeon, 2011) and Australian (Indig et al., 2010) research with correctional samples, the study did confirm earlier research on infectious diseases within CSC (Zakaria et al., 2010) that had found that men and women in Canada’s federal correctional system had higher rates of blood borne viruses than the general adult population. Preliminary analyses examining which subgroups of offenders within this population had poorer health indicated that men over 50 years of age reported higher rates of diabetes, prostate problems, cardiovascular problems, and arthritis than those under 50 years; Aboriginal men reported higher rates of blood borne viruses and head injury than non-Aboriginal men, and men with histories of IDU had higher rates of blood borne viruses than those who did not report IDU (Stewart et al., 2015).

While the literature indicates that social determinants associated with marginalised social status is related to poorer health outcomes, and that offenders tend to experience marginalised social statuses and higher rate of many physical health conditions, the relationship between social determinants and physical health within correctional samples has not been explored empirically. In fact, no research which examined whether the social determinants of health were useful concepts in predicting physical health condition among offenders was identified.

The present study

To address the gap in the literature regarding the influence of social determinants of health on offender populations, the relationship between adverse social determinants and physical health status of federally sentenced Canadian men at admission to a correctional facility was examined. While it is known that social determinants also affect the mental health of a population (WHO, 2008), the present research focussed only on social-economic factors that may have contributed to higher rates of poor physical health among the men examined. It was anticipated that a better understanding of these types of factors would help inform strategies to address offenders’ physical health issues, and, potentially, reduce the progression and impact of chronic health conditions through targeted correctional education and intervention programmes. The findings could also be used to contribute to the development of broader social programmes to address potential root causes that lead to criminal behaviours and poorer health.

Method

Participants

The CSC is the national correctional system responsible for administering prison sentences of two years or more. As mandated, CSC collects offender’s health information and under the Privacy Act paragraph 8(2)(j), CSC is permitted to compile health data for statistical use without additional offender consent as long as the information is used in a manner consistent with the purpose for which the data were collected (for more detail see www.csc-scc.gc.ca/info-source/007007-0004-eng.shtml). Given this, CSC’s research is not submitted to an ethics review board but rather CSC fulfils these obligations through an internal formal process which adheres to the Tri-Council requirements for informed, voluntary consent, and guarantees confidentiality for all research participants. All results are aggregated and no cells under 5 are reported for purposes of anonymity.

Participants included all men admitted to CSC institutions between 1 April 2012 and 30 September 2012 (n = 2,273) who consented to the routine intake health assessment. The average age of participating men was 36 years (SD = 12; range = 18-82) and 22 per cent (n = 496) self-identified as being of Aboriginal ancestry (i.e. First Nations, Métis, and Inuit). Data on health conditions of women offenders were collected and have been reported elsewhere (Nolan and Stewart, 2017), but were not included in these analyses because the sample size was not adequate to run regression procedures.

Measures/Material

Physical health conditions. CSC uses a series of forms to assess and record the health information of inmates at intake. This assessment includes self-reported information
on medical issues requiring immediate attention, current or past health conditions, and infectious disease screening.

Data were collected from all incoming male offenders over a six-month period in 2012 and the prevalence rates of health conditions were then aggregated. The prevalence of having any health condition was calculated and individual health conditions were collapsed according to their respective system or health issue. Any health condition was coded based on the total number of offenders regardless of missing data, whereas individual health conditions were coded so that percentages excluded missing values. The following were examined: central nervous system related (i.e. head injury, seizure activity, and spinal injury); cardiovascular system related (i.e. high blood pressure, arrhythmia, high cholesterol, angina, heart attack, and stroke); respiratory system related (i.e. asthma, bronchitis, and pulmonary disease); musculoskeletal system related (i.e. back pain, arthritis, walking difficulty, and osteoporosis); and blood borne viruses (i.e. HIV/AIDS and hepatitis C). It was not possible to examine physical health conditions relating to the gastrointestinal system (i.e. ulcers) and the endocrine system (i.e. diabetes) due to small number (i.e. < 5 per cent of offenders reported having these health conditions).

International research based on findings from longitudinal studies have demonstrated that self-perceived health provides a reliable assessment as good as, or better than, measures such as functional ability, chronic diseases and psychological well-being and may also be more stable than physicians’ ratings (Shields and Shooshtari, 2001).

**Demographics.** Participants’ age and Aboriginal ancestry were extracted from CSC’s Offender Management System (OMS), a computerised file system maintained to manage information on all federally sentenced offenders. For those offenders who identified as being of Aboriginal ancestry, subgroup membership was also examined by First Nations and Métis ancestry. There were too few offenders to disaggregate by Inuit ancestry.

**Social determinants of health.** Information used to assess social determinants was extracted from the Dynamic Factor Identification and Analysis-Revised (Brown and Motiuk, 2005; Stewart et al., 2017) in OMS. We selected and categorised several indicators according to six broad social determinant factors: early life (i.e. relations with parental figure were negative during childhood, abused during childhood, and witnessed family violence during childhood); education (i.e. has less than grade 10 or equivalent); employment (i.e. job history has been unstable); income (i.e. financial instability has used social assistance); housing (i.e. unstable accommodation); and all social supports limited (i.e. prosocial support from family, friends, and an intimate partner is limited). We did not have reliable information to allow analysis of the following social determinants noted in the literature: working conditions, food insecurity, and health services.

**Procedure/Analytic approach**

Logistic regression analyses were used to explore whether age group and Aboriginal ancestry significantly predicted each of the individual social determinants and the individual physical health conditions. Logistic regression allows the examination of the relationship between a set of predictor variables and a dichotomous outcome using odds ratios. Odds ratios greater than 1 reflect an increase in the likelihood of a given outcome in the presence of a predictor variable, whereas odds ratios less than 1 reflect the decrease in the likelihood of that outcome (Tabachnick and Fidell, 2007). Generally, when using logistic regression, it is recommended to have at least ten events per variable (Tabachnick and Fidell, 2007); however, there is also research which suggests that this may be too conservative and that five to nine events per variable are sufficient but in this case, the results should be considered more cautiously than in cases with a larger number of events (Vittinghoff and McCulloch, 2007). All logistic regression modelling conducted and reported here met these rules of thumb (i.e. lowest number of events examined was 223 with no more than 13 variables being considered). Logistic regression models were built to determine which of the social determinant factors best predicted each of the individual health conditions. Models were constructed so that age group and Aboriginal ancestry were entered first, and then each of the significant social determinant factors were entered based on the largest odds ratio in predicting each physical health condition individually. If a social determinant factor was not found to be significant (at the p < 0.05 level) with the inclusion of the
other covariates, it was excluded from the model. Finally, additional analyses were conducted to assess if differences existed between men of First Nations and Métis descent; however, given the small number of Métis men, it was often not possible to reliably examine differences between the groups.

Results

Prevalence of physical health conditions

The prevalence of the physical health conditions among incoming offenders is presented in Table I. Overall, 61 per cent of offenders self-reported having at least one health condition at admission. Examining the presence of a physical health condition within a particular system, just over one-third of the offenders reported having a condition affecting their central nervous system which includes head injury, seizure activity, and spinal injury, with head injury being the most common of these three.

Given the evidence in the literature that both age and Aboriginal ancestry are related to health status, we examined the impact of age and Aboriginal ancestry on whether physical health conditions were present among male offenders. Results revealed that age was related to the reporting of three health conditions in particular: older men (over 50 years) were more likely than their younger counterparts to report having any health condition, cardiovascular health issues, and musculoskeletal conditions. Compared to non-Aboriginal men, men of Aboriginal ancestry were more likely to report having health conditions affecting their central nervous system and to have blood borne viruses.

Prevalence of social determinants factors

The prevalence of the social determinants factors is presented in Table II. The overwhelming majority of offenders had adverse social determinants factors. Over two-thirds of offenders had an unstable job history (69 per cent), and over half experienced financial instability (61 per cent), had used social assistance (56 per cent), and had an educational attainment of less than grade 10 (56 per cent). Notably, those of Aboriginal ancestry were more likely than their non-Aboriginal counterparts to have reported each of the social determinants of health. Compared to Métis men, First Nations men were more likely to report social determinants associated with poorer health outcomes. In particular, First Nations ancestry were more likely than men of Métis descent to report social determinants of health relating to early life, education, and the use of social assistance.

Table I Percentage of population with physical health conditions at admission

<table>
<thead>
<tr>
<th>Physical health condition</th>
<th>n = 2,273 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any health conditiona</td>
<td>61.06</td>
</tr>
<tr>
<td>Central nervous systemb</td>
<td>36.37</td>
</tr>
<tr>
<td>Musculoskeletal systemc</td>
<td>25.18</td>
</tr>
<tr>
<td>Respiratory systemd</td>
<td>17.42</td>
</tr>
<tr>
<td>Cardiovascular systeme</td>
<td>14.25</td>
</tr>
<tr>
<td>Blood borne virusesf</td>
<td>9.84</td>
</tr>
</tbody>
</table>

Notes: With the exception of any health condition, which was calculated using the total n, the presence of each health condition was calculated using only the complete data (i.e. those who had missing information were excluded). aIncludes issues of the central nervous system (head injury, seizure activity, and spinal injury), issues of the cardiovascular system (high blood pressure, arrhythmia, high cholesterol, angina, heart attack, and stroke), issues of the respiratory system (asthma, bronchitis, and pulmonary disease), issues of the musculoskeletal system (back pain, arthritis, walking difficulty, and osteoporosis), blood borne viruses (HIV/AIDS, HCV), diabetes, ulcers, prostate problems, and any history of cancer; bIncludes head injury, seizure activity, and spinal injury; cIncludes back pain, arthritis, walking difficulty, and osteoporosis; dIncludes asthma, bronchitis, and pulmonary disease; eIncludes high blood pressure, arrhythmia, high cholesterol, angina, heart attack, and stroke; fIncludes HIV/AIDS and HCV.
Relationship between the social determinants of health and physical health conditions

Initially, the relationships between each of the social determinants of health and each of the physical conditions were examined. As expected, many of the social determinants were related to the physical health conditions even when controlling for the effects of age and Aboriginal ancestry. Given this finding, multivariate analyses were conducted to assess which of the social determinants factors best predicted each of the physical health conditions. These analyses are presented in Table III.

Overall, two of the social determinants – abused during childhood and used social assistance – were associated with the most physical health conditions. For example, men who reported being abused during childhood were almost twice as likely to report a blood borne illness compared to those who had not being abused. Interestingly, neither unstable accommodation nor limited social support was related to any of the physical health conditions when the other social determinants factors were simultaneously considered in the models. Thus, their predictive ability in this population is limited. The remaining social determinants of health were often only associated with the prediction of one of the physical health conditions. For example, men who reported having a negative relationship with their parents were almost 40 per cent more likely to report having an issue related to their respiratory system.

It should be noted that the presence of social determinants did not completely mediate the relationship between age, Aboriginal ancestry, and having a physical health condition. For example, offenders who were 50 years of age and over were 4.5 times more likely to have cardiovascular problems and twice as likely to have musculoskeletal problems compared to those who were under 50 years of age. Furthermore, the relationship between Aboriginal ancestry and having a central nervous condition also remained significant after the inclusion of the social determinants of health. More specifically, Aboriginal men were still 33 per cent more likely than non-Aboriginal men to report having a health issue affecting their central nervous system, suggesting that other factors beyond those measured in this study play a role in explaining higher rates of conditions affecting the central nervous system among Aboriginal men.

Discussion

The purpose of this research was to examine the relationship between social determinants of health factors and physical health conditions of male offenders being admitted to custody. Overall, even within a population of highly disadvantaged men, two key factors, a history of
childhood abuse and use of social assistance, consistently stood out as being associated with poorer health. The latter may be considered a broad proxy for poverty. In general, results demonstrated that when controlling for age, Aboriginal ancestry, and other social determinants factors, a history of being abused as a child and adult use of social assistance remained predictive of having any health condition, as well as several specific health conditions. These two broad factors may subsume the other factors included in our models related to childhood adversity (i.e. witnessed family violence, relations with parental figure were negative) and economic hardship (e.g. financial instability, unstable employment history, and unstable accommodation). Low education level and financial instability were not found to be associated with poorer health; indeed, those with lower education had lower rates of cardiovascular disease. This may be related to using the threshold of aged 50 to dichotomise men by age group. Very young men in CSC may have low education status and less financial stability, but are unlikely to have cardiovascular problems.

The literature on the health impact of child adversity and abuse is well established. Felitti et al. (1998), for example, reported a strong graded relationship between the breadth of exposure to abuse or household dysfunction during childhood and risk factors for several of the leading causes of death in adults. Furthermore, Delima and Vimpani (2011) documented the structural and functional changes to the brain associated with child maltreatment. These,

### Table III

<table>
<thead>
<tr>
<th>Model and covariates</th>
<th>Odds ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Central nervous system</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboriginal ancestry: Aboriginal vs non-Aboriginal</td>
<td>1.33&lt;sup&gt;*&lt;/sup&gt;</td>
<td>1.06 1.67</td>
</tr>
<tr>
<td>Age: 50+ vs &lt; 50</td>
<td>0.87&lt;sup&gt;ns&lt;/sup&gt;</td>
<td>0.66 1.16</td>
</tr>
<tr>
<td>Abused during childhood</td>
<td>1.59&lt;sup&gt;***&lt;/sup&gt;</td>
<td>1.30 1.94</td>
</tr>
<tr>
<td>Model $\chi^2$ (df)</td>
<td>34.76 (3)&lt;sup&gt;***&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td><strong>Cardiovascular system</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboriginal ancestry: Aboriginal vs non-Aboriginal</td>
<td>1.03&lt;sup&gt;ns&lt;/sup&gt;</td>
<td>0.74 1.44</td>
</tr>
<tr>
<td>Age: 50+ vs &lt; 50</td>
<td>4.52&lt;sup&gt;***&lt;/sup&gt;</td>
<td>3.32 6.19</td>
</tr>
<tr>
<td>Has less than grade 10 or equivalent</td>
<td>0.67&lt;sup&gt;**&lt;/sup&gt;</td>
<td>0.51 0.88</td>
</tr>
<tr>
<td>Financial instability</td>
<td>0.71&lt;sup&gt;*&lt;/sup&gt;</td>
<td>0.54 0.94</td>
</tr>
<tr>
<td>Model $\chi^2$ (df)</td>
<td>110.81 (4)&lt;sup&gt;***&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td><strong>Respiratory system</strong>&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboriginal ancestry: Aboriginal vs non-Aboriginal</td>
<td>0.70&lt;sup&gt;*&lt;/sup&gt;</td>
<td>0.52 0.95</td>
</tr>
<tr>
<td>Age: 50+ vs &lt; 50</td>
<td>1.02&lt;sup&gt;ns&lt;/sup&gt;</td>
<td>0.71 1.47</td>
</tr>
<tr>
<td>Job history has been unstable</td>
<td>1.58&lt;sup&gt;**&lt;/sup&gt;</td>
<td>1.19 2.11</td>
</tr>
<tr>
<td>Relations with parental figure were negative during childhood</td>
<td>1.38&lt;sup&gt;*&lt;/sup&gt;</td>
<td>1.08 1.77</td>
</tr>
<tr>
<td>Model $\chi^2$ (df)</td>
<td>22.41 (4)&lt;sup&gt;***&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td><strong>Musculoskeletal system</strong>&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboriginal ancestry: Aboriginal vs non-Aboriginal</td>
<td>0.84&lt;sup&gt;ns&lt;/sup&gt;</td>
<td>0.65 1.10</td>
</tr>
<tr>
<td>Age: 50+ vs &lt; 50</td>
<td>1.96&lt;sup&gt;***&lt;/sup&gt;</td>
<td>1.45 2.61</td>
</tr>
<tr>
<td>Used social assistance</td>
<td>1.39&lt;sup&gt;**&lt;/sup&gt;</td>
<td>1.11 1.74</td>
</tr>
<tr>
<td>Model $\chi^2$ (df)</td>
<td>29.33 (3)&lt;sup&gt;***&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td><strong>Blood borne viruses</strong>&lt;sup&gt;e&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboriginal ancestry: Aboriginal vs non-Aboriginal</td>
<td>1.27&lt;sup&gt;ns&lt;/sup&gt;</td>
<td>0.88 1.92</td>
</tr>
<tr>
<td>Age: 50+ vs &lt; 50</td>
<td>1.90&lt;sup&gt;**&lt;/sup&gt;</td>
<td>1.21 2.98</td>
</tr>
<tr>
<td>Has used social assistance</td>
<td>2.47&lt;sup&gt;***&lt;/sup&gt;</td>
<td>1.63 3.73</td>
</tr>
<tr>
<td>Financial instability</td>
<td>2.79&lt;sup&gt;***&lt;/sup&gt;</td>
<td>1.82 4.29</td>
</tr>
<tr>
<td>Abused during childhood</td>
<td>1.75&lt;sup&gt;**&lt;/sup&gt;</td>
<td>1.18 2.59</td>
</tr>
<tr>
<td>Witnessed family violence during childhood</td>
<td>1.69&lt;sup&gt;**&lt;/sup&gt;</td>
<td>1.14 2.50</td>
</tr>
<tr>
<td>Model $\chi^2$ (df)</td>
<td>101.69 (6)&lt;sup&gt;***&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** CI, confidence interval. <sup>a</sup>Includes head injury, seizure activity, and spinal injury; <sup>b</sup>includes high blood pressure, arrhythmia, high cholesterol, angina, heart attack, and stroke; <sup>c</sup>includes asthma, bronchitis, and pulmonary disease; <sup>d</sup>includes back pain, arthritis, walking difficulty, and osteoporosis; <sup>e</sup>includes HIV/AIDS and hepatitis C virus. <sup>*</sup><i>p</i> < 0.05; <sup>**</sup><i>p</i> < 0.01; <sup>***</sup><i>p</i> < 0.001
in turn, were related to psychological and neurological problems, but also with poor physical health – possibly due to prolonged stress reactions. The authors noted that given evidence for neural plasticity, early identification that would allow the implementation of interventions could reduce future negative outcomes. Canada’s relatively high rates of child poverty compared to other OECD nations (placing it 20th of 30 wealthy developed nations) and poor access to regulated childcare across the country are factors limiting the quality of early childhood development, particularly for more marginalised groups (Mikkonen and Raphael, 2010). Some researchers have concluded that the importance of social programmes to improve the early life of children is so critical that a comprehensive early childhood education programme would be the single best means of improving Canadian health outcomes (Evans et al., 2007).

