EFFECTS OF FAMILY AND PARENTAL IMPRISONMENT

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Risk Marker or Risk Mechanism? The Effect of Family, Household and Parental Imprisonment on Children and Adults' Social Support and Mental Health

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Abstract

There is robust evidence of associations between parental imprisonment and a variety of harms to children, but the consequences of other forms of family imprisonment are largely unknown. Using HILDA, a nationally representative Australian dataset, this article looked at the direct effects of parental imprisonment (PI), household member imprisonment (HI) or close family member imprisonment (CFI) on the social support and mental health of non-incarcerated adults and young people. Recent PI, HI, or CFI had no association with social support. Recent CFI did increase men's risk of poor mental health, but not women's or young people's. We consider the implications of these findings in the context of strong negative effects of paternal imprisonment on mothers in the United States.

Keywords: parental imprisonment, family imprisonment, mental health, social support, prison

Risk Marker or Risk Mechanism? The Effect of Family, Household and Parental Imprisonment on Children and Adults' Social Support and Mental Health

Parental imprisonment is associated with a variety of long-term harms to children across their life course (Foster & Hagan, 2007, 2015a; Lee, Fang, & Luo, 2016). Recent research found that parental imprisonment might also cause severe stress to children's adult caregivers, increasing risks of maternal depression and marital dissolution (Apel, 2016; Murray, Farrington, & Sekol, 2012; Turney, 2014, 2015). A recent theoretical framework by Foster and Hagan (2015b) proposes that the cumulative effects of parental imprisonment on caregivers and children may result in children's life-long social exclusion. In their model, they emphasize parents' psychological adjustment and children's own emotional wellbeing as focal pathways that mediate these intergenerational effects. However, until now, few existing studies have been able to rigorously investigate any of these theorized psychosocial processes in the context of parental incarceration (Arditti, 2012; Auty, Farrington, & Coid, 2015; Luther, 2015).

Across the range of psychological processes that might be directly affected by parental imprisonment, mental health, and social support are likely to be of chief importance. First, social support is thought to moderate the mental health consequences of stressful events such as family imprisonment (Arditti, 2005; Capowich, Mazerolle, & Piquero, 2001; Cohen & Wills, 1985; Cullen, 1994; Lösel, Pugh, Markson, Souza, & Lanskey, 2012; Murray et al., 2012). Conversely, mental health may influence people's perceptions regarding the adequacy of their social support networks and their inclination to seek more support (Velez et al., 2016). In addition, mental health problems in caregivers may subsequently affect children's ability to maintain supportive social relationships (Weinfield, Sroufe, & Egeland, 2000). An important step in investigating

EFFECTS OF FAMILY AND PARENTAL IMPRISONMENT

these relationships is to first study the effect of imprisonment on each of these outcomes in individuals who have indirectly experienced incarceration through a family member.

Until now, a global lack of large-scale, comprehensive data sources with information on criminal justice contact and family life has impeded research on the consequences of imprisonment for families (Wakefield, Lee, & Wildeman, 2016). Given that imprisonment disproportionately affects poor and disadvantaged subgroups of the population (Wakefield & Uggen, 2010), it is important to assess the extent to which selection effects may explain negative associations between parental imprisonment and poor child outcomes into adulthood. Currently, however, only a few studies have been able to distinguish whether adverse outcomes found in children and caregivers are uniquely attributable to the consequences of the parent's incarceration, rather than to pre-existing adverse circumstances (Johnson & Easterling, 2012; Wildeman, 2014b). The question therefore remains whether adverse effects of parental imprisonment are primarily attributable to pre-existing risk (a "risk marker") or to direct effects caused by imprisonment itself ("a risk mechanism"). In addition, the few studies that did find robust evidence of any long-term effects of parental imprisonment on children or their caregivers tend to be situated in the United States (Johnson & Easterling, 2012, 2013; Wildeman, 2014a). There are good reasons to expect that such results may not be generalizable to children and adults living in countries with lower incarceration rates (Wildeman, 2016). In Australia, where imprisonment is used more rarely, prison populations may be composed of individuals with higher levels of pre-existing problems such as addiction or violent behavior. In these circumstances, adults and young people are more likely to benefit from the removal of a problematic family member. The effects of imprisonment in Australia may also be mitigated by

EFFECTS OF FAMILY AND PARENTAL IMPRISONMENT

more comprehensive welfare support and public services. Finally, Australia has shorter average sentence lengths, which may be associated with lower levels of harm.

A further research gap pertains to the types of affected families included in these studies. Although recent Australian research shows that children affected by the imprisonment of non-parent household members are at least as disadvantaged as prisoners' own children (Besemer & Dennison, in press), there is very little empirical evidence regarding the risks associated with the imprisonment of any household members and/or close family other than a parent (Meek, 2008; Meek, Lowe, & McPhillips, 2010; Wildeman & Wakefield, 2014). However, a small number of studies around the world have found evidence that suggests that non-parent family member incarceration may impact children in ways that mirror the consequences of parental imprisonment. For example, the imprisonment of children's siblings, fathers, uncles, aunts, and grandparents have all been shown to predict their subsequent delinquent development (Farrington, Barnes, & Lambert, 1996; Farrington, Jolliffe, Loeber, Stouthamer-Loeber, & Kalb, 2001; Slomkowski, Rende, Conger, Simons, & Conger, 2001). In addition, qualitative research observed adverse psychological consequences of sibling imprisonment for other children in the home (Meek, 2008; Meek, Lowe, & McPhillips, 2010). Qualitative work by Comfort (2016) has described repeated short prison sentences among close family members as a severe, on-going strain, particularly for people who have to cope with the imprisonments of multiple different relatives. The imprisonment of close family members has also been shown to result in risks to adult cardiovascular health (Lee, Wildeman, Wang, Matusko, & Jackson, 2014). Similarly, mothers confronted with the imprisonment of adult sons suffer from increased risks of psychological distress and decreased physical health (Green, Ensminger, Robertson, & Juon, 2006). This research suggest that non-parental family relationships to prisoners, including those

who have not previously lived in the household, may nonetheless transmit risk to parents and children. However, it is not clear how such experiences compare to parental imprisonment, or whether their consequences are equally severe.

If imprisonment not only transmits risks to prisoners' own children, but also to prisoners' siblings, grandchildren, or other household members, the group of children and adults potentially affected is much larger than has previously been assumed. Furthermore, as prison populations around the world have risen rapidly over the past fifteen years (Coyle, Fair, Jacobson, & Walmsley, 2016), understanding the extent to which prisons directly transmit long-term harms to family members is vital. If family imprisonment is indeed a "risk mechanism" rather than just a "risk marker" (Murray & Farrington, 2005) of disadvantageous life outcomes, this has profound importance for correctional policy and institutional reform.

In this paper, we begin to address these fundamental research gaps. Using both random and fixed effects models, we examine whether any of the three forms of family imprisonment is a 'risk marker' for (i.e., associated with), a lack of social support or poor mental health (Research Question 1). We also test whether any of the three forms of family imprisonment are a potential 'risk mechanism', (i.e., whether an association remains after controlling for the time-stable, individual characteristics of people affected) for a lack of social support and poor mental health (Research Question 2). For each of these effects, we look at whether they apply equally to men, women and young people (aged 15-20).

Background

The Australian Context

In December 2016, the Australian imprisonment rate reached a new peak of 208 prisoners per 100,000 adults (Australian Bureau of Statistics [ABS], 2016), compared to a global average

EFFECTS OF FAMILY AND PARENTAL IMPRISONMENT

of only 144 per 100,000 (Coyle et al., 2016). The US imprisonment rate continued to be more than twice as high, at 458 prisoners per 100,000 adults in 2015 (Carson, 2016). As data regarding the parental status of prisoners are not routinely collected in Australia (Dennison, Stewart, & Freiberg, 2013), there is little information regarding the increasing numbers of children likely to be affected. Extrapolating from a 2001 New South Wales estimate that 4.3% of children experienced parental imprisonment in their lifetime (Quilty, Levy, Howard, Barratt, & Butler, 2004), parental imprisonment could affect at least 230,000 children currently living in Australia¹. And, though there are no local or national estimates for children affected by the imprisonment of family or household members other than parents, recent research suggest that this number could be considerably higher still (Besemer & Dennison, in press).

While steep rises in the American imprisonment rate have triggered research targeted at the consequences of incarceration for family life (Wildeman, Wakefield, & Turney, 2013), the Australian body of family imprisonment research remains small (Dennison et al., 2013). So far, Australian findings have corresponded with international research in finding strong associations between parental and family imprisonment and social exclusion (Besemer & Dennison, 2017; in press), though the extent to which this represents a causal relationship has not yet been tested.

Qualitative research shows that in Australia, as in other countries, imprisonment is often a distressing experience for prisoners' children and their other family members (Dennison & Besemer, in press), suggesting possible adverse mental health consequences. However, empirical findings on the effects of parental imprisonment on children have been mixed. Using a population-based record linkage study, two recent Australian studies found associations between parental offending and adverse developmental outcomes in early childhood, including aggression, social competence, language and cognitive skills, and physical health and wellbeing

at age five (Laurens et al., 2017; Tzoumakis et al., 2017). On the other hand, an Australian longitudinal study found that, after controlling for pre-existing risk, having a mother whose current partner had ever been incarcerated was not significantly associated with problem behaviors in 14-year-olds (Kinner, Alati, Najman, & Williams, 2007).

International findings

As current research on the effects of imprisonment on family relationships has almost exclusively focused on prisoners' children, little is known about the way imprisonment may influence other close family members. A recent theoretical model by Foster and Hagan (2015b) suggests a range of risk mechanisms through which parental imprisonment may impact on children, both through effects on their parents as well as through individual-level effects. It is likely that many of these effects also operate when children are affected by imprisonment through other close family connections. Here, we focus on two of these proposed effects of parental imprisonment: low social support and poor mental health.

Social support

Social support, defined as the provision of emotional and instrumental assistance through informal social networks, is thought to be one of the fundamental protective influences mitigating the harmful consequences of stress in adverse situations (Arditti, 2005; Capowich, Mazerolle, & Piquero, 2001; Cohen & Wills, 1985; Cullen, 1994; Lösel, Pugh, Markson, Souza, & Lanskey, 2012; Murray et al., 2012). As the imprisonment of a family member is likely to be a source of stress in the lives of most people affected, social support is not only a key outcome in itself, but is also likely to be a key determinant of other psychosocial outcomes.

Although social support has rarely been measured directly in the context of family imprisonment, it has sometimes been assumed that disadvantages that characterize the lives of prisoners' relatives reflect deficits in the extent and quality of children and adults' social support

networks (e.g. Murray, 2007). However, the relationship between social disadvantage and social support is complex. There has been some evidence that certain poor and disadvantaged populations may have equal or even greater access to social support than other households, both through strong neighborhood-based networks in some deprived areas, and through stronger family connections (Bailey, Besemer, Bramley, & Livingston, 2015; Matthews & Besemer, 2015; Pinkster, 2007). Consequently, it is not clear whether family members of prisoners, while disadvantaged in other ways, are more likely to have prior problems with social support.