There is also a well-established literature on the impact of economic deprivation on health as assessed both by the development index of a nation, with poorer nations having lower life expectancies and higher rates of infectious and chronic diseases (Leon and Walt, 2001; Marmot, 2005), and also across social strata within developed nations (Raphael, 2002). Relative income has recently been shown to affect the actual morphology of children’s brains; the impact was most pronounced for children who were most disadvantaged (Noble et al., 2015). In Canada, Wilkins and colleagues (Wilkins, 2007; Wilkins et al., 1989) have noted that individuals living within the poorest 20 per cent of neighbourhoods were more likely to die of cancers, heart disease, diabetes, and respiratory diseases among other health problems. Raphael (2009) pointed out that the argument that poor people bring on health problems through lifestyle choices such as higher rates of smoking, substance abuse, and poor nutritional habits is not supported by research that has demonstrated that health differences remain even after these lifestyle factors are considered. Some of the most disadvantaged groups such as indigenous people of Canada have sharply lower indices of overall health (King, 2010). An understanding of how poverty and child abuse affect the health of individuals and the implementation of policies and social programmes that effectively address these risk factors should be part of an overall national health promotion strategy (Evans et al., 2007). As Marmot (2005) observed, “If the major determinants of health are social, so must be the remedies” (p. 1103).

Our results also revealed that offenders of Aboriginal ancestry were significantly more likely than non-Aboriginal offenders to have experienced all of the social determinants associated with poorer health. Nonetheless, when predicting each of the physical health conditions using age, Aboriginal ancestry, and social determinants factors as covariates, differences between Aboriginal and non-Aboriginal men remained only with regard to health conditions of the central nervous system. This category of health condition includes head and spinal injury and seizure activity. Further research could examine whether these conditions may be linked to lifestyle factors not represented among the social determinants. For example, there is evidence that head injury is present at much higher rates among offenders (McIsaac et al., 2016) and is associated with a history of substance abuse (Center for Disease Control and Prevention, n.d.). Rates of substance misuse are more frequent among federal offenders of Aboriginal ancestry than non-Aboriginal offenders (Mullins and Farrell-MacDonald, 2012).

**Limitations and conclusion**

The study is limited to the use of self-report data only to assess the prevalence of chronic health conditions. However, it is important to note that findings from longitudinal studies have demonstrated that self-perceived health is predictive of chronic disease incidence and mortality even when more objective health measures are taken into account (Shields and Shooshtari, 2001).

We recognise that the research described provided only crude estimates of the social determinants constructs. The measures were derived from parole officers’ assessments based on adult offenders’ responses to structured interviews at the time of their entry into federal custody. Although some indicators reflect offenders’ early aversive childhood experiences, others describe more recent adult lifestyle factors. The direction of the relationship between poor health and exposure to social determinants in adulthood such as
poverty and unstable accommodation, therefore, cannot be clarified with our methodology. It may be that the effects of early childhood abuse, poverty, and unstable accommodation set up the stressful circumstances that contribute to psychological deterioration and drug use thereby heightening the risk for contracting blood borne viruses and neurological injury. As described in the life course literature, it is very likely that the biological and social factors contributing to poor health among offenders are multi-determined and the numerous risk factors in the lives of many offenders interact and cumulatively influence health status in adult life. A more in-depth study would be provided by a life course examination of the long-term effects on health of physical or social exposures to these deleterious factors during the lifespan (Kuh et al., 2003).

Nevertheless, even given its shortcomings, this study was able to confirm that findings from the literature pointing to the impact of economic disadvantage and early childhood abuse on the health of individuals apply to the health status of adult Canadian male offenders. Although the Aboriginal men in this sample had higher rates of social determinants factors than non-Aboriginal men, when these factors were controlled, few differences in health status were noted between the two groups.

Our results point to particularly poor health outcomes for intravenous drug users. Intervening early to disrupt the pathways or chains of risk that lead towards serious substance abuse would reduce the probability of poor health and other negative outcomes like criminality. Within the adult criminal justice system, many of the offenders will have already developed these behavioural patterns by the time they are first incarcerated. Policies that provide for effective substance abuse treatment to reduce the harm of use, or the chance of relapse after release, could contribute to better social and health outcomes for these men. Furthermore, Aboriginal groups require policies and funding that enable them to address factors like poverty and family violence that put them at increased risk for poor health (Gracey and King, 2009). Evidence-based social and intervention programmes that prevent and address child abuse and raise the quality of life for those who are economically and socially disadvantaged are critical elements of health promotion efforts that would contribute to reducing health inequalities among vulnerable populations. The correctional environment provides a public health opportunity to promote health through addressing factors associated with serious health consequences.

References


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Vitamin D deficiency and segregation status in prisoners

Zelda Doyle, John Walton Dearin and Joe McGirr

Abstract

Purpose – The purpose of this paper is to investigate if any exposure to segregation minimal association in a single male prison population had any association with an increased risk of vitamin D deficiency.

Design/methodology/approach – A retrospective case study was undertaken with all inmates who had a 25-hydroxy-vitamin D test taken during the study period deemed eligible. Hand searching of the medical records by an independent party identified eligible participants whose data were recorded for analysis.

Findings – In total, 124 prisoners were deemed eligible for inclusion; 67 were vitamin D sufficient and 57 were vitamin D deficient by Australian standards. Time in segregation minimal association was shown not to be significant, however, smoking (OR 2.93, 95% CI 1.27-6.81, p = 0.012) and having Asian ethnicity (OR 4.16, 95% CI 1.56-11.10, p = 0.004) independently significantly increased the risk of vitamin D deficiency.

Research limitations/implications – This research is limited by its study design, small sample size and single location.

Originality/value – This paper presents the first published research into vitamin D levels in a prison population in Australia, and provides a basis for a larger prospective cohort study.

Keywords Australia, Public health, Segregation, Deficiency, Prison population, Vitamin D

Paper type Research paper

Introduction

Vitamin D is utilised predominately in the body in bone remineralisation and metabolism. It is synthesised in skin from 7-dehydrocholesterol by exposure to direct sunlight (ultraviolet B radiation) and obtained in the diet chiefly through fish liver oils and salt water fish (Johnson, 2007). Adults who are deficient in vitamin D can suffer from osteomalacia and/or osteopenia (Kumar and Clark, 2009). Low levels of vitamin D have also been linked to an increased risk of multiple sclerosis, diabetes, heart disease, mental illness and various autoimmune diseases (Department of Health State Government of Victoria, 2012; Holick, 2004, 2006), and there is evidence that deficiency may play a role in multiple organ systems (Clifton-Bligh, 2012; Office of Dietary Supplements, 2011). Physiological mechanisms limit the formation and metabolism of vitamin D cutaneously, and while it is possible to ingest large doses of vitamin D through supplementation vitamin D toxicity is rare (Haines and Park, 2012).

Exposure to sunlight, cloud cover and other environmental factors may influence vitamin D serum levels and explain the wide variation seen between individuals on which the reference levels in Australia are based (Commonwealth of Australia, 2006; Glendenning, 2015). Cutaneous exposure for vitamin D is also complicated by skin colour variations: highly melanised skin has been shown to be less effective in vitamin D uptake (Clemens et al., 1982; Norman, 1998; Yuen and Jablonski, 2010). It is often assumed that the majority of Australians will obtain most, if not all, of their vitamin D through cutaneous exposure to sunlight (Holick, 2001), but current literature suggests that this is not necessarily the case (Boyages and Bilinski, 2012; Erbas et al., 2008; Fuller and Casparian, 2001; Holick, 1995, 2006; Nowson and Margerison, 2002; Paxton et al., 2013; Pudlowski et al., 2013; Teale and Cunningham, 2010; Vieth, 1999). There may be clusters of people who do not have sufficient exposure to sunlight for adequate vitamin D production due to geographic location, occupation and personal choice.
to a variety of factors, including religious beliefs, geography, institutionalisation or the fact they are bed bound (Boyages and Bilinski, 2012; Erbas et al., 2008). Current guidelines suggest an average intake of 5-15 µg/day of vitamin D for adults increasing with increasing age is sufficient to maintain a vitamin D (25(OH) D) serum level of at least 27.5 nmol/L if there is minimal or no exposure to sunlight (Commonwealth of Australia, 2006). It is acknowledged by Nowson et al. (2012) that these guidelines are out-dated and clinicians should refer to the dietary reference intakes as published by the Institute of Medicine (Committee to Review Dietary Reference Intakes for Vitamin D and Calcium Food and Nutrition Board, 2011).

Obtaining vitamin D purely through diet is difficult (Fuller and Casparian, 2001; Holick, 2001). In countries where vitamin D is added to foods (such as in milk in the USA, or in table spreads in Australia) (National Health and Medical Research Council, 2014; Nowson and Margerison, 2002), it is assumed that fortification of common dietary components will meet population needs (Glendenning, 2015; Holick, 2001; National Health and Medical Research Council, 2014). However, Nowson et al. (2012) highlighted that an estimated 31 per cent of adults in Australia have inadequate vitamin D levels despite fortification. At particular risk are those who are housebound, community dwelling older people, the disabled, those in residential care and those who regularly avoid sun exposure or work indoors.

A group of people who may be at risk of inadequate Vitamin D levels are prisoners (Justice Health, 2009). Sandwell and Wheatley (2009) noted that prisoners spend little time in direct sunlight and there is a lack of oily fish, an easily accessible and known source of vitamin D, offered on prison menus. This raises the question of the prevalence of vitamin D deficiency in prisoners and a possible association with reduced exposure to sunlight. In the USA, this hypothesis has been supported by Jacobs and Mullany (2015) and Nwosu et al. (2014) who both found inadequate levels of vitamin D in their respective prison populations, particularly those who had spent a longer time in jail overall, or time in medium or maximum security. To date, there are no published data on vitamin D deficiency in Australian correctional facility populations. This study was designed to investigate the association between exposure to sunlight or segregation status and a low vitamin D level in an Australian prison population.

In the non-custodial population, vitamin D levels have been shown to be significantly below the defined normal range (Daly et al., 2012; Gille, 2010; Haines and Park, 2012; Nowson and Margerison, 2002; Nowson et al., 2012; Paxton et al., 2013). This has been attributed to differing reasons dependent on the location of the study. Gille (2010) critiqued the policy in the UK of having very few fortified foods, no accepted vitamin D supplementation policy, and guidelines on sun exposure developed by countries with a higher incidence of clear sunny days. It has been shown that seasonality affects vitamin D levels, with Boyages and Bilinski (2012) showing that levels rise during Summer/Autumn and decrease during Winter/Spring as the body does not have exposure to as many hours of daylight. Studies at psychiatric institutions by Murie et al. (2012) have shown that vitamin D levels are also reduced in those patients who are not exposed to the grounds and thus natural sunlight.

Methodology

Population

The Lithgow Correctional Centre is a high security male correctional facility situated just outside Lithgow on the western side of the Blue Mountains in New South Wales (NSW). Prisoners are seen as required by medical and nursing staff.

All inmates at Lithgow Maximum Security Correctional Centre who had a 25-hydroxy-vitamin D blood test ordered by the visiting medical officers between July 2011 and October 2013 were considered eligible for this study.

Study design, data source, and variables

A retrospective cohort was utilised. Eligible subjects were identified by a hand search of pathology records for all patients presenting at the Lithgow Correctional Centre Medical Unit.
during the study period. The hand search was performed by a single nurse associated with the medical unit who was independent to the study. A case was defined as someone who was vitamin D deficient using the cut off of 50 nmol/L recommended by the Endocrine Society of Australia (Nowson et al., 2012). A control was defined as someone with a vitamin D level above 50 nmol/L (Glendenning, 2015).

For each eligible subject, study data were extracted from medical, movement, and employment records and recorded onto data collection sheets supplied by the researchers. Demographic data (age (years), ethnicity, height (m), weight (kg)) were collected, along with the following factors considered to affect sun exposure or vitamin D processing: smoking status (y/n), co-morbidities, medications, segregation status, date of vitamin D test, and employment. Additional exposure factors determined for analysis were body mass index (BMI), time in sun (from employment and segregation records), medication count and seasonality.

The primary study exposure factor was spending any time as a prisoner in segregation minimal association (SMAP) as defined by Section 10 of the Crimes (Administration of Sentences) Act 1999 (NSW Government, 1999). Segregation status was coded as positive for SMAP. This classification within the prison system is defined as “if in the opinion of the Commissioner that the association of the inmate with other inmates constitutes or is likely to constitute a threat to: (a) the personal safety of any other person, or (b) the security of a correctional centre, or (c) good order and discipline within a correctional centre” (NSW Government, 1999).

Type of employment was used to estimate time in the sun with the assistance of the nurse undertaking the data extraction. The date of the vitamin D test was used to determine season.

A secondary classification of vitamin D status into three levels (sufficient, insufficient, deficient) was generated based on the American Endocrine Society clinical practice guideline (Holick et al., 2011) to allow comparisons with similar papers from the USA (Nwosu et al., 2014). Ethnicity was originally classified into 11 categories as recorded in the prison records. This was simplified to four categories similar to the classification used by Nwosu et al. (2014) and Clemens et al. (1982). Reclassification of medications from branded medications into groups based on the indication for the medication (i.e. blood pressure, diabetes, addiction) was undertaken by a medically qualified member of the study team.

Analysis

A single researcher (ZD) entered and coded all study data and performed data cleaning (consistency checked, unknowns coded for, and entry errors identified (Van den Broeck et al., 2005)). Preliminary descriptive statistics of frequencies for categorical data and means and standard deviations (SD) for continuous data were generated for subject demographic characteristics and study exposure factors for the total study population and by vitamin D status (≤ 50 nmol/L, > 50 nmol/L).

Associations between study exposure factors and vitamin D status were assessed using odds ratios and presented with 95% confidence intervals (CI). Binomial logistic regression was undertaken. Where data were not available for an exposure, the participant was excluded from the analysis for that variable. SPSS 23 (IBM Corporation) was used for all analyses. A p-value < 0.05 was reported as statistically significant.

The study was approved by the NSW Justice Health and Forensic Mental Health Network Human Research Ethics Committee and The University of Notre Dame, Australia Human Research Ethics Committee.

Results

A total of 124 eligible subjects were identified with a mean age of 43.4 years (SD12.7). Subject demographic characteristics and co-morbidities are summarised in Table I.
The average vitamin D level across the study population was 55.07 nmol/L (SD 19.8 nmol/L). Just under half (46 per cent, 95% CI 37-55 per cent) of the inmates tested were vitamin D deficient (<50 nmol/L). Using the American Endocrine Society classification system, 50 (40 per cent) of the population were vitamin D insufficient (50-<75 nmol/L), and 20 (16 per cent) were vitamin D sufficient (<=75 nmol/L). While co-morbidities and medications were intended to be examined, the numbers were widely spread which did not allow for an in-depth analysis. There were no significant differences between those who were taking medications and those who were not \( \chi^2(2, N = 124) = 2.032, p = 0.201 \), nor those who had co-morbidities and those who did not \( \chi^2(2, N = 124) = 0.741, p = 0.249 \) with regards to whether they were vitamin D replete or not. Analysis of the ten initial factors (Age, BMI, smoking, ethnicity, season, vitamin D level, employment, segregation, medications, and co-morbidities) was undertaken on raw or aggregated data to determine if the numbers allowed for further analysis. Of the eight exposure factors which had numbers which allowed for further analysis, smoking

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin D</td>
<td></td>
</tr>
<tr>
<td>Replete (&gt; 50 nmol/L)</td>
<td>67 (54)</td>
</tr>
<tr>
<td>Not replete (≤50 nmol/L)</td>
<td>57 (46)</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
</tr>
<tr>
<td>&lt; 30</td>
<td>16 (13)</td>
</tr>
<tr>
<td>30-39</td>
<td>33 (27)</td>
</tr>
<tr>
<td>40-59</td>
<td>66 (53)</td>
</tr>
<tr>
<td>60+</td>
<td>9 (7)</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>43.4 (12.7)</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>24 (19)</td>
</tr>
<tr>
<td>Overweight</td>
<td>62 (50)</td>
</tr>
<tr>
<td>Obese</td>
<td>28 (23)</td>
</tr>
<tr>
<td>Missing</td>
<td>10 (8)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>76 (61)</td>
</tr>
<tr>
<td>Asian</td>
<td>26 (21)</td>
</tr>
<tr>
<td>Pacific/Aboriginal and Torres Strait Islander/African</td>
<td>21 (17)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (1)</td>
</tr>
<tr>
<td>SMAP</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>29 (23)</td>
</tr>
<tr>
<td>No</td>
<td>95 (77)</td>
</tr>
<tr>
<td>Season of test</td>
<td></td>
</tr>
<tr>
<td>Spring</td>
<td>40 (32)</td>
</tr>
<tr>
<td>Summer</td>
<td>24 (19)</td>
</tr>
<tr>
<td>Autumn</td>
<td>20 (16)</td>
</tr>
<tr>
<td>Winter</td>
<td>40 (32)</td>
</tr>
<tr>
<td>Employed</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>74 (60)</td>
</tr>
<tr>
<td>No</td>
<td>30 (24)</td>
</tr>
<tr>
<td>Missing</td>
<td>20 (16)</td>
</tr>
<tr>
<td>Smoker</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>74 (60)</td>
</tr>
<tr>
<td>No</td>
<td>37 (30)</td>
</tr>
<tr>
<td>Missing</td>
<td>13 (10)</td>
</tr>
<tr>
<td>Sun exposure</td>
<td></td>
</tr>
<tr>
<td>&gt; 15 hours/week</td>
<td>16 (11)</td>
</tr>
<tr>
<td>&gt; 15 but &lt; 21 hours/week</td>
<td>66 (53)</td>
</tr>
<tr>
<td>&gt; 21 hours/week</td>
<td>44 (36)</td>
</tr>
</tbody>
</table>

Notes: BMI, body mass index; SD, standard deviation; SMAP, segregation minimal association prisoners
(OR 2.93, 95% CI 1.27-6.81, \( p = 0.012 \)) and having Asian ethnicity (OR 4.16, 95% CI 1.56-11.10, \( p \)-value 0.004) were found to be significantly associated with vitamin D deficiency using Australian cut offs (Table II).