Qualitative studies suggest that imprisonment may impact upon families' social relationships as a result of family members' own shame and anxiety as well as because of hostile or disapproving social responses from others (Braman, 2004; Condry, 2013; Phillips & Gates, 2011). These findings are confirmed in research using data from the Fragile Families and Child Wellbeing Study (FFCWS), a longitudinal survey of parents and children in 20 large U.S. cities. Turney, Schnittker, and Wildeman (2012) showed that mothers who had experienced recent paternal incarceration were less likely to feel they had friends or family members who might provide small or large amount of financial support to them, even after controlling for their previous social support. Imprisonment is also thought to cause long-term impairments to the social and human capital of prisoners' families and communities (Hagan & Dinovitzer, 1999; Rose & Clear, 1998; Rose & Clear, 2003).

In addition, some of the effects of imprisonment found in other studies are likely to impact indirectly on both the emotional and instrumental support of family members. For example, if the prisoner provided a substantial part of his household's income, loss of this income could result in children and adult's forced disengagement from social activities and events they can no longer afford to participate in, resulting in impacted social contacts (Besemer

& Dennison, 2017; Hagan & Dinovitzer, 1999; Murray & Farrington, 2008; Schwartz-Soicher, Geller, & Garfinkel, 2011). Children of prisoners are more likely to experience multiple house moves, as well as changes of school and caregiver (Dallaire, 2007; Jorgensen, Hernandez, & Warren, 1986; Murray, 2005, 2007; Rose & Clear, 2003), which may disrupt existing friendships and impede the subsequent development of strong peer relationships (Besemer & Dennison, 2017; Bocknek, Sanderson, & Britner, 2009; Oishi & Schimmack, 2010). While the combination of these circumstances suggests that parental incarceration may impact on both children and adults' social networks, social support has rarely been investigated in this context (Luther, 2015).

Mental health

Although many qualitative studies suggest that imprisonment diminishes the psychological wellbeing of prisoners' family members and spouses (e.g. Braman, 2004; Comfort, 2016; Comfort, 2008; Condry, 2013; Dennison & Besemer, 2018, in press; Meek, 2008), few studies have tested this effect empirically. A number of cross-sectional studies have shown that family imprisonment is associated with substantially worse physical and mental health (Besemer & Dennison, in press; Gaston, 2016; Wildeman, Lee, & Comfort, 2013). However, it is not clear whether these problems preceded the imprisonment, or whether they primarily reflect the overall disadvantageous circumstances affecting this population. In a recent US study, adult children of imprisoned parents were found to be predisposed towards greater mental health problems; however, the authors were not able to correct for pre-existing risks (Gaston, 2016). The only direct effect of imprisonment on mental health was found in a study using US 'Fragile Families' data, with paternal incarceration associated with elevated levels of life dissatisfaction in mothers, as well as a heavily increased risk of a major depressive episode (Wildeman, Schnittker, & Turney, 2012). There are few other studies regarding the mental health consequences of any other adults confronted with the imprisonment of a close relative. However,

EFFECTS OF FAMILY AND PARENTAL IMPRISONMENT

a systematic review of international studies testing the association between paternal imprisonment and various measures of mental health of children found only a very weak, inconsistent association between paternal imprisonment and children's mental health (Murray et al., 2012).

In relation to our two research questions we formulated the following hypotheses:

- *Hypothesis 1A:* People who experience parental imprisonment (PI), household member imprisonment (HI), or close family member imprisonment (CFI) have a greater overall likelihood of low social support.
- *Hypothesis 1B:* People who experience PI, HI, or CFI have a greater overall likelihood of low mental health.
- *Hypothesis 2A:* People have a greater likelihood of low social support directly after experiencing PI, HI, or CFI.
- *Hypothesis 2B:* People have a greater likelihood of low mental health directly after experiencing PI, HI, or CFI.

Method

Sample

Our sample comes from unit record data in the Housing, Income, and Labor Dynamics in Australia (HILDA) longitudinal survey; an annual nationally representative panel study containing up to 15 years of detailed socioeconomic information about approximately 28,000 individuals at the time of our analysis. In HILDA, data are collected about each household member, although interviews are only conducted with people aged 15 years and over. In addition to the main interview, which is normally conducted in person, interviewees were also asked to complete a self-report questionnaire that included more sensitive questions. This questionnaire

covers a range of items including mental and physical health status (the Short Form-36 health survey), social support, and life events (Summerfield et al., 2016; Watson & Wooden, 2012).

The main dependent variables examined in this study were available in all annual waves of HILDA (2001–2015), although information about life events, including family imprisonment, was only collected from wave 2 onwards.

Dependent variables

We examine two key outcome measures: social support and mental health. Social support is measured through the respondent's own perceived adequacy of their social support. It is a 10-item measure covering three key domains of social support - emotional support, practical support, and loneliness (Milner, Krnjacki, Butterworth, & LaMontagne, 2016). As in Honey, Emerson, and Llewellyn (2011), the social support scale was compiled by taking the average of these items. Items included: 'people don't come to visit me as often as I would like'; 'I often need help from other people but can't get it'; and 'I seem to have a lot of friends'. Each item is rated on a Likert scale ranging from 1 'strongly disagree' to 7 'strongly agree'. Negatively worded items were reverse-scored. The distribution of social support was heavily skewed. Only 9.00% of all scores were below 4, while 69.25 of all measured social support scores ranged from 5-7. Natural log transformations did not reduce skewness. We therefore converted the social support scale into a binary measure, where weak social support is identified as a score within the lowest quartile of scores of the HILDA population as a whole.

Mental health was measured using the five-item Mental Health Inventory (MHI-5), a subscale from the SF-36 general health measure. This instrument is composed of five items: 'How much of the time during the last month have you: 'been a very nervous person'; 'felt calm and peaceful?'; 'felt downhearted and blue?'; 'been a happy person?' and 'felt so down in the dumps that nothing could cheer you up?' The MHI-5 is widely used as a validated screening

instrument for depressive symptoms, mood disorders, and other mental health problems in the general population (Beusterien, Steinwald, & Ware, 1996; Rumpf, Meyer, Hapke, & John, 2001; Silveira et al., 2005). In our analysis, we use a continuous transformation of the MHI-5 score, recoded on a 0 to 100 range with a higher score meaning better mental health. The distribution of mental health was heavily skewed, 50.00% of all mental health scores in the dataset were between 80-100. Natural log transformations did not reduce skewness. We therefore dichotomized this variable by defining poor mental health as a score within the lowest quartile of scores of the HILDA population as a whole. Although dichotomizing outcome variables necessarily results in a loss of power, categorization of our dependent variables was unavoidable. Left continuous, the non-normal distributions of both outcome variables would have otherwise violated the assumptions of parametric statistical tests such as random and fixed effects models (Altman & Royston, 2006; Streiner, 2002).

Independent variables

We looked at the influence of three key types of events on our outcome variables: (1) the imprisonment of a ‘close family member’ (CFI); (2) the imprisonment of a person who is currently living in the respondent’s household (HI); and (3) the imprisonment of a young person’s mother or father (PI). The experience of CFI was measured in a self-completion questionnaire, in which respondents were asked to indicate whether they had experienced one of a series of events in the past year. One of these life events was whether they had a “close family member detained in a jail/correctional facility”. We also use information from the life events section to create indicator variables denoting HI. Individuals were included as having experienced HI if a current cohabitant had indicated that they had been “detained in a jail/correctional facility” in the past year. HI and CFI are not as closely overlapping as one might assume. Of people who have a current household member who went to prison, only 24.7%

EFFECTS OF FAMILY AND PARENTAL IMPRISONMENT

indicated that a close family member went to prison. And, for people who indicated that a close family member went to prison, only 5.0% were living with a household member who went to prison in the past year.² PI was derived by identifying young people for whom any biological or social parent had indicated that they had been detained. This variable could only be included for young people up to the age of 20, as parental information was largely unavailable for older adults. As many young people lived with the imprisoned parent after release there was considerable overlap between the group of people experiencing PI and HI. Of the 264 young people who had a parent go to prison, 177 also experienced the imprisonment of a household member (67.0%).

Other covariates included as controls in our model were age, marital status, number of children in the household, household income, general health, and remoteness area. Age was defined as the respondent's age on June 30th in the year the survey wave commenced. Marital status was recorded at the time of the interview. For young people, 'separated' and 'widowed' were recoded as 'single' because there were almost no cases in these categories. The number of children in the household denoted people aged 0-17 living in the household. If the respondent was aged 15-17, this number also included the respondent themselves. Household income was calculated as the OECD-equivalised income and converted as a percentage of median income in the survey year in order to correct for inflation and household size. Remoteness area denoted the respondent's residential location, classified within the Australian Standard Geographical Classification System (i.e. major cities, inner regional, outer regional, remote, very remote). Remoteness area was scored 0-5, with higher scores indicating greater rurality.

Analytic approach

We examine the effects of CFI, HI, and PI on children and adults' social support and mental health using random and fixed effects analysis in STATA 14.2. Both random and fixed effects models take into consideration the clustering of observations within persons and have the capacity to handle unbalanced panel designs (Johnson, 1995). However, in the random effects model, we simultaneously compare individuals with each other, as well as examine differences within individuals over time. As these models do not remove potential bias caused by unobserved differences between people, we can only use them to identify whether family imprisonment acts as a risk marker. In the fixed effects models, we compare scores associated with waves in which family imprisonment took place with the same individual's mean score during all other observations. As these models use only within-person comparisons, we are able to remove bias associated with unmeasured time-constant differences between people in the population. In addition, we control for relevant time-varying covariates by adding these into the analysis as control variables. Consequently, while the random effects models show whether family, household, or parental imprisonment are associated with different mental health and social support, fixed effects models are less sensitive to differences caused by pre-existing characteristics of people affected. Comparison of the random and fixed effects models thus provides an indication of whether family imprisonment is only a risk marker, or whether it could be a risk mechanism for these outcomes.