**Discussion**

This is the first Australian study of vitamin D levels in a prison population. We found 46 per cent (95% CI 37-55) of the population selected for testing to be deficient. Our cohort study utilising case control selection limits the interpretation of our findings as prevalence data per se, but our observations broadly correspond with findings in the literature (Jacobs and Mullany, 2015; Nwosu et al., 2014) with regard to risk factors and the fact that the prison population is deficient in vitamin D. Our findings highlight the need for greater awareness of vitamin D deficiency in prison populations in Australia.

Initially, it was proposed that time in segregation, in particular SMAP, as a result of limiting exposure to daylight, would be associated with vitamin D levels which were not considered replete by the standard measure of greater than 50 nmol/L. Although the current literature suggested this was a likely risk factor (Jacobs and Mullany, 2015; Nwosu et al., 2014) for vitamin D deficiency, our initial analysis showed no significant correlation in our population.

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**Table II** Association between subject characteristics, segregation status, season and vitamin D status, 124 subjects

<table>
<thead>
<tr>
<th>Exposure factor</th>
<th>Vitamin D status</th>
<th>&lt; 50 nmol/L</th>
<th>&gt; 50 nmol/L</th>
<th>OR (95% CI)</th>
<th>( p )-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td>( \leq 30 )</td>
<td>11 (16)</td>
<td>5 (9)</td>
<td>0.48 (0.15-1.54)</td>
<td>0.22</td>
</tr>
<tr>
<td></td>
<td>30-39</td>
<td>18 (27)</td>
<td>15 (26)</td>
<td>0.88 (0.38-2.05)</td>
<td>0.78</td>
</tr>
<tr>
<td></td>
<td>40-59</td>
<td>34 (51)</td>
<td>32 (56)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>60+</td>
<td>4 (6)</td>
<td>5 (9)</td>
<td>1.34 (0.58-1.52)</td>
<td>0.70</td>
</tr>
<tr>
<td><strong>BMI (kg/m(^2)) (n = 114)</strong></td>
<td>Normal</td>
<td>12 (19)</td>
<td>12 (23)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overweight</td>
<td>37 (59)</td>
<td>25 (49)</td>
<td>0.68 (0.26-1.74)</td>
<td>0.42</td>
</tr>
<tr>
<td></td>
<td>Obese</td>
<td>14 (22)</td>
<td>14 (27)</td>
<td>1.00 (0.34-2.98)</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Ethnicity (n = 123)</strong></td>
<td>Caucasian</td>
<td>30 (53)</td>
<td>46 (70)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>19 (33)</td>
<td>7 (11)</td>
<td>4.16 (1.56-11.1)</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>Pacific/Aboriginal and Torres Strait Islander/African</td>
<td>8 (14)</td>
<td>13 (20)</td>
<td>0.94 (0.35-2.55)</td>
<td>0.91</td>
</tr>
<tr>
<td><strong>SMAP</strong></td>
<td>No</td>
<td>46 (81)</td>
<td>49 (73)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>11 (19)</td>
<td>18 (27)</td>
<td>0.651 (0.28-1.52)</td>
<td>0.323</td>
</tr>
<tr>
<td><strong>Season of test</strong></td>
<td>Spring</td>
<td>18 (32)</td>
<td>22 (33)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Summer</td>
<td>10 (17)</td>
<td>14 (21)</td>
<td>0.87 (0.31-2.43)</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>Autumn</td>
<td>7 (12)</td>
<td>13 (19)</td>
<td>0.66 (0.22-2.00)</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>22 (39)</td>
<td>18 (27)</td>
<td>1.49 (0.62-3.60)</td>
<td>0.37</td>
</tr>
<tr>
<td><strong>Employed (n = 104)</strong></td>
<td>Yes</td>
<td>33 (73)</td>
<td>41 (69)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>12 (27)</td>
<td>18 (31)</td>
<td>0.83 (0.35-1.96)</td>
<td>0.67</td>
</tr>
<tr>
<td><strong>Smoker (n = 111)</strong></td>
<td>Yes</td>
<td>41 (79)</td>
<td>33 (56)</td>
<td>2.93 (1.27-6.81)</td>
<td>0.012</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>11 (21)</td>
<td>26 (44)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td><strong>Sun exposure</strong></td>
<td>( \geq 15 )</td>
<td>10 (17)</td>
<td>4 (6)</td>
<td>3.39 (0.96-11.9)</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>&lt; 15 but ( \leq 21 ) hours/week</td>
<td>28 (49)</td>
<td>38 (57)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>( &gt; 21 ) hours/week</td>
<td>19 (33)</td>
<td>25 (37)</td>
<td>1.03 (0.48-2.23)</td>
<td>0.94</td>
</tr>
</tbody>
</table>
Analysis on proxy sunlight exposure measures and other known potential exposures also failed to find any significant differences in vitamin D levels. This finding was unexpected, and even when other significant variables were accounted for, segregation still did not significantly affect vitamin D status. Given the contrast between our data and previous findings, this could be interpreted as a statistical artefact resulting from relatively small case numbers. Also, we were reliant on staff estimates to determine the length of time that a prisoner was subject to segregation, and it is possible that errors in data collection may have limited the accuracy of our analyses. However, another explanation with greater consequences is, perhaps, more likely.

The location of Lithgow correctional centre, being at a higher altitude (950 m above sea level) reduces the frequency of sunny days. Weather data show that Lithgow had a reported average of 139.5 cloudy, and 90.3 clear days per year between 1985 and 2006 vs Sydney Airport which reported 129.2 and 104.5 days, respectively, or further North at Goondiwindi which has 70.5 and 156.8 days. Further west at Perth Airport there is on average a 138.7 clear and 106.9 cloudy days per year (Commonwealth of Australia, 2015). Cloud cover potentially reduces the amount of UVB light (Estupiñán et al., 1996), which in turn influences the production of cutaneous vitamin D3 in the skin and subsequent production of 25-hydroxy-vitamin D in the liver (Glendenning, 2015). This may have affected vitamin D levels derived from UVB across the prison population as a whole, including those inmates who were frequently outside, potentially obscuring the impact of differential access to daylight. This hypothesis is further supported by the fact that time in the sun (as measured through employment and programme participation) also did not correlate with vitamin D status in our study. Movements between prisons, and in and out of the prison system, may also potentially affect the vitamin D levels of those prisoners under examination; however, the Lithgow population by its nature is fairly stable, housing long-term maximum-security prisoners.

Location as a key variable has been previously noted by Holick (2006) who, in a review on vitamin D, notes that latitude, skin pigmentation, body fat, medication use, and age may all affect levels.

In our study, BMI, seasonality, and age did not correlate with vitamin D status, but smoking and ethnicity were shown to be significant in initial \( \chi^2 \) analysis. Ethnicity in particular may be an important factor in further attenuating any potential differences in vitamin D levels relative to a non-custodial population.

While research on vitamin D levels in Australia has been carried out on the general population, as well as specific populations (ambulatory and non-ambulatory hospital patients, those in aged care) (Boyages and Bilinski, 2012), there is no literature on the incidence or occurrence of vitamin D in the prison population, a population which could be considered to be more vulnerable and less likely to have advocates for their health (Justice Health, 2006).

Nwosu et al. (2014) has shown that maximum security prisoners in the USA are at risk of vitamin D deficiency, despite the fact that many foods within the USA are fortified with vitamin D, and that ethnicity is a key variable in predicting that risk. Our study has similar results to Nwosu et al. while utilising a case control methodology as opposed to their prevalence study. Our definition of replete and non-replete was also different with Nwosu et al. utilising a three-point scale for vitamin D of deficient, insufficient, and sufficient with the cut offs at < 50, 50-75, and > 75 nmol/L, respectively. In both studies, ethnicity may be acting as a proxy for melanin levels; darker skin, having a greater barrier to UVB, may be less able to synthesise vitamin D in a context where UV irradiation is already low (Norman, 1998). When we ran our data using the same cut offs as Nwosu et al., we still found ethnicity to be a risk factor to vitamin D deficiency particularly between Asian and other groupings.

Jacobs and Mullany (2015) also found that prisoners who had been incarcerated for more than a year had significantly lower levels of circulating vitamin D than a comparison group who had been incarcerated for less than six weeks (13.9 ng/ml vs 25.9 ng/ml, \( p < 0.0001 \)). They found that after adjusting for BMI and age in unconditioned logistic regression modelling the odds for deficiency in their long-term group was 18.7 (4.1-84.9). They found that race and season of blood draw were not confounders. While we found that season of blood draw did not affect the analysis, race (or in our case ethnicity) was significant. A limitation of Jacobs and Mullany’s study was the small group size (29 and 30 for short and long term, respectively). Their data collection and analysis neither examine ethnicity nor smoking.
Nowson and Margerison (2002) proposed that in Australia adequate vitamin D is unlikely to be achieved through dietary means alone, particularly for high-risk populations such as those in nursing homes, or for whom sunlight exposure is limited. This is supported by national guidelines which note that institutionalised elderly are shown to have high rates of deficiency (Commonwealth of Australia, 2006). A 2012 position statement shows that most adults in Australia and New Zealand only obtain 5-10 per cent of their vitamin D from dietary sources, and that the main source of vitamin D is sunlight (Nowson et al., 2012). They also note that when sun exposure is minimal (such as with those in a custodial population or the institutionalised elderly), that supplementation of 15-20 µg per day based on age is recommended (Nowson et al., 2012). On its own this would not be sufficient to provide adequate vitamin D but in combination with sunlight and/or supplementation via self-prescribed multi-vitamins could potentially provide adequate vitamin D nutrition (Lu et al., 2007). Multi-vitamins and oily fish are available on the “buy up” list, which is a list of available items prisoners can buy with their own money (Corrective Services NSW, 2011a); this may have influenced the relative dietary contribution of vitamin D in our prison population, but we were unable to account for this in our findings. Furthermore, a brief examination of a typical monthly menu also suggests that our prison population may have had a variable oral intake of vitamin D (Corrective Services NSW, 2011b). Given the significance of vitamin D to health, it would seem prudent to develop policies that monitor vitamin D intake in prisoners particularly those subjected to periods of segregation.

Smoking was the other significant variable identified in our study. Cutillas-Marco et al. (2012) found that in a general, non-custodial population in Southern Europe, the odds of vitamin D insufficiency in smokers was elevated at 1.8, and our results support this finding in our prison population. They also did not find any other mitigating factors such as time in sun, age, or skin colour which may confound the increased risk given by smoking. The other prison studies we examined either did not look at smoking as a risk factor (Jacobs and Mullany, 2015) or did not find it to be a risk factor (Nwosu et al., 2014).

A key limitation of our study was that the case control design based on a retrospective clinical audit meant that we were dependent on the data which were within the system and its accuracy. Furthermore, testing was for a proportion of selected individuals rather than the population as a whole; hence, we cannot use our findings as prevalence data. Our analysis was further complicated by small numbers of cases in our original exposure definition, as well as missing data. Given these restrictions, we frame our findings as indicators of areas of interest for future study rather than as final conclusions.

Conclusions

While research on vitamin D levels in Australia has been carried out on the general population, as well as specific populations (Boyages and Bilinski, 2012), there are no published studies on the incidence or occurrence of vitamin D in a prison population, a population known to be vulnerable and less likely to have advocates for their health (Justice Health, 2006).

We found that there is a small population of prisoners within the Lithgow prison population who are vitamin D deficient. This suggests that those prisoners who are at risk of vitamin D deficiency, particularly in a climate where there may be low levels of sunlight, may need to be more closely monitored for sub-optimal levels, or even supplied with preventative vitamin D supplements, to prevent vitamin D deficiency. The introduction of a non-smoking environment to prisons in NSW in August 2015 may assist in preventing vitamin D deficiency, but will not be able to be accurately assessed due to comprehensive data on vitamin D levels not being available prior to the smoking ban.

Further work

Further work should involve a prospective cohort study of vitamin D levels in prisoners in other Australian custodial settings. Such work would allow examination of factors such as geography
and seasonality, as well as varying management regimes, particularly in regard to segregation. An examination of a non-custodial population in Lithgow may also prove valuable in determining if vitamin D is potentially a regionally based problem, as opposed to a custodial one.

References


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Child incarceration and long-term adult health outcomes: a longitudinal study

Elizabeth S. Barnert, Laura S. Abrams, Lello Tesema, Rebecca Dudovitz, Bergen B. Nelson, Tumaini Coker, Eraka Bath, Christopher Biely, Ning Li and Paul J. Chung

Abstract

Purpose – Although incarceration may have life-long negative health effects, little is known about associations between child incarceration and subsequent adult health outcomes. The paper aims to discuss this issue.

Design/methodology/approach – The authors analyzed data from 14,689 adult participants in the National Longitudinal Study of Adolescent to Adult Health (Add Health) to compare adult health outcomes among those first incarcerated between 7 and 13 years of age (child incarceration); first incarcerated at 14 years of age; and never incarcerated.

Findings – Compared to the other two groups, those with a history of child incarceration were disproportionately black or Hispanic, male, and from lower socio-economic strata. Additionally, individuals incarcerated as children had worse adult health outcomes, including general health, functional limitations (climbing stairs), depressive symptoms, and suicidality, than those first incarcerated at older ages or never incarcerated.

Research limitations/implications – Despite the limitations of the secondary database analysis, these findings suggest that incarcerated children are an especially medically vulnerable population.

Practical implications – Programs and policies that address these medically vulnerable children’s health needs through comprehensive health and social services in place of, during, and/or after incarceration are needed.

Social implications – Meeting these unmet health and social service needs offers an important opportunity to achieve necessary health care and justice reform for children.

Originality/value – No prior studies have examined the longitudinal relationship between child incarceration and adult health outcomes.

Keywords Offender health, Public health, Suicide, Health policy, Juvenile offenders, Young offenders

Background and significance

Children who come into contact with the justice system constitute an important, yet under-examined population. The USA incarcerates more youth than any other developed country in the world (Hazel, 2008). Despite the lowest youth crime rate in over 20 years, the youth incarceration rate in the USA remains approximately 7 times higher than in England and 3,000 times higher than in Japan (Hazel, 2008). In 2013, US law enforcement officials made 1.1 million arrests of juveniles (Office of Juvenile Justice and Delinquency Prevention, 2016). In October 2013, 54,000 juvenile offenders were in residential placement, with over two-thirds held for non-violent charges. Of these incarcerated youth, 85 percent were male and 41 percent were African American (Hockenberry, 2016).

In the USA, state law rather than federal law governs the prosecuting and sentencing of juveniles (i.e. youth under age 18), resulting in wide variations in juvenile justice laws and practices across states. One variation is the age at which children (i.e. under age 14) are considered to have the capacity to willfully commit crimes or be competent to stand trial in juvenile court. As of 2014, 18 states had laws that established a minimum age threshold for juvenile justice jurisdiction,
ranging from six to ten years of age (National Center for Juvenile Justice, 2016). States without a minimum age law rely on legal precedent and case law to establish procedures to determine children’s capacity and competency. Every state, thus, has a complex set of laws and traditions in place to handle children who come into conflict with the law.

Although likely a relatively small group, children who are detained or incarcerated in the juvenile justice system may be a particularly medically vulnerable population. It is well documented that the broad population of incarcerated juveniles has high rates of unmet health needs and faces disproportionate morbidity and mortality compared to their non-incarcerated peers (Committee on Adolescence, American Academy of Pediatrics, 2011). In total, 46 percent of newly detained juveniles have been found to have urgent medical needs (Hein et al., 1980) and 70 percent may have at least one psychiatric disorder (Teplin et al., 2002). Little is known, however, about incarcerated children and the socio-demographic characteristics of this subgroup are absent in the literature. Descriptive data summarizing demographic trends among incarcerated children across the USA are difficult to obtain and inconsistent, as states use their own tracking mechanisms and measures. Furthermore, despite emerging literature describing the long-term health outcomes associated with youth incarceration as a whole (Schnittker and John, 2007), very little is known about the long-term trajectories of those first incarcerated as children. The limited existing literature on longitudinal health effects of youth incarceration has shown that any incarceration during adolescence or young adulthood is associated with worse adult general health (Massoglia, 2008b), functional limitations (Schnittker et al.), hypertension (Massoglia, 2008a), and obesity (Houle, 2014). However, the longitudinal relationship between age of first incarceration (especially under age 14) and subsequent adult health is unknown. To address these gaps, we sought to: provide a descriptive summary of demographic characteristics of individuals with a history of child incarceration (which we define as under age 14) and to quantify the association between child incarceration and a diverse set of adult health outcomes.