Results

Sample description

The analytical sample comprised 28,355 people with an average of 6.8 observations overall, of whom 4.8% had at least one observation just after the imprisonment of a close family member. This overall sample was subdivided into key demographic groups: men ($n = 13,938$), women ($n = 14,417$), and young people aged 15-20 ($n = 3,769$). Due to missing mental health and

social support information for some individuals, samples for the random effects analyses were slightly smaller ($N = 27,905$ overall). In fixed effects models, cases were excluded if there was no variation in the dependent variable across observations, resulting in samples of 11,547 for social support and 11,924 for mental health. More information about the overall sample can be found in Table 1. (*Insert Table 1*)

Social support

Our first hypothesis (Hypothesis 1A) was that people who experience PI, HI, or CFI have a greater overall likelihood of low social support. Hypothesis H2A was that people have a greater likelihood of low social support directly after experiencing PI, HI, or CFI. Results for both Hypotheses 1A and 2A can be seen in Tables 2 and 3. Random effects models show that without control variables, CFI and HI are indeed associated with a significantly higher likelihood of having inadequate social support. The odds of experiencing low social support are more than 25% higher for people affected by CFI and 37% higher for those who experience HI. After controlling for standard covariates, there was still an association between family, or household, imprisonment, and social support. (*Insert Tables 2 and 3*)

In Table 4, we present the results for PI fixed and random effects models for 15-20 year olds, along with the same age groups for CFI and HI. All odds ratio's in Table 4 come from separate regression models. Where models include controls, these are the same as in Tables 2 and 4. As can be seen in Table 4, there was no significant association between PI and social support in any of the models. These results were also consistent for males and females, once controls were included. Consequently, we can reject Hypothesis 1A for young people. Fixed effects models show that people of any age and gender do not, on average, experience lower social support in years they experience CFI or HI. Therefore, with regard to social support, we also reject our hypothesis that people have a greater likelihood of low social support directly

after experiencing PI, HI, or CFI (Hypothesis 2A). On the whole, these results do not provide any evidence that people experience any difference in social support in the specific year that their relatives are imprisoned as compared to other years. (*Insert Table 4*)

Mental Health

We hypothesized that people who experience PI, HI, or CFI have a greater overall likelihood of low mental health (Hypothesis 1B) and that people have a greater likelihood of low mental health directly after experiencing PI, HI, or CFI (Hypothesis 2B). In random effects models with and without control variables, CFI is strongly associated with having mental health scores in the lowest quartile (see Table 5). Without controls, people affected by CFI were 54% more likely to have poor mental health. The fixed effects models in Table 5 also show a strong direct relationship between family imprisonment and mental health. In years in which people report the imprisonment of a close family member, people have a significantly higher likelihood of poor mental health. (*Insert Table 5*)

Household member imprisonment is also associated with poor mental health in the random effects model (Table 6). However, in the fixed effects model, we found no significant direct effect of HI on mental health. We can therefore conclude that the association between HI and poor mental health that was found in the fixed effect model is a consequence of unmeasured time-invariant differences between sample members. This finding is particularly striking when comparing the effect of HI with the effect of some of the controls. Becoming widowed is associated with an 81% higher chance of poor mental health, while being separated increases the risk of low mental health by 54%. Even unemployment, a relatively common life event, has a much stronger average effect on mental health than HI. (*Insert Table 6*)

The direct effect of close family imprisonment on mental health was not significant across all demographics (see Table 7). We found no significant effect of CFI on either the mental

health of women or young people. Furthermore, there was no association between young people's experiences of PI, HI, or CFI and their mental health outcomes in that year. Indeed, the direct effect of CFI on mental health was only significant for men. Therefore we found partial support for Hypothesis 1B and no support for Hypothesis 2B with the exception of men who experienced CFI. (*Insert Table 7*)

In our previous analyses, we found that there was an effect of close family imprisonment on men, but not on women or young people. For our final analysis, we used an interaction term in our fixed effects models to identify whether social support changes the relationship between men's experience of close family imprisonment and their subsequent mental health. In a model without controls, social support was found to have a strong direct effect on mental health ($OR = 2.588$, $SE = 0.377$, $p < 0.001$). However, after controlling for this direct effect, we found no significant interaction between family imprisonment and social support ($OR = 1.365$, $SE = 0.236$, $p = 0.072$). In a model with controls, we also found that social support did not moderate the relationship between close family imprisonment and men's mental health ($OR = 1.270$, $SE = 0.230$, $p = 0.189$). We conclude that low social support increases the risk of mental health problems in general, but does not moderate the relationship between close family imprisonment and men's mental health.

Discussion

The aim of this study was to examine the association between the various types of family imprisonment (CFI, HI, and PI) and both social support and mental health. After introducing controls, we found no effect of any kind on social support, not even a baseline correlation. And, although we found an overall association between CFI and mental health, the only significant

direct effect on mental health was for adult men. We found no effects of either PI or HI on mental health. We will discuss each of these findings in turn.

Our findings do not support theoretical assumptions (e.g. Arditti, Lambert-Shute, & Joest, 2003) that view family imprisonment as a determinant of impaired social support of either adults or young people. We did, however, find that family members of prisoners had slightly lower social support than other people with comparable demographic characteristics. This is not to say that the imprisonment of parents, household members, or close family members has no social consequences. It is possible that adults or young people experience negative or stigmatizing responses from more distant friends and acquaintances, but are nonetheless able to draw on the same levels of social support from their closer friend and family relationships. It may also be that although people perceived themselves to have the same access to social support as on previous survey years, this support varied in terms of its nature or effectiveness. These nuances should be investigated in future work. However, our study found no evidence that *on average* parental, household or close family imprisonment is a ‘mechanism’ of weak social support.

Although there was no average direct effect of CFI, HI, or PI on social support, such average effects may obscure positive or negative effects on certain subgroups within this population. The strong emotional responses to family imprisonment observed in qualitative research with prisoners’ relatives in Australia as well as other countries (e.g. Braman, 2004; Comfort, 2016; Comfort, 2008; Condry, 2013; Dennison & Besemer, 2018, in press; Meek, 2008) may be indicative of such subgroup effects. It is possible that such studies capture families affected by longer and more serious prison sentences, and therefore finds much greater negative psychological consequences in family members affected. Further research should explore such

potential diversity in outcomes, and identify the characteristics of people who may be at greater risk in the event of family imprisonment.

For mental health, we found an overall negative baseline association. That is, overall, people who experience the imprisonment of family members have poorer mental health. Though not unexpected, this is an important reminder of the overall vulnerability of this population. The direct effect of imprisonment on mental health is interesting because it was found to only be present in men. As the majority of research on adult family-member effects of imprisonment has focused on female caregivers (e.g. Green, Ensminger, Robertson, & Juon, 2006; Turney, 2014; Wildeman, Lee, et al., 2013; Wildeman et al., 2012), very little is known about the way men experience such events. Without further research, any further hypotheses regarding the reasons for this gender division can only be speculative. However, although we have no specific information about respondents' relationship to the 'close family member' who is imprisoned, we do have this information for any current household members. Of all women over 14 years of age who are affected by the imprisonment of a current household member, most are confronted by the imprisonment of a spouse (36.2%). Men are far less likely to be affected by spousal imprisonment (15.75% of all HI). Women are slightly more likely than men to be confronted with the imprisonment of their child or step-child (25.84% of HI experienced by women, 22.71% of HI for men). It is possible that women, more than men, may have previously been exposed to high levels of psychological distress because of their family members' offending. Some may have also been a victim of the family members' abuse. Women may therefore be more likely than men to experience family imprisonment positively (Johnston, 2006). Alternatively, women may describe a wider range of family relationships as 'close family', and thus be less

emotionally affected by these imprisonments than men. As can be seen in Table 1, a far greater proportion of women experienced household or close family imprisonment overall.

A further possibility is that there may be gendered differences in the way social support is used effectively to mitigate the negative effects of CFI and HI on adult men and women. The social support measure used in this study reflects perceived access to social support, but not the extent to which social support is actually used. There may be gendered differences in the use of social support that are not adequately captured by access to support as a control variable. Further research should investigate the social contexts and mechanisms that might explain the gendered nature of this association.

Limitations

Although this study uses a very large and representative longitudinal dataset of young people and adults affected by imprisonment, a number of caveats are warranted. First, even in a large national population sample we only observe a relatively small number of parental, household and close family imprisonments. Consequently, the small sample size may have reduced the power of these statistical tests, so that smaller effects on social support or mental health may not have been identified. In addition, though the HILDA dataset as a whole is a representative sample of the Australian population, these households may not constitute a representative subset of all families affected by imprisonment.

Second, while fixed effects models are useful for controlling for all time-invariant unobserved differences between families who experience imprisonment and those who do not, they can only control for time-varying covariates if those are included in the model. As in all statistical models, this leaves open the possibility that important control variables may have been omitted. For example, it was not possible to distinguish between the effects of maternal and paternal imprisonment on young people. These two experiences may have different effects on the

EFFECTS OF FAMILY AND PARENTAL IMPRISONMENT

lives of young people, which were not captured when the two groups were combined. We were also unable to control for disruptions and changes in people's lives that could have happened at the same time as the incarceration of a family member. Such events may have included traumatic experiences, which could have influenced the results. For young people, disruptions associated with imprisonment may include changes in primary caregivers. Other important unmeasured variations may have resulted from the extent to which people felt subjectively close to the family member in prison, or what kind of relationship people had to the family member imprisoned (other than for parents.) Similarly, our data do not contain information about the duration of parental, household, or close family imprisonment, or how often this experience had already happened in that person's life prior to the first measurement. Due to small sample sizes, we were also unable to consider differential effects by Indigenous status and ethnicity. All these factors could influence the severity of impact. Aggregating across these diverse experiences may therefore hide considerable variation in results. In addition, fixed effects models can only measure change in participants if we have information about them over more than one time point. This meant that cases had to be excluded if there was no variation in the dependent variable across observations. For the fixed effects models of social support, 16,358 cases (and 84,217 observations) were dropped because of a lack of variation. For the fixed effects models on mental health, 15,981 cases (81,035 observations) were dropped. On average, cases without variation had slightly lower mental health and social support. Also, we only were able to include young people aged 15 years and above. It is possible that PI, HI, and CFI effects may be greater in the lives of young children.

Finally, our null findings may be a consequence of timing. In this research, mental health, and social support were captured at one year intervals, meaning that the first point of

measurement after imprisonment varied anywhere between 0-12 months after the parental, family, or household imprisonment event. If psychological or social effects have an onset much longer after the event, they may not be captured in these models. Research on psychological trauma has shown that mood and anxiety disorders may develop many years after exposure to psychological stress (Heim, Newport, Mletzko, Miller, & Nemeroff, 2008; Lupien, McEwen, Gunnar, & Heim, 2009). To examine such long-term consequences, we would require a dataset spanning a much longer timeframe.

Finally, we would like to stress that these are just two of the many potential adverse outcomes that may occur as a consequence of family incarceration in Australia and in other countries. Further research should investigate whether the imprisonment of close family impacts other adverse outcomes for adults and young people, such as academic attainment, physical health, and delinquent or criminal behavior.