Methods

We analyzed data from the National Longitudinal Study of Adolescent to Adult Health (Add Health), a nationally representative survey conducted among US youth between the years 1994 and 2008 (Harris et al., 2009). The Wave I baseline survey included 20,745 youth in grades 7-12. The most recent follow-up survey (Wave IV) included 15,701 adult participants between the ages of 24 and 34 years old. The baseline surveys measured social determinants of health, such as youths’ health status. The Wave IV follow-up survey collected data on individuals’ history of incarceration and the age of their first incarceration, and again measured health status. Wave IV surveys were conducted in both the home residences of participants and in correctional settings (Harris et al., 2009).

Measure of child incarceration

Wave IV participants were asked, “Have you ever spent time in a jail, prison, juvenile detention center or other correctional facility?” and self-reported age that the first incarceration occurred. In order to examine the relationship between child incarceration and adult health, we identified respondents who reported being incarcerated as a child, which we defined as prior to age 14. Less than age 14 was chosen as a cut off because several European countries have set a minimum age of juvenile jurisdiction at 14 or higher (Hazel, 2008). Further, in the USA, common law and court decisions have established that children under 14 are presumed to lack criminal capacity (i.e. the ability to know right from wrong) because of their young age, and may lack the competency to stand trial (Bath and Gerring, 2014). Specifically, the variable was constructed with the following categories: child incarceration (first incarceration at < 14 years old), later incarceration (first incarceration at ≥ 14 years old), and no incarceration (reference category).

Adult health outcomes

We selected adult health outcomes for their documented high impact on adult morbidity and mortality. The primary outcome was adult general health. Secondary outcomes were adult functional limitations, depressive symptoms, and suicidality. These outcomes were based
on self-report, a well validated, stable approach for measuring the health of young people (Fosse and Haas, 2009).

**Adult general health.** To measure adult general health, we used self-report of general health, a well-validated general health measure known to be associated with morbidity and mortality (Idler and Benyamini, 1997). In Wave IV, a single item asked participants to rate their health as excellent, very good, good, fair, or poor. Based on the response distributions, we used a common dichotomous measure of self-rated health for responses of excellent/very good/good vs fair/poor. We conducted sensitivity analyses using alternate cut points, which revealed similar results.

**Adult functional limitations (climbing stairs).** We created a dichotomous measure of adult functional limitations (climbing stairs) using a single item that asked participants about limitations with climbing flights of stairs. Difficulty in climbing stairs is associated with cardiovascular and overall mortality risk (Hirvensalo et al., 2000). We categorized individuals as having this limitation if they reported a limitation in climbing flights of stairs.

**Adult depressive symptoms.** In Wave IV, respondents completed the well validated, ten-item short-form Center for Epidemiologic Studies Depression Scale (CESD-10), which screens for depressive symptoms in the prior seven days (Radloff, 1991). We used Wave IV CESD-10 data for the adult depressive symptoms outcome variable. We categorized a score $\geq 11$ as a dichotomous measure of depressive symptoms (Suglia et al., 2016).

**Adult suicidality.** Suicidality is an important concern for justice-involved individuals (Abram et al., 2008). We used the Wave IV single item that asked respondents if they had seriously considered suicide in the previous 12 months to create a dichotomous measure of adult suicidality.

**Demographic variables**

We examined standard Wave I Add Health demographic variables in order to create a descriptive summary of the individual’s demographic characteristics, including household context, during childhood. These demographic variables included gender, race/ethnicity, parental household income, highest level of parental education, and household family structure.

**Data analysis**

We computed descriptive statistics and performed $\chi^2$ tests comparing adult health outcomes among three groups: individuals whose first incarceration occurred at $< 14$ years old, individuals whose first incarceration occurred at $\geq 14$ years old, and individuals who were never incarcerated. We used the “svy” suite of commands in Stata (version 12.0) to account for the Add Health survey design elements of stratification, clustering, and weighting. As we sought to measure the association between child incarceration and subsequent adult health outcomes, the analytic sample included the 14,689 individuals with full data on the primary predictor (age at first incarceration), primary outcome (adult general health), and sample weight. The study was approved by the UCLA Institutional Review Board.

**Results**

Of the analytic sample of 14,689 young adults, 16.5 percent reported ever being incarcerated by early adulthood (i.e. by age 32). Specifically, 83.5 percent reported never being incarcerated, 0.5 percent reported child incarceration (i.e. first incarceration at $< 14$), and 16 percent reported later incarceration. The unweighted age distribution of the 56 individuals who reported child incarceration was as follows: 1 first incarceration at age 7, 1 at age 10, 9 at age 11, 8 at age 12, and 37 at age 13.

**Demographic characteristics (Table I)**

Compared to individuals first incarcerated at older ages (ages 14-32), individuals with a history of child incarceration (ages 7-13) were even more disproportionately male (84.3 vs 76.0 percent) and black (33.1 vs 20.8 percent), or Hispanic (22.4 vs 12.2 percent). In terms of socio-economic
status, a higher percentage of individuals incarcerated as children were raised in the lowest income stratum (48.7 vs 29.5 percent) and raised in single parent households (35.8 vs 29.4 percent). Compared to those never incarcerated, these demographic differences were more accentuated. The $\chi^2$-values demonstrated statistical significance across all the demographic variables ($p < 0.001$).

Child incarceration and adult health outcomes (Table II)

Across all four adult health outcome variables, the highest rates of poor health were seen in the two incarceration categories (compared to never incarcerated) and, of the health outcomes, the highest prevalence of symptoms were seen for the mental health outcomes. Additionally,

### Table I

Characteristics of the study sample by age at first incarceration and results from bivariate analyses of demographic variables (gender, race/ethnicity, parental household income, highest level of parental education, and family household structure) vs age at first incarceration

<table>
<thead>
<tr>
<th>Variable</th>
<th>First incarceration at age 7-13 (%)</th>
<th>First incarceration at age 14-32 (%)</th>
<th>Never incarcerated (%)</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>15.7</td>
<td>24.0</td>
<td>54.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Male</td>
<td>84.3</td>
<td>76.0</td>
<td>45.5</td>
<td></td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>29.2</td>
<td>62.3</td>
<td>69.1</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>African American</td>
<td>33.1</td>
<td>20.8</td>
<td>14.8</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>22.4</td>
<td>12.2</td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>15.3</td>
<td>4.7</td>
<td>5.3</td>
<td></td>
</tr>
<tr>
<td>Household income (amount/year)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-$24,999</td>
<td>48.7</td>
<td>29.5</td>
<td>20.9</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>$25,000-$49,999</td>
<td>11.4</td>
<td>26.7</td>
<td>26.5</td>
<td></td>
</tr>
<tr>
<td>$50,000-$74,999</td>
<td>11.4</td>
<td>13.5</td>
<td>19.1</td>
<td></td>
</tr>
<tr>
<td>$75,000 or more</td>
<td>0.1</td>
<td>6.7</td>
<td>11.8</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>28.4</td>
<td>23.6</td>
<td>21.7</td>
<td></td>
</tr>
<tr>
<td>Highest level of parental education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>14.5</td>
<td>14.6</td>
<td>8.9</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>High school diploma</td>
<td>46.8</td>
<td>37.2</td>
<td>30.8</td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>21.6</td>
<td>21.9</td>
<td>21.8</td>
<td></td>
</tr>
<tr>
<td>College degree or more</td>
<td>17.1</td>
<td>26.3</td>
<td>38.5</td>
<td></td>
</tr>
<tr>
<td>Family household structure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two biological parents</td>
<td>19.1</td>
<td>40.8</td>
<td>57.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Two parents (≥1 non-bio parent)</td>
<td>29.6</td>
<td>22.2</td>
<td>15.8</td>
<td></td>
</tr>
<tr>
<td>Single parent</td>
<td>35.8</td>
<td>29.4</td>
<td>21.6</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>15.5</td>
<td>7.6</td>
<td>5.2</td>
<td></td>
</tr>
</tbody>
</table>

Notes: $n = 14,689$. Percentages are weighted to account for survey design. p-Values are for $\chi^2$-tests; italic p-values indicate statistical significance

<table>
<thead>
<tr>
<th>Variable</th>
<th>Worse adult general healtha</th>
<th>Adult functional limitations (climbing stairs)</th>
<th>Adult depressive symptoms</th>
<th>Adult suicidality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at first incarceration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First incarceration at age 7-13 (%)</td>
<td>21.1</td>
<td>16.9</td>
<td>37.7</td>
<td>28.1</td>
</tr>
<tr>
<td>First incarceration at age 14-32 (%)</td>
<td>13.0</td>
<td>8.4</td>
<td>23.7</td>
<td>10.1</td>
</tr>
<tr>
<td>Never incarcerated (%)</td>
<td>8.4</td>
<td>5.9</td>
<td>14.9</td>
<td>6.5</td>
</tr>
<tr>
<td>p-Value</td>
<td>&lt;0.001</td>
<td>0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Notes: $n = 14,689$. Percentages are weighted to account for survey design. Variables are constructed from Add Health Wave IV survey data. a“Worse general health” refers to self-report of poor or fair health compared to excellent, very good, or good. p-Values are for $\chi^2$-tests; italic p-values indicate statistical significance.
compared to the older age at first incarceration category and the never incarcerated category, history of child incarceration was associated with the highest rates of subsequent poor adult health outcomes across all four health variables. Specifically, 21.1 percent of individuals first incarcerated as children reported subsequent poor general health in adulthood compared to 13.0 percent in the incarceration at age 14-32 category and 8.4 percent, respectively, in the never incarcerated category. Similarly, 16.9 percent of individuals first incarcerated as children reported subsequent adult functional limitations (climbing stairs), compared to 8.4 percent in the incarceration at age 14-32 category. Additionally, 37.7 percent of individuals first incarcerated as children reported subsequent adult depressive symptoms and 28.1 percent reported subsequent adult suicidality, compared to 23.7 percent (depressive symptoms) and 10.1 percent (suicidality) in the incarceration at age 14-32 category. The $\chi^2$ p-values demonstrated statistical significance across all of the adult health outcome variables ($p \leq 0.001$).

To further explore incarceration among the youngest children, we performed limited sub-analyses comparing individuals with a history of first incarceration from 7 to 12 years old vs 13 to 14 years old (detailed results not shown). Results were most notable for significantly higher rates of subsequent adult suicidality for those first incarcerated from 7 to 12 years old (49.9 vs 17.1 percent, $p$-value = 0.04). The sub-analyses for depressive symptoms followed similar trends.

Discussion

This study sought to describe the demographic characteristics of incarcerated children and to measure the associations between age of first incarceration and adult health outcomes. The results suggest that many of the racial/ethnic and socio-economic disparities seen in the US criminal justice system are evident and even accentuated for individuals incarcerated as children. Our results also demonstrate an association between child incarceration (i.e. incarceration at $< 14$ years old) and substantially worse physical and mental health outcomes during adulthood, including worse adult general health, functional limitations, depressive symptoms, and suicidality. Our findings linking child incarceration with worse adult health provide additional evidence to support the current policy trend toward de-incarceration for minors, especially young minors (Greenwood and Turner, 2011).

Prior research has established that incarcerated youth have extremely high rates of unmet health needs, especially with regards to mental health and substance abuse treatment needs (Committee on Adolescence, American Academy of Pediatrics, 2011). The estimated rates of psychiatric disorders in juvenile justice populations range from 60 to 75 percent (Teplin et al., 2002). Children who have contact with the juvenile justice system at an early age may do so because of preexisting risk factors, such as underlying mental health issues. For youth entering the juvenile justice system, limited access to mental health services is a common problem, and this problem is accentuated for justice-involved youths from racial/ethnic minority backgrounds (Maschi et al., 2008, Janku and Yan, 2009). Further, racial/ethnic minority youth with psychiatric disorders are more likely to be placed in the juvenile justice system than they are to be diverted to the community for treatment compared to white youth (Janku and Yan, 2009, Guthrie et al., 2012). These inequalities perpetuate unequal cycles of incarceration and recidivism, and may contribute to negative long-term mental health outcomes in medically vulnerable minority populations.

There is wide variation in how children who come into conflict with the law are handled within the USA. Given this, the observed disparities and observed associations between child incarceration and worse adult health demonstrated in our study have important implications. First, policies related to how children are prosecuted, diverted from, or detained in the juvenile justice system should be more thoroughly examined for potential adverse health impacts. There is a growing reform movement to avoid detention for youth whenever possible; however, attention has not focused on the youngest of this group (Annie E. Casey Foundation, 2016).

Moreover, longitudinal data on child “offenders” remain sparse and deserves attention. Preexisting psychiatric problems may play an important role in the relationship between child incarceration and adult health. Providing needed mental health and substance abuse assessments and referrals to children who come into conflict with the law may be a promising path for prevention of child incarceration and mitigation of any immediate and long-term negative
health effects. Leveraging partnerships between schools and health systems may help identify health needs and address patterns of delinquency among vulnerable children, a known precursor to justice involvement. Overall, however, more research is needed to further disentangle precursors and potential mechanisms leading to poor health among those incarcerated as children.

Limitations of the study may include selection bias, as the baseline Add Health survey was a school-based sample and excluded those detained or incarcerated during the first wave. Also, individuals with a history of incarceration may have had higher attrition; however, it is reassuring that the Wave IV observed incarceration rate is consistent with national figures (Warren et al., 2008). We were limited by the small sample size seen in the young age category and it is not possible to determine the extent to which the worse adult health outcomes observed later in life were due to childhood incarceration or to confounding factors related to underlying social determinants of health. However, the fact that results demonstrated clear trends and statistical significance despite the relatively small sample size in the child incarceration category suggests that a strong relationship linking child incarceration and subsequent adult health may exist. Finally, these analyses did not test causality. Baseline health data are not available because many participants who experienced child incarceration were incarcerated before their Wave I interview. Further studies exploring potential mechanisms linking child incarceration and worse adult health are needed to examine whether child incarceration is independently associated with worse adult health outcomes.

Conclusion

Incarceration of children is associated with downstream, long-term negative adult health outcomes. Many children who come into conflict with the law are from underserved communities that face inequities in the social determinants of health. Many of the children may also have high rates of unmet health needs, especially in regard to mental health, that incarceration might exacerbate. Addressing these medically vulnerable children’s health needs through comprehensive health and social services in place of, during, and/or after incarceration might be our best path to achieving necessary health care and justice reform for children.

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After a childhood with a parent in prison – relationships and well-being as a child and young adult

Per-Åke Nylander, Åsa Källström and Karin Hellfeldt

Abstract

Purpose – The purpose of this paper is to explore whether young adults who had a parent in prison while growing up in Sweden are disadvantaged in terms of parental support, school well-being and functioning, and socioemotional and/or behavioral problems, compared to young adults whose parents were not in prison when they were a child.

Design/methodology/approach – Retrospective self-report information about parental imprisonment and childhood and adulthood welfare was collected from 2,500 Swedish young adults as part of the RESUME project. Of these, 52 who had had a parent in prison during their childhood were compared to the young adults who had not had a parent in prison, by measuring differences concerning their family relations, school well-being, and well-being as adults, and the risk of some events occurring later in life.

Findings – Having had a parent in prison was significantly related to feeling less loved during childhood, and having less contact and support from both parents during adulthood, in comparison with other young adults. In school they experienced lower well-being and were more often placed in special education than other children. They were at greater risk of not attending higher education, of planning or attempting suicide, and of being hospitalized for mental health problems than the rest of the young adults.

Research limitations/implications – Taking into consideration the complexity of childhood conditions and the limitations of retrospective data, prison, and social-services, professionals should pay special attention to the fact that a child has a parent in prison.

Originality/value – This is a unique study of young adults’ experiences of a childhood with parent in prison.

Keywords Young adults, Prison, Relationships, Well-being, Children, Parent

Paper type Research paper

Introduction

The children of imprisoned parents are seen as a vulnerable group, exposed to many kinds of difficulties in their childhood, not least when it comes to maintaining their relationship with the imprisoned parent (Dawson et al., 2012; Murray et al., 2012). Prison time is often accompanied by a deteriorating relationship between parent and child, and many families are likely to be dissolved (Western et al., 2004). When a parent is imprisoned, the child may thus be directly affected by the experience of separation and enduring loss (Murray, 2005). This process might be more or less traumatizing, depending on the circumstances and how they are explained to the child (Murray et al., 2012; Phillips and Zhao, 2010). The children might also experience difficulty maintaining contact with their parent in prison, as the active support of caregivers and relatives is often a necessary condition of this (Shlafer and Poehlmann, 2010) and they frequently need coaching to be able to visit their parent or to write a letter (Nesmith and Ruhland, 2011). Telephone contact and child-friendly visiting environments are important to keeping up a previously good parent-child relationship, while visits are less important when the child-parent relationship was already bad before the imprisonment (Sharratt, 2014). Prisons in different countries differ in the extent to which they have child-friendly visiting environments. This study explores whether young adults
who had a parent in prison while growing up in Sweden are disadvantaged compared to other young adults.

The research on the proximal effects of parental incarceration on children’s well-being and behavior during childhood has come to various results. First, in some studies (Cho, 2011) children of prisoners exhibit poorer school achievement and lower attendance than other children, or are at greater risk of dropping out, while a meta-analysis does not find higher levels of poor educational performance among children of imprisoned parents (Murray et al., 2012). These children’s own perception of their school well-being does not seem to have been studied very much. In a Swedish interview study with 50 children of imprisoned parents, most participants report no school problems. A subgroup of children with less support from home, however, report problems with school achievement and performance. Few of the 50 children have experienced being bullied in school because they have a parent in prison (Berman et al., 2013). Similar results were found in an American qualitative interview study including 34 children, in which a majority of children with incarcerated parents report doing well at school (Nesmith and Ruhland, 2008).