Conclusion

We found that young people and adults affected by household and close family imprisonment were significantly more likely to suffer from mental health problems than people without such experiences. Direct mental health effects of family imprisonment were found for men only. Although social support generally reduced the risk of mental health problems in men, social support did not moderate the relationship between CFI and mental health problems. There was also no evidence that CFI or HI was directly related to mental health problems in women or young people. PI was not found to have any effect on young people's mental health. Furthermore, family or household members of prisoners were not at greater risk of poor social support, nor did we find any direct connection between CFI, HI, or PI and social support. These results are different from those in American studies that found strong, direct negative effects of

paternal imprisonment on maternal mental health (Wildeman et al., 2012) and maternal social support (Turney et al., 2012). As previously discussed in our paper, the Australian welfare and corrections context differs considerably from that in the United States. These differences should serve as a reminder that results from the United States may not be directly generalizable across very different national contexts. Though currently uncommon in the family imprisonment literature (but see Besemer, van der Geest, Murray, Bijleveld, & Farrington, 2011; Murray, Bijleveld, Farrington, & Loeber, 2014), cross-national studies could play an important role in further exploring such differences, and testing the robustness of current empirical findings across different cultural and policy contexts.

It is also noteworthy that we found no direct effects of close family, household, or even parental imprisonment on young people aged 15-20. As previously stated in this paper, it is possible that such effects manifest much later in children and young people's lives (see Gaston, 2016), or only affect younger age groups. However, it is also possible that many of the serious problems identified in current literature are at least partially attributable to factors specific to the American prison context, and to the considerable pre-existing disadvantage affected children suffer from.

Nonetheless, this study did find that adults and children affected by imprisonment have very high levels of mental illness, and that for men, these problems become worse after close family imprisonment. Even if, for women and young people, mental health is not directly influenced by imprisonment of household or family members, their overall vulnerability to mental health problems is in itself a strong argument for greater support.

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Footnotes

¹ Based on 2016 figure of 5,411,417 children aged 0-17 in Australia, assuming 4.3% of children affected. As imprisonment rates have risen considerably since 2001, this is a conservative estimate.

² As household imprisonment is determined by a person themselves admitting to having been imprisoned whereas close family member imprisonment relies on one family member talking about another, some of this apparent lack of overlap may reflect differences in willingness to disclose imprisonment.

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EFFECTS OF FAMILY AND PARENTAL IMPRISONMENT

Tables

Table 1

Characteristics of the Analytic Sample at First Observed Wave

	Whole sample (<i>N</i> = 28,355)	Men (<i>n</i> = 13,938)	Women (<i>n</i> = 14,417)	People aged 15-20 (<i>n</i> = 3,769)
Will experience CFI (% of sample)	4.8	3.9	5.7	5.8
Will experience HI (% of sample)	1.7	1.4	2.0	2.3
Will experience PI (% of sample)	-	-	-	0.6
Age (mean)	29.9	29.4	30.5	17.7
Marital Status (% of sample)				
In a relationship	63.4	64.5	62.4	21.9
Separated	7.6	6.1	8.8	-
Widowed	4.0	1.5	6.4	-
Single	25.0	27.9	22.4	78.1
Number of children in household (mean)	2.3	2.3	2.3	2.4
Employment Status (% of sample)				
Employed (PT / FT)	63.2	70.0	57.0	54.7
Unemployed	5.6	6.6	4.7	15.2
Not in labor force	31.2	23.4	38.3	30.0
General health (mean)	69.6	69.9	69.3	71.0
Mental health (mean)	73.2	74.5	72.0	70.9
Remoteness area (0-4) (mean)	0.5	0.5	0.5	0.5

Note. Sample characteristics are provided for respondents' first observed wave only, since responses on these variables may change across survey waves.

EFFECTS OF FAMILY AND PARENTAL IMPRISONMENT

Table 2
Inadequate Social Support and Family Imprisonment

	Random effects model				Fixed effects model			
	No controls		With controls		No controls		With controls	
	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>
Close family imprisonment	1.255 ***	0.081	1.169 *	0.076	1.027	0.069	1.009	0.069
Age			1.002 *	0.001			.989 ***	0.002
Marital status (ref. group: married)								
<i>Separated</i>			1.800***	0.073			1.499***	0.075
<i>Widowed</i>			1.221**	0.073			1.358***	0.108
<i>Single</i>			1.327***	0.043			1.361***	0.061
Num. children in household			1.009***	0.002			1.005 *	0.003
Employment Status (ref: employed)								
<i>Unemployed</i>			1.328***	0.054			1.070	0.047
<i>Not in labor force</i>			0.989	0.024			.925 **	0.026
Household income			0.998***	0.000			0.999***	0.000
General health			0.965***	0.001			0.974***	0.001
Remoteness area			1.027	0.018			0.970	0.026
Observations	190,659		190,659		106,442		106,442	
Individuals	27,905		27,905		11,547		11,547	

Note. *** $p < .001$; ** $p < .01$, * $p < .05$.

EFFECTS OF FAMILY AND PARENTAL IMPRISONMENT

Table 3
Inadequate Social Support and Household Imprisonment

	Random effects model				Fixed effects model			
	No controls		With controls		No controls		With controls	
	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>
Household imprisonment	1.375*	0.185	1.342*	0.180	1.020	0.144	1.049	0.149
Age			1.002*	0.001			0.990***	0.002
Marital status (ref. group: married)								
<i>Separated</i>			1.800***	0.073			1.499***	0.075
<i>Widowed</i>			1.223**	0.073			1.359***	0.108
<i>Single</i>			1.328***	0.043			1.362***	0.061
Num. children in household			1.009***	0.002			1.005*	0.003
Employment Status (ref: employed)								
<i>Unemployed</i>			1.329***	0.054			1.070	0.047
<i>Not in labor force</i>			0.989	0.024			0.925**	0.026
Household income			0.998***	0.000			0.999***	0.000
General health			0.965***	0.001			0.974***	0.001
Remoteness area			1.027	0.018			0.970	0.026
Observations	190,659		190,659		106,442		106,442	
Individuals	27,905		27,905		11,547		11,547	

Note. *** $p < .001$; ** $p < .01$, * $p < .05$.

EFFECTS OF FAMILY AND PARENTAL IMPRISONMENT

Table 4

Inadequate Social Support by Type of Family Imprisonment, Gender and Age Group

All aged 15-20

	Random effects model				Fixed effects model			
	No controls		With controls		No controls		With controls	
	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>
Close family member incarceration	1.553*	0.274	1.283	0.224	0.864	0.185	0.852	0.189
Household member incarceration	1.268	0.360	1.530	0.476	0.801	0.298	0.955	0.361
Parental incarceration	2.073	1.105	1.727	0.962	1.092	0.589	1.297	0.704

Women

	Random effects model				Fixed effects model			
	No controls		With controls		No controls		With controls	
	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>
Close family member incarceration	1.270**	0.106	1.213*	0.101	0.998	0.087	0.997	0.088
Household member incarceration	1.205	0.215	1.189	0.212	0.898	0.164	0.937	0.173

Men

	Random effects model				Fixed effects model			
	No controls		With controls		No controls		With controls	
	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>
Close family member incarceration	1.261*	0.129	1.142	0.117	1.075	0.114	1.029	0.111
Household member incarceration	1.658*	0.341	1.583*	0.323	1.233	0.273	1.215	0.271

Note. *** $p < .001$; ** $p < .01$, * $p < .05$. Controls are the same as in Table 3. Coefficients of CFI, HI, and PI are from separate regression models.

EFFECTS OF FAMILY AND PARENTAL IMPRISONMENT

Table 5
Low Mental Health and Close Family Imprisonment

	Random effects model				Fixed effects model			
	No controls		With controls		No controls		With controls	
	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>
Close family imprisonment	1.540***	0.098	1.385***	0.090	1.196**	0.079	1.178*	0.083
Age			0.973***	0.001			0.979***	0.002
Marital status (ref. group: married)								
<i>Separated</i>			1.792***	0.071			1.543***	0.079
<i>Widowed</i>			1.557***	0.093			1.807***	0.157
<i>Single</i>			1.143***	0.034			1.150**	0.047
Num. children in household			1.000	0.002			1.001	0.003
Employment Status (ref: employed)								
<i>Unemployed</i>			1.492***	0.060			1.242***	0.054
<i>Not in labor force</i>			1.138***	0.027			1.017	0.028
Household income			0.999***	0.000			1.000***	0.000
General health			0.936***	0.001			0.947***	0.001
Remoteness area			0.940***	0.015			0.959	0.026
Observations	190,659		190,659		106,442		106,442	
Individuals	27,905		27,905		11,547		11,547	

Note. *** $p < .001$; ** $p < .01$, * $p < .05$

EFFECTS OF FAMILY AND PARENTAL IMPRISONMENT

Table 6
Low Mental Health and Household Imprisonment

	Random effects model				Fixed effects model			
	No controls		With controls		No controls		With controls	
	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>
Household imprisonment	1.644***	0.215	1.434**	0.191	1.204	0.163	1.197	0.170
Age			0.973***	0.001			0.979***	0.002
Marital status (ref. group: married)								
<i>Separated</i>			1.794***	0.071			1.543***	0.079
<i>Widowed</i>			1.560***	0.093			1.810***	0.157
<i>Single</i>			1.144***	0.034			1.152***	0.047
Num. children in household			1.000	0.002			1.001	0.003
Employment Status (ref: employed)								
<i>Unemployed</i>			1.495***	0.060			1.243***	0.054
<i>Not in labor force</i>			1.138***	0.027			1.018	0.028
Household income			0.999***	0.000			1.000***	0.000
General health			0.936***	0.001			0.947***	0.001
Remoteness area			0.940***	0.015			0.959	0.026
Observations	190,659		190,659		106,442		106,442	
Individuals	27,905		27,905		11,924		11,924	

Note. *** $p < .001$; ** $p < .01$, * $p < .05$

EFFECTS OF FAMILY AND PARENTAL IMPRISONMENT

Table 7

Low Mental Health by Type of Family Imprisonment, Gender and Age Group

Young people aged 15-20

	Random effects model				Fixed effects model			
	No controls		With controls ¹		No controls		With controls	
	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>
Close family member incarceration	2.216***	0.346	1.836***	0.285	1.290	0.240	1.350	0.269
Household member incarceration	1.269	0.360	0.948	0.271	0.780	0.243	0.728	0.245
Parental incarceration	1.214	0.623	0.877	0.471	0.869	0.462	1.060	0.632

Women

	Random effects model				Fixed effects model			
	No controls		With controls		No controls		With controls	
	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>
Close family member incarceration	1.435***	0.114	1.327**	0.108	1.128	0.093	1.121	0.098
Household member incarceration	1.574**	.265	1.363	0.235	1.118	0.194	1.088	0.200

Men

	Random effects model				Fixed effects model			
	No controls		With controls ¹		No controls		With controls	
	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>	<i>OR</i>	<i>SE</i>
Close family member incarceration	1.713***	0.180	1.457***	0.157	1.326*	0.147	1.280*	0.151
Household member incarceration	1.755**	0.365	1.534*	0.321	1.350	0.291	1.378	0.307

Note. *** $p < .001$; ** $p < .01$, * $p < .05$. Controls are the same as in Table 6. Coefficients of CFI, HI, and PI are from separate regression models.