Second, children often grieve the loss of their imprisoned parent, which can affect them very differently (Shlafer and Poehlmann, 2010; Nesmith and Ruhland, 2011). Some studies compare this to post-traumatic stress (Bocknek et al., 2009) and consider it a potential predictor of childhood trauma (Arditti and Savla, 2015; Shlafer and Poehlmann, 2010), while others argue that the children have feelings of alienation or injustice (Shlafer and Poehlmann, 2010; Nesmith and Ruhland, 2008). Children may also feel embarrassment and shame (Tudball, 2000). Children with parents in prison are at risk of being discriminated against and suffering other forms of stigmatization (Beck and Jones, 2007; Nesmith and Ruhland, 2008). Third, all of the above could have an impact on children’s alcohol and drug abuse, mental health problems, and antisocial behavior. Some studies have found higher levels of drug abuse and mental health problems among these children (Murray et al., 2009), while others have not (Murray et al., 2012). Some studies found significantly higher levels of antisocial behavior and conduct problems requiring disciplinary measures (Murray et al., 2009, 2012; Trice and Brewster, 2004), while this was not found in other studies (e.g. Murray et al., 2007).

It is important to remember that not all children suffer from the incarceration of a parent. To some children, it could bring relief to a chaotic home situation characterized by drug abuse and criminality (DeHart and Altshuler, 2009; Beck and Jones, 2007). The situation can be further complicated if other family members have been seriously injured or killed by the imprisoned parent. Similarly, when the reason for imprisonment includes family violence or sexual abuse of the child, the child might understandably have mixed feelings concerning the parent (DeHart and Altshuler, 2009). Even if these and similar circumstances complicate the situation for the child, they do not preclude feelings of attachment and loss in relation to the imprisoned parent.

The research on long-term effects of experiencing a childhood with an imprisoned parent is more limited. Murray and Farrington (2008) found that children of incarcerated parents were at greater risk of adverse outcomes later in life, when controlling for other risk factors. In Sweden, parental incarceration during childhood predicted later antisocial and criminal behavior, but the effects of parental incarceration disappeared after controlling for parents’ criminality (Murray et al., 2007). Lee et al. (2013) found that exposure to paternal incarceration in childhood was associated with health problems in young adulthood, but while paternal incarceration raises the risk of several physical and mental health problems, maternal incarceration only raises the probability of depression. In Sweden, a study found that young adults who had experienced having a parent in prison have higher levels of ADHD and depression symptoms (Källström et al., in review) than others. A US longitudinal study found moderately heightened levels of serious youth delinquency among 16-year olds with an incarcerated parent, compared to those with no incarcerated parent (Kjellstrand and Eddy, 2011). Incarcerated mothers self-reported having incarcerated adult children 2.5 times more than did incarcerated men (Dallaire, 2007). Other studies have found that children of imprisoned parents internalize life problems for a long time, compared to similar risk-groups, even when controlling for other traditional risk factors in childhood (Murray and Farrington, 2008). The long-term connections between experiencing parental imprisonment during childhood and subsequent education, relationship to parents in adulthood, and well-being in life are less
studied areas. Some have argued that having an imprisoned parent, together with other consequences this has for the family, harms school performance and socialization processes (Johnston, 1995).

Of course, establishing a distinct causal relation between childhood experiences and conditions later in life is fraught with difficulties. In the developmental and theoretical literature, however, it has been found that people’s relationships with their parents also affect them later in life. One example is the attachment theory, which identifies different dysfunctional attachment patterns later in life, following problems with attachment in early years (Bowlby, 1979). So, one could start from the assumption that parental imprisonment, together with many other related problems (with household economy, social welfare, psychological development, parental, and school support, etc.) affect many of these children negatively, even if it is not possible to establish the exact causal relations involved.

One means of gaining insight into the long-term consequences of parental incarceration can be to use retrospective data. A retrospective design offers a longitudinal approach combined with a shorter period of data collection. A limitation in using childhood data that is self-reported later in life is that the conditions reported might not truly reflect the conditions as they were. Limitations in self-reported retrospection are a well-known problem in research. There are limitations in our memory, and several kinds of bias that might hamper the use of self-reported data to track events and conditions early in life. There are similar discussions on biases in research on, e.g., decision making or unemployment events, based on retrospective data (cf. Jacobs, 2002).

In this paper, the relationships studied are limited to personal relationships, which are regular, important interactions between human beings, in a certain context. “Well-being” is an expression with several meanings, and is extensively discussed in the literature. It is suggested that having, being and relating are essential actions in a dynamic well-being model that could be generally applied to many contexts (Roeser and Galloway, 2002). Well-being could of course be measured by objective and subjective indicators (Andrews and Withey, 1978/2012). In short, well-being could be defined as a good or satisfactory condition of existence, often related to health, the “good” and happiness, or simply, “the state of being comfortable, healthy or happy” (Oxford Dictionary). In the present study, a number of items on social and health-related items are used. School well-being is often used to refer to how time spent in regular school is apprehended primarily by a child, but also by other persons present. It is argued to be closely connected to relationships, and to experiencing recognition in the school environment (Thomas et al., 2016). In the present study, however, it is only possible to present the interviewed young adults’ own subjective apprehensions of their overall school well-being, in single items for primary school and for secondary school. Still, this study contributes some specific variables and the use of a retrospective design to the research on experiences of having a parent in prison.

The purpose of this study is to explore whether young adults who had a parent in prison while growing up in Sweden are disadvantaged in terms of parental support, school well-being and functioning, and socioemotional and/or behavioral problems, compared to young adults whose parents were not in prison when they were a child. This is done by answering these specific questions:

1. Do young adults who as a child had a parent in prison report lower school well-being and functioning during childhood and/or less attendance in upper-secondary school and higher education than those who did not experience having a parent in prison?

2. Do young adults who, as children, had a parent in prison report less supportive relationships with their mother and father (and to other important adults) during their childhood and/or as adults than those who did not experience having a parent in prison?

3. Do young adults who, as children, had a parent in prison report more socioemotional disadvantages and/or behavioral problems as adults than those who did not experience having a parent in prison?

Methods

This study used data from the national retrospective study of 2,500 young people’s own experiences during childhood and well-being in young adulthood (the Retrospective Study of Young People’s Experiences – the RESUME project, Cater et al., 2014), commissioned by the Swedish National Board of Health and Welfare and conducted in 2011.
Participants

Participants in the RESUME project were selected from members of the Swedish population born during the years 1987-1991, using a national inhabitant register from the national agency Statistics Sweden, which holds demographic information on all Swedish citizens. Random selection was constrained to proportional draws based on gender and county of residence (for more detailed information about the sampling procedure and attrition, see (Cater et al., 2014). New respondents were added to the study until the target of 2,500 participants was reached. The final sample included 47.4 percent men and 52.6 percent women, aged 20-24 years ($M = 22.1$), at the time of data collection. Of the 2,500 included adults, 52 (2 percent) reported that at least one of their parents was in prison at some point when they were children. This study focuses on those 52 in relation to the other 2,448.

Procedure

Following approval by the regional ethical review board in Uppsala, Sweden (No. 2010/463), potential study participants were selected from the national inhabitant register and contacted by telephone by staff at a Swedish survey and marketing company (Markör). This company was commissioned by the research team overseeing the project to recruit participants and collect data. The interviewers/questionnaire administrators were required to have previous experience of conducting interviews of a sensitive nature and were not younger than 30 years old. They were trained by the researchers in interviewing techniques, especially in interviews focusing on sensitive topics.

Potential participants were initially contacted by telephone, at which time the recruiter provided information about the project following a script developed by the research team. If the person was interested in participating in the study, written information about the purpose of the study, the voluntary participation, consent, etc. was sent by e-mail. The recruiter allowed him/her to choose a time and location for the interview and questionnaire.

Most participants chose to answer the questionnaire and be interviewed at home, others in a public place such as a library or at the offices of the survey company. At the interview, the interviewer again gave both written and verbal information about the study, following a script developed by the research team. Then the participants were asked to and did sign a written consent form for participation in the study.

Interviewers first gathered basic demographic information in a brief structured verbal interview, which was digitally recorded on an iPad. The participant then used the iPad to independently fill out the rest of the questionnaire as a self-report survey. The interviewer was present to answer any questions, but could not see the answers given. After this, participants received a SEK400 voucher that can be used in a variety of stores nationwide. In all, the data collection took an average of 90 minutes per session.

Measures

**Having had a parent in prison during childhood.** The question: “Were either of your parents ever imprisoned?” was answered by checking “Yes” or “No” for the father and the mother, respectively.

**Childhood school functioning and education level as adult.** School well-being was assessed using two items (“How well did you enjoy primary school?” and “How well did you enjoy secondary school?”). The two items were answered on a four-point scale ranging from 1 (not at all) to 4 (very well). In this study, the scales were dichotomized by grouping values 1 and 2 into “negative” and values 3 and 4 into “positive.”

To assess the education level of adults, three items were used. The question: “How well did you enjoy upper-secondary school?” could also be answered “I did not attend upper-secondary school.” The question “For any period during compulsory school did you go to a special school or special class because you needed extra support?” was answered by checking “Yes” or “No.” The question: “Have you begun college-level studies?” was answered by checking “Yes” or “No.”
Relationship with parents in childhood and as an adult. To assess parental love, respondents answered the question “When you grew up, how often did your parents explicitly show you that they loved you, for example, by telling you or giving you a hug or kiss?” on a four-point scale, ranging from 1 (very rarely or never) to 4 (very often) for the father and the mother, respectively. For this study, the answers were dichotomized into “Felt loved” (value 3 or 4) and “Did not feel loved” (1 or 2). The question “From whom do you get (emotional or practical) support when you need it?” was answered by checking “mother,” “father,” “sibling,” “other relative,” “friend/s,” “colleague or fellow student,” “professional person,” “boy- or girlfriend” or “other.” They could check several of these alternatives. The question “How would you describe your relationship with your parents today?” was answered on a four-point scale ranging from 1 (not close at all) to 4 (very close). For this study, the answers were dichotomized into “negative” (values 1 or 2) and “positive” (values 3 or 4). The question “How often do you see your parents or talk with them on the phone, chat, mail or have contact with them on the internet?” was answered on an eight-point scale for the father and the mother, respectively. The scale included the following response alternatives: 1 (never), 2 (extremely rarely, e.g. on major holidays), 3 (at least once a month), 4 (a few times a month), 5 (about once a week), 6 (several times a week), and 7 (daily). For this study, the scale was dichotomized into “Infrequent” (values 1 or 2) and “Often” (values 3 to 7).

Emotional and behavioral problems as adults. To measure suicide ideation, suicide attempts, and self-harm, respondents were asked to respond to the following statements: “Have you ever thought about taking your own life?”, “Have you ever attempted suicide?,” “Have you ever purposely harmed yourself without wanting to die?” All questions used the following five-point response scale: 1 (no), 2 (once), 3 (a few times), 4 (many times, regularly), and 5 (many times during a short period and then with a long gap in between). The question “Have you ever been hospitalized for psychiatric problems?” was answered by “No,” “Yes, on one occasion” or “Yes, on several occasions.” The question: “Have you ever been arrested by the police for something you did?” was answered by a five-point scale ranging from 1 (no, it has never happened) to 5 (more than ten times). For this study, these scales were dichotomized into not having had the problem (1) and having had the problem (2 and above).

Analyses
Many variables in this study contain scales that could not be treated as parametric, but only as ordinal or nominal. These have been dichotomized into two sustainable alternatives: presence or absence. Those who reported having had a parent in prison are then compared to those not reporting having had a parent in prison during childhood for each variable using $\chi^2$. In some of the analyses, $\chi^2$ is not possible to use due to small group sizes, and instead a two-tailed Fischer’s exact test is computed. Relative risk or risk ratio (RR) is the ratio of the probability of an event (e.g. a disease or disadvantage) occurring in a vulnerable group to the probability of the same event occurring in a comparison group that is not vulnerable. In this case, RR was used to compare the risk of a negative life event for those who did and did not have a parent in prison during childhood.

Results
Out of the 2,500 participants in the study, 52 (2 percent) had experienced at least one of their parents being in prison when they were a child. Of these, four had their mother in prison and 50 had their father in prison. Two had both their parents incarcerated at some point during their childhood. They were too few to be treated separately in the statistics.

Childhood school functioning and educational level as an adult
First, the relation between having had a parent in prison during childhood and different aspects of childhood and adult school functioning are studied. In Table I, the relation between having or not having had a parent in prison and school well-being is presented. Of those who had experienced having a parent in prison as a child, 60 percent reported high school well-being in primary school. Of those who had not had a parent in prison, 70 percent answered the same. This difference was not significant on the 0.05 level, however.
The vast majority of the RESUME group as a whole did attend upper-secondary school. Of those who had experienced having a parent in prison as a child, 60 percent reported high school well-being in upper-secondary school. This was significantly less than the 83 percent of those who had not had a parent in prison, \( \chi^2(1) = 15.9, p < 0.001 \).

Table II shows that it was significantly more common to have attended special education (specialskola or specialklass) among those who have had a parent in prison (31 percent), than among the others (15 percent) \( \chi^2(1) = 10.1, p < 0.01 \). It further shows that significantly fewer of those who reported having had a parent in prison attended upper-secondary school (gymnasieskolan) than those who did not (Fischer’s test, \( p < 0.01 \)). Of those who had experienced having a parent in prison, 8 percent reported not attending upper-secondary school. Less than 1 percent of the other study participants reported this. The risk of not attending upper-secondary school was 11 times higher for those who had a parent in prison than for the others.

The two groups were also compared on participation in higher education (meaning university or college-level education). Among those who had a parent in prison, 62 percent did not attend higher education, while 41 percent of other respondents did not, \( \chi^2(1) = 8.6, p < 0.01 \). The relative risk of not going to college was 1.5, or, if reported in percent, the probability of missing higher education was 50 percent higher for those reporting having had a parent in prison, than for the rest.

**Childhood and adult relations with parents**

In Table III, the relation between having parents in prison and different relationship aspects are presented. It was significantly less common for those who had a parent in prison to report often having felt loved by their father during childhood (33 percent) than for those who did not (67 percent), \( \chi^2(1) = 27.4, p < 0.001 \).
Concerning feeling loved by their mothers, the differences between the respondents are also significant. Among those who have had a parent in prison, 75 percent often felt loved by their mother as a child while among those who did not have a parent in prison, 86 percent often felt loved by their mother, $\chi^2 (1) = 5.6$, $p < 0.05$.

Concerning support from parents, 31 percent of those who had a parent in prison during childhood, reported getting support from their father, compared to 69 percent of those who did not have a parent in prison, $\chi^2 (1) = 33.6$, $p < 0.001$. Similarly, concerning support from their mother, 67 percent of the young adults who had experienced having a parent in prison reported receiving such support, compared with 82 percent of those with no parent in prison, $\chi^2 (1) = 7.5$, $p < 0.01$. Concerning support from siblings, partners, friends, colleagues, and professionals, the differences were small and not significant between those who had had a parent in prison and those who had not. However, receiving support from relatives was reported by 48 percent of those who reported having had a parent in prison and by 23 percent of those who did not, $\chi^2 (1) = 17.5$, $p < 0.01$. In short, the young adults with experiences of having a parent in prison received significantly less support from their parents, but significantly more from their relatives.

Examining the closeness of the child-parent relationship, 82 percent of those reporting having had a parent in prison assessed their relationship to their mother as “close,” while 95 percent of the others did so, $p < 0.01$, two-tailed Fisher’s exact test. Concerning relationships to fathers, 50 percent of those with a parent who had been in prison regarded their relationship with their father as close, while 86 percent of the remaining respondents did so, $\chi^2 (1) = 44.2$, $p < 0.001$.

When reporting current frequency of contact with their mother, 14 percent of those who had experienced having a parent in prison answered “seldom,” compared to only 1 percent of the

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### Table III  Comparison of prevalence of parent-child relationship aspects between the children with a parent in prison and the children without a parent in prison

<table>
<thead>
<tr>
<th>Relationship aspect</th>
<th>Parent in prison</th>
<th>No parent in prison</th>
<th>$\chi^2$-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Felt loved by father often</td>
<td>17/52 (33%)</td>
<td>1,647/2,448 (67%)</td>
<td>27.4</td>
<td>$p &lt; 0.001$</td>
</tr>
<tr>
<td>Felt loved by mother often</td>
<td>38/52 (75%)</td>
<td>2,117/2,448 (86%)</td>
<td>5.6</td>
<td>$p &lt; 0.05$</td>
</tr>
<tr>
<td>Gets support from father</td>
<td>15/52 (31%)</td>
<td>1,683/2,448 (69%)</td>
<td>33.6</td>
<td>$p &lt; 0.001$</td>
</tr>
<tr>
<td>Gets support from mother</td>
<td>17/52 (67%)</td>
<td>437/2,448 (82%)</td>
<td>7.5</td>
<td>$p &lt; 0.01$</td>
</tr>
<tr>
<td>Gets support from relative</td>
<td>25/52 (48%)</td>
<td>567/2,448 (23%)</td>
<td>17.5</td>
<td>$p &lt; 0.001$</td>
</tr>
<tr>
<td>Gets support from siblings</td>
<td>26/52 (50%)</td>
<td>1,361/2,448 (56%)</td>
<td>$F$-test</td>
<td>$p = 0.42$ ns</td>
</tr>
<tr>
<td>Gets support from partner</td>
<td>23/52 (44%)</td>
<td>1,166/2,448 (48%)</td>
<td>$F$-test</td>
<td>$p = 0.63$ ns</td>
</tr>
<tr>
<td>Gets support from friends</td>
<td>40/52 (77%)</td>
<td>1,965/2,448 (80%)</td>
<td>$F$-test</td>
<td>$p = 0.55$ ns</td>
</tr>
<tr>
<td>Gets support from colleagues</td>
<td>12/52 (23%)</td>
<td>532/2,448 (22%)</td>
<td>$F$-test</td>
<td>$p = 0.82$ ns</td>
</tr>
<tr>
<td>Gets support from professionals</td>
<td>6/52 (12%)</td>
<td>224/2,448 (9%)</td>
<td>$F$-test</td>
<td>$p = 0.47$ ns</td>
</tr>
<tr>
<td>Close relationship with father</td>
<td>22/46 (50%)</td>
<td>2,033/2,376 (86%)</td>
<td>44.2</td>
<td>$p &lt; 0.001$</td>
</tr>
<tr>
<td>Close relationship with mother</td>
<td>41/50 (82%)</td>
<td>2,295/2,405 (95%)</td>
<td>$F$-test</td>
<td>$p &lt; 0.01$</td>
</tr>
<tr>
<td>Infrequent contact with father</td>
<td>16/46 (36%)</td>
<td>137/2,376 (6%)</td>
<td>$F$-test</td>
<td>$p &lt; 0.001$</td>
</tr>
<tr>
<td>Infrequent contact with mother</td>
<td>7/50 (14%)</td>
<td>36/2,405 (1%)</td>
<td>$F$-test</td>
<td>$p &lt; 0.001$</td>
</tr>
</tbody>
</table>

Notes: $F$-test, Fischer’s exact test; ns, not significant
other respondents, $p < 0.01$, two-tailed Fisher’s exact test. Concerning current frequency of contact with their father, 36 percent of those reporting having had a parent in prison answered seldom, while 6 percent of the remainder did so, $p < 0.01$, two-tailed Fisher’s exact test.

**Behavioral and emotional problems as adults**

In this section, the relation between having a parent in prison and differences in the occurrence of events of socioemotional or behavioral character will be reported. Respondents whose parents had been in prison reported higher levels of suicide ideation and suicide attempts than those who did not have parents in prison during childhood (see Table IV). However, these differences were not significant. The relative risk of suicide ideation was 1.4, meaning a 40 percent higher risk for those whose parent had been in prison than for those without that experience. The risk of suicide attempts among those reporting having had a parent in prison was twice as high as that among children who did not have a parent in prison.

Having a parent in prison during childhood was also related to self-harm. Of those with parents in prison, 25 percent reported having intentionally caused themselves harm, compared to 14 percent of the other respondents, $\chi^2 (1) = 4.5, p < 0.05$. The relative risk of self-harm was 1.7, indicating that the probability of self-harm was 70 percent higher among those with parents in prison during childhood.

Among those responding they had had a parent in prison, 12 percent had been in hospital psychiatric care for mental health problems, compared to 5 percent among the rest of the participants in the study, $p < 0.05$, two-tailed Fisher’s exact test. The relative risk for the former to experience hospital psychiatric care was 2.4. Around 8 percent of the young adults who have had a parent in prison and 4 percent of the rest had been arrested by the police at least once, a difference that was not significant.

In sum, those with parents in prison during childhood reported significant higher levels of self-harm and hospital psychiatric care for mental health problems than those who did not have a parent in prison during childhood. They also reported higher levels of suicide ideation, suicide attempts, and being arrested by the police. These differences were not statistically significant, however.

**Discussion/conclusions**

The aim of this study was to examine whether young adults who had a parent in prison during childhood are disadvantaged in terms of school well-being, parental support, and socioemotional and behavior problems, compared to young adults whose parents were not in prison when

<table>
<thead>
<tr>
<th>Event in life</th>
<th>Parent in prison</th>
<th>No parent in prison</th>
<th>$\chi^2$ value</th>
<th>p-value</th>
<th>Risk ratio (RR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suicide ideation</td>
<td>21/46 (33%)</td>
<td>532/2,311 (23%)</td>
<td>2.3</td>
<td>ns</td>
<td>1.4</td>
</tr>
<tr>
<td>Suicide attempts</td>
<td>5/52 (10%)</td>
<td>119/2,444 (5%)</td>
<td>F-test</td>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td>Intentional self-harm</td>
<td>12/49 (25%)</td>
<td>330/2,336 (14%)</td>
<td>4.5</td>
<td>$p &lt; 0.05$</td>
<td>1.7</td>
</tr>
<tr>
<td>Hospitalization for mental health problems</td>
<td>6/52 (12%)</td>
<td>119/2,448 (5%)</td>
<td>F-test</td>
<td>$p &lt; 0.05$</td>
<td>2.4</td>
</tr>
<tr>
<td>Arrested by the police</td>
<td>4/52 (8%)</td>
<td>96/2,448 (4%)</td>
<td>F-test</td>
<td>ns</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Notes: F-test, Fischer’s exact test; ns, not significant.
they were children. How parental incarceration is related to school well-being has not been studied much in previous research. School well-being and positive school adjustment have been argued to be key factors in promoting positive educational and behavioral outcomes in children’s lives (Bond et al., 2007). Results from this study indicate that children with incarcerated parents tend to report not only more negative experiences of school in terms of well-being but also a greater risk of being placed in special education. Of course, being placed in a small group outside the ordinary classroom could be beneficial for the child’s learning, but it is also a kind of stigmatization of the child. This is important because other studies have indicated that these children might already be struggling with the stigma of having a parent in prison (Beck and Jones, 2007; Nesmith and Ruhland, 2008). Both having a parent in prison and being placed in special education could therefore amount to a double stigma for these children. Children with incarcerated parents also tend not to continue to upper-secondary school and to higher education. Not attending upper-secondary school after the nine years of compulsory schooling is rare in Sweden. The surprisingly large proportion of children with a parent in prison who experienced this may be explained by less support, less motivation, poorer preparation, etc., but our data cannot give answers to this question. Regardless of the reason behind the negative school outcomes that children with parents in prison report in this study, one could argue that the issue is deserving of more attention. The results from this study indicate that children with a parent in prison may be disadvantaged in relation to educational factors, and may be in need of different forms of school support.

The importance of children’s relationships to their parents for their development and mental health is a well-researched area and a well-documented subject in the literature. Children who had a parent in prison during their childhood seem to be disadvantaged in many respects. In one of the relational aspects, they reported fewer feelings of being loved as child. The imprisoned parent is most often the father. But feeling loved does not directly depend on the parent being physically present at home, so there may also be other explanations for the differences in feeling of being loved than the parent’s absence. In their life as young adults, they report less frequent contact and poorer relationships with both their mothers and their fathers, than those who did not have a parent in prison. They also report receiving less support from their parents. All these disadvantages could be interpreted as indicators of attachment problems to their parents. On the other hand, the children who had a parent in prison report receiving more support from other relatives. This may be a result of relatives having taken over some of the parental responsibilities while the parent was imprisoned. From an “attachment perspective,” this could be a possibility to attach to other significant persons, in absence of their parent or parents. In that case their attachment to relatives could have served to reduce some of their problems in childhood, and later in life. It is important to state that the differences reported above concerning feelings of being loved by, having contact with, receiving support from, and having a good relationship with their parents do not apply to all their other personal relationships. On the contrary, for other items measured in the study, such as receiving support from siblings, partner, friends, colleagues, and professionals, there were no or only small differences.

The children who have had a parent in prison seem more frequently to have planned or attempted suicide. This is only a tendency, since the differences are not significant, however, it is still worth taking into account when thinking about these children in a broader perspective. There is also a significant difference in self-harm behavior and a higher reported risk. Even if this is a much more common behavior than, say, attempting suicide among all young people, it is still an important signal of not being satisfied with oneself. The significant difference and higher risk of hospitalization for mental health issues adds to the picture of disadvantage among the children who had a parent in prison during childhood. Having been arrested was twice as common among children/young adults who had a parent in prison than the others. The low prevalence in both groups makes this difference not significant, and the conclusion should perhaps simply be that, fortunately, few young people are arrested regardless of whether or not they have had a parent in prison.

Limitations

This study offers important insights into the lives of children with parents in prison, giving a broad overview of aspects that may be related to parent’s imprisonment. However, the results
of this study must be interpreted in relation to its limitations. In the RESUME project, the items concerning prison are few in number and do not provide enough detail about such things as the length of the prison term and the character of the prison. To fully understand the situation for children with parents in prison, other aspects related to parental imprisonment need to be examined in future research. The timing of the parent’s imprisonment, the number of years spent away from home, and the reason for the prison sentence are just a few of the many relevant factors that could explain individual differences in children’s outcomes. The small number of respondents who had their mothers in prison, restricted us from comparison with those who had their fathers in prison. The possibility to stay in contact with the incarcerated parent has also been highlighted as an important aspect of how children cope with parental incarceration. In this study, no information was given about whether and how contact between parent and child was maintained during the time of incarceration. This could greatly influence the outcome in the children’s lives. Finally, the collected data are retrospective, relying on the participants’ ability to correctly remember life events during their childhood and adolescence. Memory limitations may restrict the participants’ ability to correctly report past events, while their experiences as young adults should be more reliably described.

The complexity of life circumstances

Even if there are significant connections between having a parent in prison and children’s relationships and well-being during childhood and young adulthood, it is important not to oversimplify them. The results in this study are based on average outcomes, which is important to keep in mind when interpreting the results. The impact of a parent’s incarceration on different aspects of a child’s life is a complex issue, and one can assume that contextual factors exert great influence. Having a parent in prison is not the sole causal factor for relationships and well-being. Other important circumstances, such as parents’ criminality, time of parents’ incarceration, prior health, and child behavior were not controlled for. Such factors could mediate the relation between outcomes. Circumstances in the children’s lives before the incarceration, such as a strained household economy, child abuse, drug or alcohol use within the family, or the child’s prior health problems, could also explain negative outcomes for children, in addition to the imprisonment of the parent. Finally, for some children, parents’ imprisonment might be a welcome relief from a destructive family. Parental incarceration is probably one of several contributors to poor parenting and/or a disadvantaged childhood overall.

Implications for practice

The potentially negative aspects of having a parent in prison are supported in this study, highlighting the importance for social and child-protection services, as well as the courts and the prison services, of paying special attention to these children. Children with a parent in prison seem to be a vulnerable group in many respects, with a tangible risk of encountering difficulties in different areas of their lives. However, intervention strategies aiming to support these children are few and not well studied within research. Social and child-protection workers could see parental imprisonment as a good reason to investigate these children’s overall situation in order to offer support in a broader sense. These families are often disadvantaged in other respects, and a parent’s imprisonment could serve as a way to offer support to disadvantaged families. Children experiencing a parent’s imprisonment live in very different circumstances, and one may assume that contextual factors, in general, but also in relation to the incarceration, influence children’s lives greatly. For social- and child-protection services, this underlines the importance of investigating surrounding factors that can influence how children react to the parent’s incarceration, as well as supporting and strengthening positive factors in the child’s school, at home and in other contexts.

Longitudinal research on children and young adults who had a parent in prison, involving also in-depth interviews with them, could yield further knowledge about the impact of parental imprisonment during childhood, as well as the impact of support.
References


Källström, Å., Helfleidt, K. and Nylander, P.Å. (in review), “Childhood experience of paternal incarceration and victimization to violence and crime – adult mental health and behavior problems”.


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Hazardous alcohol consumption in non-aboriginal male inmates in New South Wales

Courtney Field

Abstract

Purpose – The purpose of this paper is to examine correlates and predictors of hazardous drinking behaviour, that may be considered evidence of generalised strain, in a sample of incarcerated non-Aboriginal males in New South Wales, Australia.

Design/methodology/approach – Data were collected from 283 non-Aboriginal male inmates as part of a larger epidemiological survey of inmates in NSW undertaken in 2015 by the Justice Health and Forensic Mental Health Network. Data relating to a range of social factors were selected with reference to relevant literature and assessed with regards their predictive value for scores from the Alcohol Use Disorders Identification Test (AUDIT). To facilitate regression analysis, variables were logically organised into historical factors or adult factors.

Findings – Almost all participants reported some history of alcohol consumption. Hazardous drinking was common among participants. While parental alcohol problems and adult drug use were the only correlates of AUDIT scores, parental misuse of alcohol was shown to be an important predictor of AUDIT scores in regression analysis. The role of parent gender was inconclusive. Previous incarceration as an adult, employment status, and drug use as an adult also predicted AUDIT scores.

Originality/value – Alcohol abuse is common among inmates and the use of alcohol is implicated in the commission of many offences. A better understanding of its genesis may inspire novel approaches to treatment, leading to improved health outcomes for inmates.

Keywords Prisoners, Prison, Drug abuse, Alcohol use, Alcohol AUDIT, Hazardous drinking

Paper type Research paper

Alcohol use is common among inmates. This has been found both locally in Australia (see e.g. Dolan et al., 2015; Gilles et al., 2008) as well as a number of jurisdictions internationally (e.g. Binswanger et al., 2009; Singleton et al., 2003). This is not surprising considering that alcohol is implicated in criminal behaviour, and violent offending in particular (Collins and Schlenger, 1988; Gmel and Rehm, 2003). Of greater concern, a report published by the Australian Institute of Health and Welfare (2009) shows that levels of alcohol misuse and the prevalence of alcohol dependence are greater in this population than in the general Australian community. This research is consistent with other literature in the field. For example, the 2009 Inmate Health Survey in NSW found that 62.6 per cent of male participants drank at hazardous or harmful levels (Indig et al., 2010). Furthermore, Rodas et al. (2012) compiled data from across most Australian jurisdictions and found between 45 and 62.6 per cent of inmates drank at hazardous or harmful levels. This is also a trend found in jurisdictions internationally (Duke, 2005; Fazel et al., 2006; Payne-James et al., 2005).

For individuals and organisations dedicated to providing health services to incarcerated populations, research examining the correlates and causes of problematic drinking behaviours among inmates is essential. The misuse of alcohol is associated with an elevated risk of cardiovascular disease, liver disease, neurologic impairment, and some cancers (Cargiulo, 2007). In addition, it is related to increased risk of mood and anxiety disorders (Conway et al., 2006), personality disorders (Bornovalova et al., 2013), other substance abuse (Swendsen et al., 2012),
and suicide (Kaplan et al., 2016). As Manning et al. (2013) demonstrated, the misuse of alcohol incurs a broad societal cost. In Australia, this cost is estimated to be in excess of $14 billion per annum, at least 20 per cent of which is attributable to the criminal justice system. In addition, while prisons are not considered to be good therapeutic environments, they may provide a unique opportunity for vulnerable populations to access appropriate treatment for alcohol dependence and alcohol-related health problems.

Explaining alcohol use among inmates using strain theory

Alcohol use is associated with both increased aggression (Exum, 2006) and impulsivity (Coskunpinar et al., 2013; Eysenck, 1997) both of which provide ready explanations for the relationship between criminal behaviour, incarceration, and alcohol use. While clinically relevant and appealing to mental health professionals, they do not provide an explanation that accounts for the enduring and extreme social disadvantage experienced by many inmates (Western and Pettit, 2010). Both alcohol misuse and incarceration are related to a range of negative social outcomes.

The criminological theory of strain provides a coherent explanation for the co-occurrence of these issues. Substantiation of this theory is not the goal of this paper, which is focussed on identifying correlates and predictors of alcohol misuse among non-Aboriginal male inmates. Nonetheless, Agnew’s (1992) general strain theory provides a useful context in which the interrelationship between social and health factors can be accounted for. In addition, generalised strain theory has been successfully used to describe substance abuse in inmates in a number of other studies (see e.g. McGrath et al., 2012; Sharp et al., 2012). In particular, McGrath et al. commented on the simplicity and elegance of Agnew’s theory to describe pathways to criminal activity and substance abuse. Agnew argued that the failure (actual or anticipated) to achieve goals or needs leads to a state of mental discomfort referred to as cognitive dissonance. This dissonance motivates an individual to engage in criminal activity to achieve his/her goals and needs. Agnew (1999) argued that people from low socio-economic backgrounds are more susceptible to strain, and the dissonance they experience more intense, as they are less likely to be able to adequately meet their needs or aspirations.

Material and social disadvantage are recognised sources of strain (see e.g. Jang and Johnson, 2003). Incarceration itself may be considered a source of considerable strain. Other factors that have been identified as sources of strain and are common among inmates include: childhood familial disruption, higher levels of unemployment (Henkel, 2011; McKeganey et al., 2016), lower levels of education (Kelly et al., 2015), recidivism (Kinner, 2006), and dependent children (Simon, 1992). A number of factors may offer protection or consolation against strain, for example, marriage or a healthy long-term intimate relationship (Agnew et al., 2002). Literature examining the role of parental alcohol use in predicting an individual’s adult drinking behaviours generally suggests a complex though positive association (Chassin et al., 2004). A parent with alcohol problems would be considered a source of strain, however, the literature suggests this relationship may be moderated by a range of other care-giving and contextual factors including parental mental health (see Serensen et al., 2011) and individual personality differences (Chassin et al., 2004). The role of alcohol and drug abuse within strain theory is twofold. The negative impact of alcohol and drug abuse on a person’s physical, mental, and social well-being constitutes a source of strain. The immediate impact of intoxication, however, may offer an easily accessed escape from the experience of strain itself and an example of maladaptive coping (Jang and Johnson, 2003).

Defining hazardous drinking

Patterns of alcohol use are considerably more nuanced than the traditional dichotomous model of “alcoholism” and “normal drinking” (Saunders and Lee, 2000). Levels of alcohol consumption and related patterns of behaviour that may not be associated with dependence are still associated with elevated risk of negative physical and psychological consequences. While these subthreshold phenomena are not particularly well differentiated, Saunders and Lee argued that
a useful distinction arises when considering whether the consumption of alcohol is harmful, typified by repeated episodes of drinking from which significant harm has resulted; or hazardous, in which drinking behaviours are associated with an increased risk of harm (although actual harm may be yet to occur). The concept of hazardous drinking suggests an opportunity to address potentially unhealthy drinking patterns prior to significant harm occurring, including the appearance of features symptomatic of dependence. This distinction may be particularly useful to populations, such as inmates, more prone to developing alcohol dependence disorders.

Study aims

The aim of this study is to describe the prevalence and identify correlates and predictors of more hazardous alcohol use in a sample of incarcerated, non-Aboriginal males from across NSW, Australia. The misuse of alcohol is a concern among the Aboriginal people of Australia (Brett et al., 2016). Data relating to Aboriginal inmates will be addressed in a discrete forthcoming paper to ensure that this issue can be examined in a manner which is comprehensive and culturally appropriate. With an understanding of strain, it is expected that a number of the variables examined here, which provide a general appraisal of strain, will be positively associated with more hazardous drinking behaviour.

Method

Participants

Participants were 283 adult, non-Aboriginal male inmates incarcerated in multiple sites across the corrections system in NSW. Ages ranged from 18 to 77 years with a mean of 37.96 years (SD 12.93). This is consistent with the latest census data published by Corrective Services NSW (Corben, 2014). In total, 89.80 per cent of participants had been sentenced prior to being interviewed while the remaining 10.20 per cent were held on remand awaiting sentencing. Participants had been incarcerated for an average of 4.95 years. The sample on the whole exhibited a high level of heterogeneity in this regard (SD = 26 years); however, 58 per cent had been incarcerated for 12 months or less. Just under half of the participants (46.9 per cent) had been incarcerated prior to their current term.

Apparatus

Data were collected as part of a wider epidemiological study undertaken by the Justice Health and Forensic Mental Health Network (JH&FMHN) in NSW. This study, the Network Patient Health Survey (NPHS), provides a comprehensive snapshot of inmate health across all correction sites in NSW. It consists of a wide battery of validated measures as well as a comprehensive examination of demographic variables that are clinically relevant and have been shown to be good predictors of criminal behaviour. The key measure relevant to this study is an adapted version of the Alcohol Use Disorders Identification Test (AUDIT). This is a ten-item measure screening for hazardous and harmful alcohol consumption developed across six nations, including Australia, as a collaborative project under the auspices of the World Health Organisation (Saunder et al., 1993). The AUDIT has consistently shown strong psychometric properties and is robust across a range of populations (see de Menezes-Gaya et al., 2009). In particular, the AUDIT has shown good utility in measuring hazardous and harmful drinking behaviours in inmates (see e.g. Coulton et al., 2012).

Most items in the AUDIT are designed to measure drinking behaviours in the year prior to the test being administered. This reduces its relevance when used among inmates: the consumption of alcohol is prohibited and while illicit prison-brewed alcohol may be available, it is unlikely to be reported. It is also likely that the custodial environment would alter the regular drinking behaviours the test is designed to measure. To compensate for this, participants were asked to respond with reference to behaviours in the year before they were incarcerated. For example, item 1 on the AUDIT reads “How often do you have a drink containing alcohol?” This was changed to “In the 12 months before coming into custody, how often did you have a drink containing alcohol?” The AUDIT provides a summative score ranging from 0 to 40. Guidelines for the administration
and interpretation of the test suggest that scores of 8 and above are indicative of hazardous or harmful alcohol use (Babor et al., 2001).

In addition to the AUDIT, a range of demographic variables were measured. In particular, a number of social factors were collected that are indicative of strain. These variables are: previous incarceration, either as a juvenile or adult; having been placed in care as a child; highest level of schooling; employment status prior to incarceration (unemployed, part time, and full time); presence of dependent children; parental history of alcohol problems; and drug use. In addition, relationship status (single or partnered) has been included in light of its role as a possible protection against strain. For ease of analysis, these variables were logically grouped together: juvenile incarceration, education, parental alcohol problems, and placement in care were termed historical factors while the rest were termed adult factors. No causative relationship should be inferred from the use of these terms.

**Procedure**

Participation in the NPHS was on a voluntary basis. Randomised lists of potential participants were generated from data provided by Corrective Services of New South Wales (CSNSW). Participants were invited by JH&FMHN staff to participate and suitably briefed regarding the nature of the interview. If they consented, they proceeded to interview. This was undertaken in a one-on-one setting with appropriate security measures and took approximately 45 minutes to complete. In keeping with good ethical practice, participants were informed that they could withdraw from the study at any time. In the event, an individual declined to participate, the next person on the list was approached. Participants were compensated for any inconvenience by a payment of $10 directly into their prison account. This study was undertaken with approval from the JH&FMHN Research Ethics Committee and the CSNSW Ethics Committee.

**Results**

**Social factors**

Table I shows that almost a third of participants had been detained as a juvenile and almost one in five had been placed in care. A higher proportion reported having at least one parent with an alcohol problem. Almost three quarters had left school by the end of year 10. As outlined in the “Method” section, more than half of participants had been incarcerated previously. While 39.20 per cent reported that they were currently in a relationship, more than half of

<table>
<thead>
<tr>
<th>Historical variables</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>In juvenile detention at least once</td>
<td>29.30%</td>
</tr>
<tr>
<td>Placed in care at least once</td>
<td>18.10%</td>
</tr>
<tr>
<td>At least one parent with alcohol problem</td>
<td>40.80%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Highest level of education</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 12</td>
<td>16.70%</td>
</tr>
<tr>
<td>Year 11</td>
<td>8.30%</td>
</tr>
<tr>
<td>Year 10</td>
<td>33.60%</td>
</tr>
<tr>
<td>Year 9</td>
<td>20.30%</td>
</tr>
<tr>
<td>Year 8 or below</td>
<td>20.60%</td>
</tr>
<tr>
<td>No schooling</td>
<td>0.40%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adult variables</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least one previous incarceration</td>
<td>53.10%</td>
</tr>
<tr>
<td>Currently in relationship</td>
<td>39.20%</td>
</tr>
<tr>
<td>Has children</td>
<td>53.20%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employment status prior to incarceration</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployed</td>
<td>53.90%</td>
</tr>
<tr>
<td>Employed part time</td>
<td>16.20%</td>
</tr>
<tr>
<td>Employed full time</td>
<td>29.80%</td>
</tr>
<tr>
<td>History of drug use</td>
<td>88.50%</td>
</tr>
</tbody>
</table>
participants reported having at least one child. At the time they were incarcerated, 53.90 per cent were unemployed, with a further 29.80 per cent reporting they were employed full time. The vast majority of participants reported some history of drug use.

**AUDIT scores**

Participants’ mean AUDIT score was 13.23 (SD = 9.75) with scores ranging from 0 to 40. Two individuals (0.71 per cent) scored 0, indicating they had not consumed any alcohol in the 12 months prior to being incarcerated. Almost two-thirds of participants (63.6 per cent) scored above 8 on the AUDIT indicating they drank at hazardous or harmful levels before coming into custody. This is consistent with the literature cited in the introduction suggesting that alcohol misuse is common in people who come into prison.

**Relationship between AUDIT scores and social factors**

As a first step in examining the relationship between AUDIT scores and social factors, a correlation matrix is provided in Table II. This matrix shows a number of significant relationships between different social factors as well as between AUDIT scores.

AUDIT scores were positively, though weakly, correlated with having a parent with an alcohol problem ($r = 0.28$) and drug use ($r = 0.24$). Other factors had almost no relationship with AUDIT scores ($r < 0.1$) with the exception of employment status where a weak, negative, and non-significant relationship was found.

**Predicting AUDIT scores**

To determine the best predictors of AUDIT scores in male, non-Aboriginal inmates, a hierarchical multiple linear regression analysis was undertaken. Historical variables were entered at step 1 with adult factors entered at step 2. Results are presented in Table III and show that overall the model accounted for 8.9 per cent of variance in AUDIT scores at step 1 and 15.7 per cent at step 2.

Having a parent with an alcohol problem was the only significant predictor of AUDIT scores at step 1. At step 2, this variable was still the strongest predictor of AUDIT scores but was somewhat moderated by three other factors: a history of drug use, not having been incarcerated previously, and under employment or unemployment prior to incarceration.

**Paternal or maternal influence?**

The results above indicate that parental influence is a significant predictor of AUDIT scores among non-Aboriginal adult male inmates. In order to explore the discreet, as well as the combined impact of paternal and maternal alcohol abuse on hazardous drinking, a $\chi^2$ test of independence was undertaken. Participants who scored between 0 and 8 (inclusive) were classified as “non-hazardous drinkers” while those with a score above 8 were classified as “hazardous drinkers”. Data on parental alcohol problems were classified according to whether participants’ mothers, fathers, both, or neither had an alcohol problem.

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### Table II  Correlation matrix examining relationships between AUDIT score and social factors

<table>
<thead>
<tr>
<th></th>
<th>Juvenile detention</th>
<th>Placed in care</th>
<th>Parent alcohol</th>
<th>Education</th>
<th>Adult detention</th>
<th>Relationship status</th>
<th>Children</th>
<th>Employment</th>
<th>Drug use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placed in care</td>
<td>0.208**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent with alcohol problem</td>
<td>0.139*</td>
<td>0.130*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highest level of education</td>
<td>0.222**</td>
<td>0.104</td>
<td>0.128*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult detention</td>
<td>0.233**</td>
<td>0.120*</td>
<td>0.193**</td>
<td>0.243**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship status</td>
<td>−0.127</td>
<td>−0.039</td>
<td>−0.018</td>
<td>−0.113</td>
<td>−0.126</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children</td>
<td>−0.124</td>
<td>−0.044</td>
<td>0.062</td>
<td>0.121*</td>
<td>0.106</td>
<td>0.228**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment status</td>
<td>−0.125</td>
<td>0.042</td>
<td>−0.047</td>
<td>−0.206</td>
<td>−0.237</td>
<td>0.149*</td>
<td>−0.027</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug use</td>
<td>0.031</td>
<td>0.204**</td>
<td>0.129*</td>
<td>0.165**</td>
<td>−0.113</td>
<td>0.179**</td>
<td>−0.262</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUDIT score</td>
<td>0.014</td>
<td>0.004</td>
<td>0.280**</td>
<td>0.031</td>
<td>−0.031</td>
<td>−0.078</td>
<td>−0.002</td>
<td>−0.152</td>
<td>0.243**</td>
</tr>
</tbody>
</table>

**Notes:** *p < 0.05; **p < 0.01*
or neither parent had a problem with alcohol. The test of independence provides an analysis of the interrelationship between sets of categorical data (Field, 2013). In this case, it shows whether distribution of hazardous drinkers differs from non-hazardous drinkers with regards to parental alcohol problems. A frequency distribution table for this data is provided in Table IV.

\[ \chi^2 \text{ analysis failed to find significant differences (} \chi^2(3) = 5.21; p = 0.16) \text{ indicating no discernible relationship between parental drinking habits and hazardous or harmful drinking. It should be noted, however, that a higher proportion of hazardous drinkers reported having a father with an alcohol problem than non-hazardous drinkers. Given this finding is in line with literature outlined in the introduction, it is possible that the non-significant result is due to a deficiency in sample size. Further research into this question is therefore recommended.} \]

### Discussion

Results confirm that social disadvantage in both childhood and adulthood is common among non-Aboriginal male inmates in NSW. A high proportion of participants had been placed into care as children and had a parent with alcohol problems. In addition, fewer than one in five had completed secondary education and more than half were unemployed prior to their incarceration. The majority had been incarcerated as an adult previously while almost one-third had been incarcerated as a juvenile. Just over half of participants had dependent children although fewer were currently in a relationship. Almost all participants had a history of using drugs other than alcohol. This demographic snapshot confirms high levels of disadvantage among this inmate sample.

An examination of AUDIT scores indicates that alcohol consumption was common among inmates. Of more concern, though consistent with literature, almost two-thirds of participants reported drinking at levels considered hazardous. Although drinking behaviours are clearly a matter of concern, AUDIT scores were only significantly correlated to two other variables examined in this paper: a weak, positive relationship with parental alcohol problems, and a weak positive relationship with other drug use.

### Table III  Multiple linear regression predicting AUDIT scores

<table>
<thead>
<tr>
<th></th>
<th>( R^2 )</th>
<th>( \beta )</th>
<th>( B )</th>
<th>( SE )</th>
<th>95% CI (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>0.089**</td>
<td>−0.052</td>
<td>−1.15</td>
<td>1.41</td>
<td>−3.93/1.62</td>
</tr>
<tr>
<td>Juvenile detention</td>
<td></td>
<td>−0.02</td>
<td>−0.28</td>
<td>0.87</td>
<td>−2.00/1.44</td>
</tr>
<tr>
<td>Placed in care</td>
<td></td>
<td>0.302**</td>
<td>5.97</td>
<td>1.23</td>
<td>3.55/8.40</td>
</tr>
<tr>
<td>Parent with alcohol problem</td>
<td></td>
<td>0.018</td>
<td>0.13</td>
<td>0.44</td>
<td>−0.74/0.99</td>
</tr>
<tr>
<td>Highest level of education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 2</td>
<td>0.157**</td>
<td>−0.061</td>
<td>−1.36</td>
<td>3.97</td>
<td>−4.14/1.46</td>
</tr>
<tr>
<td>Juvenile detention</td>
<td></td>
<td>0.008</td>
<td>0.11</td>
<td>1.42</td>
<td>−3.57/3.68</td>
</tr>
<tr>
<td>Placed in care</td>
<td></td>
<td>0.293**</td>
<td>5.79</td>
<td>0.85</td>
<td>3.38/8.23</td>
</tr>
<tr>
<td>Parent with alcohol problem</td>
<td></td>
<td>0.005</td>
<td>0.033</td>
<td>1.23</td>
<td>−0.85/0.93</td>
</tr>
<tr>
<td>Highest level of education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult detention</td>
<td>−0.149*</td>
<td>−2.8</td>
<td>1.2</td>
<td>−5.17/−0.43</td>
<td></td>
</tr>
<tr>
<td>Relationship status</td>
<td></td>
<td>−0.067</td>
<td>−1.26</td>
<td>1.17</td>
<td>−3.57/1.06</td>
</tr>
<tr>
<td>Children</td>
<td>−0.030</td>
<td>−0.56</td>
<td>1.21</td>
<td>−2.95/1.83</td>
<td></td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
<td>−0.129*</td>
<td>−1.34</td>
<td>0.86</td>
<td>−2.65/−0.03</td>
</tr>
<tr>
<td>Drug use</td>
<td>0.162*</td>
<td>4.13</td>
<td>1.63</td>
<td>0.92/7.34</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** *\( p < 0.05; **p < 0.001*

### Table IV  Frequency distribution of sex of parents with alcohol use problems

<table>
<thead>
<tr>
<th></th>
<th>Frequency table</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mother</td>
</tr>
<tr>
<td>Not hazardous</td>
<td>4 (4.2%)</td>
</tr>
<tr>
<td>Hazardous</td>
<td>12 (7.1%)</td>
</tr>
</tbody>
</table>
Multiple linear regression analysis provided a clearer indication of the relationship between variables than that provided by simple correlation. In order to impose a coherent logic on the variables, they were divided into historical and adult factors to facilitate a two-step hierarchical analysis. Historical variables only were included at step 1 with adult factors included added at step 2. Parental alcohol problems were the only significant predictor of AUDIT scores at step 1 and remained the strongest predictor at step 2. This underscores the influence of parental misuse of alcohol on a person’s adult drinking behaviours and is consistent with the findings of Sørensen et al. (2011). Three other adult factors also held predictive value for AUDIT scores. Previous incarceration as an adult predicted lower AUDIT scores. This may reflect the difficulty in obtaining alcohol in prison and the high level of recidivism among inmates. AUDIT items were specifically augmented to address drinking behaviour in the year prior to the current term of incarceration. If a participant was serving a previous term during a part or all of this period it would render the AUDIT items obsolete.

Participants who were employed prior to incarceration engaged in less hazardous drinking behaviours during this period. This is consistent with the findings of Henkel (2011). A coherent explanation of this relationship would be that the necessity of holding down a job precludes the regular, unrestrained consumption of alcohol. In addition, a job necessarily limits drinking opportunities. On the other hand, unemployment constitutes a considerable source of strain and researchers such as Jang and Johnson (2003) have suggested that the abuse of alcohol and other substances represents an attempt to manage negative affect arising from the stressful circumstances of person’s life. If this thesis is correct, then it would explain why drug use also predicted more hazardous drinking behaviours.

It is noteworthy that only three of the variables included showed any utility in predicting AUDIT scores when each has been linked to alcohol misuse in a number of studies, including those referenced in the introduction. Likewise, the model accounts for a smaller than anticipated proportion of variance in AUDIT scores. As mentioned with regard to parent gender, it is possible that the study’s relatively small sample size may account for these results. It is also possible that results indicate a change in the relationship between alcohol misuse and its determinants. Certainly the Australian federal government endorses and funds a range of programmes which encourage adults to drink responsibly around their children and to limit their overall alcohol consumption if they have dependent children (see e.g. the National Binge Drinking Program funded by the Department of Health and Aging, 2013). This would likely impact positively on the historical factors included in this study and may have a follow-on effect for the social factors. Given the findings of this study, examination of possible changes in drinking patterns among people with children may be warranted.

In light of the evidence concerning the impact of parental alcohol abuse on a person’s drinking behaviours, as well as its key role in predicting hazardous drinking behaviours, it is worrying to see that almost half of the participants reported a familial history in which at least one parent misused alcohol. While a body of literature shows that the gender of a parent with a problematic relationship with alcohol has an impact on the likelihood that a person will experience problems with alcohol himself/herself (see e.g. Miller et al., 2013), analysis undertaken here did not produce similar findings. The pattern of results showed that more than one quarter of males who drank hazardously had a father with alcohol problems and only 7.1 per cent had a mother with similar problems. This difference was not statistically significant, however, and the majority of participants who drank hazardedly reported that neither their father nor their mother had an alcohol problem. As mentioned in the results section, this may reflect an insufficient sample size. Given the trend in the data, further investigation of the impact of parental alcohol abuse on adult drinking behaviours among incarcerated men in NSW is warranted.

A number of variables shown to be related to adult drinking behaviours were neither related nor significant predictors of AUDIT scores in this study. Further examination of these factors should not be discounted on the basis of results presented here. Sample size may again be implicated here, however, it is not possible to discount that factors peculiar to an incarcerated population may also be in play. Such is the pervasive and multi-faceted nature of social and material disadvantage among inmates that abundant sources of strain may be identified. Given the high levels of hazardous drinking indicated in this study, further examination of its predictive pathways...
may yield a better understanding of its causes and correlates that can be translated into more effective health interventions and better health outcomes for inmates.

An important caveat to this study relates to the exclusion of Aboriginal participants from analysis. Readers must be cautious in assuming that results found here would be replicated in a sample of Aboriginal male inmates. The causes and prevalence of substance abuse have been shown to differ considerably between Aboriginal and non-Aboriginal Australians and there is no reason to suspect this would not be the case among inmates. In addition, responses to Aboriginal substance abuse are must be tailored to ensure they are culturally appropriate. It is expected that a separate analysis of the prevalence and predictors of AUDIT scores in Aboriginal inmates will be completed in due course.

This concern notwithstanding, the ability to identify problematic alcohol use before it becomes harmful is a valuable resource for those working in a primary health environment, and in corrective health services in particular. The results presented here may have an impact on the development of policy designed to treat problematic alcohol use with more efficacy. Results indicate that while the misuse of alcohol is common among inmates, a precise demography of inmates likely to misuse alcohol cannot be discerned from commonly associated determinants. This ought to encourage a broad approach to the identification and treatment of alcohol use disorders in the corrections context which does not rely on identification of susceptible inmates through a detailed demographic palette. It also suggests that the responsible management of alcohol consumption would likely be more successful when inmates can access a range of social services on release. Quite apart from the obvious benefits this would provide for newly released inmates, it would represent a considerable reduction in the financial cost of alcohol misuse to the community in general.

References


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An examination of consensual sex in a men’s jail

Charles Herbert Lea III, Theodore K. Gideonse and Nina T. Harawa

Abstract

Purpose – The purpose of this paper is to use secondary data from qualitative interviews that examined the sexual behaviors, HIV attitudes, and condom use of 17 gay, bisexual, and transgender women housed in a protective custody unit in the Los Angeles County Jail (Harawa et al., 2010), to develop a better understanding of the consensual sexual behaviors of male prisoners.

Design/methodology/approach – Study eligibility included: report anal or oral sex with another male in the prior six months; speak and understand English; and incarcerated in the unit for at least two weeks. Data analysis consisted of an inductive, qualitative approach.

Findings – Findings illuminate participants’ experiences concerning how the correctional facility shaped their sexual choices and behaviors, and the HIV-risk reduction strategies they employed.

Originality/value – This study contributes to the prison-sex literature, and is timely, given current federal and local HIV/AIDS priorities. Recommendations that address male prisoners’ sexual and health needs and risks are posed.

Keywords Criminal justice system, Offender health, HIV/AIDS, Qualitative research, Sexual health, Harm reduction

Paper type Research paper

Background

People of color disproportionately bear the burden of both HIV/AIDS and mass incarceration in the USA (Carson, 2015; Center for Disease Control and Prevention, 2016a). Black men are especially affected, as one in three will spend time behind bars in his lifetime (The Sentencing Project, 2013). Men in jail and prison settings also accounted for 91 percent of all state and federal inmates who were living with HIV/AIDS (20,093) in 2010 (Center for Disease Control and Prevention, 2015). The concentration of HIV in correctional settings for men thus raises concerns about the health of incarcerated men of color. This also poses a public health issue for disadvantaged communities, as they are plagued with high rates of incarceration and people returning from correctional facilities (Morenoff and Harding, 2014).

Jail and prison conditions and prisoners’ risk behaviors, including overcrowding, injection drug use, tattooing, sexual violence, and unprotected sex are identified as factors that may contribute to HIV transmission in correctional settings (AVERT, 2016). Among these factors, sex and tattooing are identified as high-risk, intraprison behaviors that influence HIV transmission (Krebs, 2002). Researchers therefore often associate high levels of HIV in correctional facilities for men with sexual victimization (Howard League for Penal Reform, 2014; Kunzel, 2008; Human Rights Watch, 2001; Robertson, 2003; Stop Prisoner Rape, 2005). Yet, it is unknown how many men in jail and prison settings acquire HIV from a particular risk factor.

Although limited, literature confirms that consensual sex between people in correctional settings for men does occur (Tewksbury, 1989; Saum et al., 1995, Hensley et al., 2001; Hensley, 2002; Howard League for Penal Reform, 2013, 2014). For instance, Hensley et al. (2001) mixed method study that examined the consensual sex activities of men found that 36 percent of the sample (n = 142) reported receiving consensual oral sex from another inmate.
However, because such data are sparse and because fear and stigma surrounds the topic of sex in correctional facilities for men (Arreola et al., 2015), it is difficult to determine the scope of consensual sex among men in jails and prisons. It is also just as hard to determine if a sexual relationship between people in jail and prison settings is coerced or consensual, because relations in these settings are often based on complicated, protective, and exploitive allegiances formed in an oppressive, confined culture. A better understanding of the consensual sexual behaviors of men in jails and prisons is therefore needed, as this knowledge can inform policy, practice, and interventions that address their sexual health needs and risks for HIV infection and transmission. This is also timely given advances in HIV prevention efforts, such as Pre-Exposure Prophylaxis (PrEP) (Center for Disease Control and Prevention, 2016b).

This paper uses secondary data from a qualitative study that examined the sexual behaviors, HIV attitudes, and condom use among male-to-female (MTF) transgender women and men who have sex with men (MSM) housed in a protective custody unit in the Los Angeles County Jail called “keep-away designation 6G” (K6G) (Harawa et al., 2010). Given there is little quantitative and qualitative data on consensual sex activities within a correctional facility for men, this paper uses this unique opportunity to explore the following research questions:

RQ1. How and under what circumstances does consensual sex occur in a men’s correctional setting designated for sexual minorities?

RQ2. Does this group of people employ strategies to reduce their risk of HIV infection or transmission?

RQ3. If so, what strategies do they use?

Methods

A secondary analysis of semi-structured interviews with 17 individuals who “represented the diverse backgrounds and sex-related custody experiences of K6G inmates” was conducted (Harawa et al., 2010, p. 1074). The approximately 300-person unit across three dormitories is limited to individuals who self-identify as gay, bisexual, or MTF transgender at jail entry, and pass further questioning intended to confirm their status. To be eligible for the study, participants had to: report anal or oral sex with either a male or MTF transgender woman in the prior six months (correctional and community settings); speak and understand English; and have been incarcerated in the K6G unit for at least two weeks. Interviews were conducted by a male researcher who was trained in ethnography. Discussions focused on participants’ sex life before and during current and prior periods of incarceration, condom use, and participation in and attitudes toward the K6G condom distribution program. Institutional Review Board approval was granted by the Charles Drew University and the Los Angeles Sheriff’s Department Correctional Services Unit (see the following citation for a detailed description of the original study’s recruitment, enrollment, and interview procedures: Harawa et al., 2010).

Data analysis consisted of Grounded Theory procedures, including coding, cross-case comparisons, and memoing (Charmaz, 2014). Using Atlast.i, the two-person research team coded five interview transcripts separately to form the basis of a formal codebook. The codebook was finalized following an iterative coding process of all interview transcripts, and inconsistencies were discussed and resolved. Data matrices were used to compare data across interviews, and memos were written to account for bias and to document and define the boundaries of specific concepts.

Findings

Participants reported witnessing and engaging in protected and unprotected consensual sex during periods of incarceration. While the K6G condom distribution program was viewed as a protective strategy against HIV, the one condom per week policy and inmates’ perception that most people in this unit were living with HIV influenced other inmate-driven HIV risk-reduction strategies. In the themes that follow, we discuss the participants’ experiences regarding in-custody consensual sex and the risk reduction strategies they employed.
Sex while incarcerated opinions and experiences

“People do it all the time”. This theme illuminates the normativity of consensual sex in the K6G Unit. Participants estimated that 75 to 90 percent of people in the K6G unit have sex regularly. According to one, “My first night there were tents going up [sheets placed around the bunk bed to obstruct view] and beds moving, you know, just hearing the moaning and the groaning […] and people went from bunk, to bunk, to bunk.” Another participant explained, “I’ve seen people around here just straight out, just do whatever they were gonna do right out in the open […] people do it all the time.” While reported incidents of consensual sex were more common in the K6G Unit, it was not the only setting where people engaged in consensual sex, as participants witnessed and engaged in sex in facilities without segregated units for people who identify as gay, bisexual, or transgender. One participant, who was “scared” other inmates would learn he was “gay,” described his consensual sex experiences upon receiving a cellmate:

Two days went by and nothing bad happened […]. The next night I observed him masturbating and he caught my eye, and from there it just kind of developed into a sexual relationship […]. Eventually, they put another guy in there […] he picked up on what was going on during the night and he started getting involved […]. The only thing was, in that facility, they didn’t have the condom distribution […]. The whole barebacking thing was there.

Transgender women also highlighted non-segregated facilities and units as settings where their consensual sex activities commonly occur, as some perceived that the men in K6G “aren’t attracted to women.” As one transgender participant explained, “If I go on the mainline [referring to the general population of the jail], heterosexual men are more attracted to me than anything because I live as a woman.”

“Just bound by the walls”. The confined nature of correctional facilities also limited and shaped many participants’ sexual choices. In particular, several reported serving lengthy sentences, in which some engaged in consensual sex to release their sexual frustration. One participant explained, “I was so limited in my choices, just bound by the walls, and I was here for eight months. I just gave in.” Additionally, given their limited sexual choices, a number of participants broadened their pool of potential sex partners to include individuals they would not normally have sex with, such as HIV-positive individuals. For instance, one participant stated, “I was confined. I was stuck in here and everybody had HIV, so we really don’t have nobody to choose from.” Thus, even when they might prefer to avoid sex because of the setting, their perceptions of their choices of partners, or health concerns, the above examples show that some people do not deprive themselves of their sexual needs and willingly engage in high-risk sexual behaviors in correctional settings for men.

“I’ve had a few partners, and I don’t always use protection”. While participants highlight the normativity of consensual sex in both segregated and non-segregated facilities and units, most reported that the majority of these sexual acts were unprotected. According to one participant, “last week, I was cleaning up the dorm, and we literally watched two people engage in a very raunchy sex act, right in the open without condoms.” In addition to witnessing unprotected sexual activity, some participants also admitted to not using condoms. For instance, another participant explained, “I’ve had a few partners, and I don’t always use protection because I have the attitude, ‘well I already got it.’”

Although some participants attributed unprotected prison-sex to the perception that most people in this unit were already HIV positive, others pointed to the lack of available condoms. For instance, one participant explained, “they only give us one a week […] so when you pick one up, you use it and then, the other times, I don’t use it. I just go for it.” Additionally, when another participant who is HIV negative was asked to estimate how many people in K6G he believed were living with HIV, he said, “like 65% that I know of. The rest aren’t telling.” Thus, although HIV-positive and negative participants perceived that no less than 50 percent of K6G inmates were living with HIV, much higher than the actual prevalence of around 30 percent, their assumptions did not prevent them from engaging in unprotected sex.
Correction-based HIV risk reduction strategies

“I have a whole bunch of condoms”. While participants witnessed and, in some cases, engaged in unprotected sex, some did employ strategies to reduce their risk of HIV infection or transmission. In particular, several participated in the K6G condom distribution program each week. Although some participants had not had a sexual encounter during their most recent incarceration, they still participated in the program to share condoms with other people who they knew were sexually active more than once during a given week. For instance, one participant explained, “I have like a whole bunch of condoms right now that I let people that come ask me have. I give it to them so they can, you know, stay safe.” Nevertheless, while the condom distribution program served as a protective mechanism for some, many participants identified the one condom per week policy, as a barrier to their sexual health needs. However, some reported that other sexually active people avoided the condom distribution program all together, as one participant explained, “There don’t be no more than 20 people in a line and in each dorm there is 100 and something people […]. They cannot say they all don’t be having sex because there’s always tents up.”

“Different dorms, different rules”. The participants explained that there are also inmate-driven rules concerning sexual behaviors within K6G. However, according to one participant, these rules vary from dorm to dorm:

- We have structure […] we don’t allow sex to go on in the shower because you have people that have compromised immune systems and things […]. If you’re in an area where you’re disturbing your bunkie or people around you, then, quickly, it has to stop […]. We have people that like to clean themselves, or douche, as you will […]. People are not allowed to put their bottles up to the faucet in the bathroom. You have to use a cup […]. In our dorm, we really care about the next person.

This appears to demonstrate some people in jail’s concerns about others’ health. Yet, while the actions described in this vignette may protect against some enteric infections, they make little-to-no difference in terms of HIV transmission. Nevertheless, in addition to developing unit-wide rules surrounding sex, some participants also developed personal rules. For instance, several participants reported only engaging in foreplay activities (e.g. oral sex and masturbation) with other people during periods of incarceration. Other participants reported buying lotion or Vaseline from the correctional store to prevent the tearing of tissues during unprotected anal sex, as many complained about the lack of lubricant. Participants’ correction-based, risk-reduction strategies thus highlight people in jails’ health concerns and their willingness to take preventive actions.

Discussion and recommendations

This study’s findings contribute to the prison sex literature, as they illuminate how consensual sex occurs among people in some correctional facilities for men. Witnessing and engaging in unprotected sex was a common experience, likely because the K6G condom distribution program only provided people in this unit with one condom per week at the time of data collection (more condoms and lube are now provided). However, we note that unprotected sex also occurs in community settings where condoms are more accessible, and that some people in the K6G Unit collected and shared condoms. Availability thus only addresses one barrier to this form of HIV protection, highlighting the need for additional HIV prevention efforts in correctional facilities for men.

Some participants living with HIV avoided condoms all together because their perception that most people in the K6G unit were positive relieved them of any fears concerning HIV transmission. Moreover, although the condom distribution program was identified as a key HIV-reduction strategy, more people were engaging in sex than participating in the program. Fear concerning HIV infection and transmission in correctional dormitory settings for men differs from community settings, as inmates’ sexual networks and behaviors, and HIV-related stigma and discrimination are likely shaped by living in close quarters with 100 or so potential sex partners. This context may lead individuals to assume they know more
about their sex partners, including his or her HIV status, than partners encountered in the community. Nevertheless, while the cultural norms within the K6G Unit often facilitate high-risk sexual activity, participants’ risk-reduction strategies highlight the ways in which the Unit’s norms are also supportive of behaviors that protect individuals and others from HIV/STI risks.

Study findings also point to how identity and sexuality interact in ways that facilitate and protect against HIV transmission in correctional facilities for men. In particular, the K6G unit served as a protective environment for transgender women, to some degree, as they perceived K6G inmates were not “attracted to women.” Their consensual sex activities are thus likely more prominent in general population settings, as they perceived that men in these units are attracted to them because they live as women. Identity and sexuality therefore likely interacts differently in specialized units for individuals who self-identity as gay, bisexual, or MTF transgender than in general population custody settings. Nevertheless, due to the stigma and discrimination that is associated with homosexuality in correctional settings for men, the risk of HIV transmission is increased for people in these general population dormitories given the lack of available condom distribution programs.

Although some US correctional facilities are implementing HIV prevention and risk-reduction programs to address the preponderance of HIV in jail and prison settings for men (Harawa et al., 2010; Visher et al., 2015), these programs are not universal and condom distribution programs are rare. As such, we propose the following recommendations concerning the sexual and health needs of people in correctional settings for men:

1. increase the availability and accessibility of condom distribution programs, regardless of sexual orientation and facility or unit designation;
2. explore the addition of peer-driven strategies in the provision of HIV education and condom distribution;
3. investigate the feasibility of offering HIV PrEP;
4. consider housing MTF transgender women in correctional facilities for women;
5. include serosorting as part of HIV transmission and prevention education programs; and
6. consider providing HIV and STI screening prior to release for all individuals who spend more than a pre-specified number of weeks in custody.

Limitations and conclusions

This study has several limitations. First, it uses secondary data, which prevented the researchers from probing participants as they were interviewed. A prospective study would have afforded a stronger examination of participants’ prison-sex experiences. Additionally, data were collected from a non-random sample of 17 sexually active individuals in one county jail facility. The sample was also drawn from a highly specialized unit, and does not generalize to the overall jail setting. Nevertheless, study findings identify the need for correction-based policies, practices, research, and interventions that address the sexual and health needs of individuals in correctional facilities for men, regardless of their self-identified sexual orientation. Such efforts are critical given the prevalence of HIV in correctional settings for men.

While much attention has been paid to the subject of prison rape in both policy and the media, the much more mundane realities of consensual sex in correctional settings for men has been given little attention, despite their health implications. Our recommendations are timely in that they align with current federal and local HIV/AIDS priorities, such as The Affordable Care Act, the 2014 Prisoner Protections for Family and Community Health Act in California (authorizing condom distribution in California prisons), and the updated National HIV/AIDS Strategy, which aim to address the domestic HIV epidemic. Increased research on and normalization of discussion surrounding sexual activity in these settings is critical to efforts promoting the health and well-being of individuals at-risk and living with HIV/AIDS.
Three key points (main points and/or recommendations)

1. the rate of HIV infection among the US penal population is five times greater than that of the general population;
2. although significant attention is given to non-consensual sex in correctional facilities for men, the greater risk for HIV transmission is likely to be consensual sex; and
3. need for correction-based policies, practices, and interventions that address the sexual and health needs of male prisoners, regardless of their sexual orientation.

References


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