

# Childhood Exposure to Sexual Abuse and Partnership Outcomes at Age 30

Running Head: Childhood Sexual Abuse and Partnership Outcomes

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## Abstract

*Background.* In this study, 30 year longitudinal data from the Christchurch Health and Development Study were used to examine the associations between childhood exposure to sexual abuse and intimate relationship outcomes at age 30. In addition, a broad range of early childhood and family confounding factors were tested, and the role of intervening factors from adolescence was explored.

*Methods.* The investigation analyzed data from a birth cohort of over 900 New Zealand adults studied to the age of 30. At ages 18 and 21 cohort members reported on any exposure to sexual abuse prior to age 16. This information, along with prospective data gathered in childhood and adolescence, was used to predict partnership outcomes at age 30.

*Results.* [After adjustment for early childhood and family factors, exposure to more severe forms of childhood sexual abuse was associated with earlier and more frequent cohabitation, higher rates of perpetrated interpartner violence, and early parenthood, lower relationship satisfaction and investment.](#) Several factors from adolescence [partially or fully](#) mediated these associations, notably, a history of early consensual sexual intercourse, higher number of sexual partnerships, substance abuse problems, and self-esteem. [After adjustment for intervening factors, exposure to childhood sexual abuse remained significantly associated with interpartner violence.](#)

*Conclusions.* The findings support a causal chain process, whereby early childhood and family factors place some individuals at risk for CSA. The extent of CSA exposure is related to adolescent risk-taking, which in turn leads to early and more frequent cohabitation, [risk of interpartner violence, and](#) lower relationship satisfaction and investment.

## Childhood Exposure to Sexual Abuse and Partnership Outcomes at Age 30

There is increasing evidence that exposure to sexual abuse during childhood can have long term negative effects on later adult development, including elevated rates of physical and mental health problems, poorer educational achievement, and an increased susceptibility to substance abuse and dependence (Fergusson & Mullen, 1999; Putnam, 2003; Boden, et al., 2007; Duncan, et al., 2008;). These risks have been demonstrated across both clinic and community samples, with findings also suggesting that those exposed to more frequent and severe forms of childhood sexual abuse are at greatest risk (Fergusson, et al., 1996; Fleming, et al., 1999).

One important domain of adult functioning that has been less well studied amongst the survivors of childhood sexual abuse (CSA) concerns their adult interpersonal functioning, and in particular their ability to form and maintain intimate partner relationships. Early research on CSA exposure and intimate relationship functioning has largely focused on the sexual adjustment of females survivors of CSA (Rumstein-McKean & Hunsley, 2001). These studies found that women who were exposed to CSA experienced more sexual adjustment problems and reported lower levels of partner attachment and relationship satisfaction, and higher levels of relationship conflict and relationship dissolution than those not exposed to CSA. For example, in a cross-sectional study of community women, CSA was found to be associated with higher rates of separation, sexual difficulties, and poor partner perceptions (Mullen, et al., 1994). A more recent large retrospective survey showed that both male and female CSA survivors were more likely to be married to an alcoholic and to have current marriage and family problems (Dube, et al., 2005).

It is important to note, however, that often research in this area is characterized by one or more methodological limitations that constrain the conclusions that can be drawn about the

long term partnership outcomes associated with CSA (Fergusson & Mullen, 1999; DiLillo & Damashek, 2003; Fergusson, et al., 2008). First, there has been an over reliance on clinical and high risk community samples which limits the generalizability and interpretation of study findings, and potentially over estimates the strength of associations between CSA and partnership outcomes. Second, much of the research in this area has relied on cross-sectional and retrospective self-reports of CSA typically obtained at a single assessment (e.g., Mullen et al., 1994; Dube et al., 2005). This raises the possibility that participants' memory of childhood background factors and current functioning could be severely biased as participants seek to psychologically link their own early experiences with later adult functioning. Third, when longitudinal research designs have been used most have been relatively short-term, limited to only two or three waves of assessment (e.g., Kallstrom-Fuqua, et al., 2005; Testa, et al., 2005).

A further issue concerns the extent to which relevant early childhood and family factors have been adequately controlled in the analyses between CSA and later outcomes. To date, most studies have included only a limited range of covariates such as socioeconomic status, gender, age, race, or education. Thus, the possibility remains that associations observed between CSA and later problematic partnership outcomes may reflect the family and social contexts in which abuse occurs or the personal characteristics of the individual, rather than the direct effects of CSA exposure. This includes the tendency to assess CSA separately from other forms of child abuse or maltreatment which is problematic since different forms of abuse have been shown to frequently co-occur (Fergusson & Mullen, 1999). When studies have included early confounding factors, findings have been mixed, with some studies showing that early childhood and family factors have a greater influence on social or interpersonal outcomes than CSA (e.g., Harter, et al., 1988) and other studies

showing that the effect of CSA persist after covariate control (e.g., Finkelhor, et al., 1989; Dube et al., 2005).

Finally, ~~relatively little attention has been given to~~ only a few studies have examined the intervening factors and mechanisms by which CSA impacts subsequent adult intimate partner relationships. For example, a recent study with low-income community women identified perceptions of betrayal and powerlessness in CSA survivors as a mediator of the association between sexual abuse severity and maladaptive partner relationships (Kallstrom-Fuqua, et al., 2005). Another community based study found that sexual risk taking and aggression in the romantic partners of CSA survivors mediated the link between CSA and relationship satisfaction (Testa, et al., 2005). These two studies point to concurrent or proximal factors associated with adult functioning that lead to increased risks of unhealthy and/or unstable intimate partner relationships among those exposed to CSA. However, long-term developmental studies have shown that exposure to CSA is associated with adolescent risk taking behavior (Fergusson, Horwood, & Lynskey, 1997; Waldron et al., 2008; VanRoode et al., 2009), highlighting the possibility that effects of CSA on adult relationship factors may be mediated by individual functioning and experiences from adolescence.

To acquire an accurate understanding of the long-term effects of CSA it is crucial to examine the links between CSA exposure, life-course experiences through adolescence and adulthood, and adult intimate relationship experiences in one data set. In this manner it may be possible to document not only the long-term effects of CSA for the victims, but the potential impact on partners, relationships, and offspring. Accordingly, we report the results of a 30-year prospective longitudinal study examining the links between exposure to sexual abuse during childhood and later risks of adverse intimate partnership outcomes. The specific aims of the study were:

1. To examine associations between the extent of childhood exposure to sexual abuse and indices of partner relationship formation and quality, including the age at first cohabitation/marriage, number of cohabiting relationships, current relationship perceptions and interpartner violence.
2. To examine the extent to which associations between CSA and adult partnership outcomes may be explained by confounding social, family or individual factors that are correlated with both family violence and later outcomes.
3. To identify possible mediational pathways by which childhood exposure to sexual abuse may lead to later problems in partnership experiences.

## METHOD

### *Participants*

Participants were members of an unselected birth cohort that has been extensively studied as part of the Christchurch Health and Development Study (CHDS). The CHDS is a longitudinal study of 1,265 children (630 females) born in the Christchurch (New Zealand) urban region over a four month period during 1977. This cohort has been studied at regular intervals from birth until age 30 (for details see Fergusson & Horwood, 2001). At age thirty, 984 (78%; 507 females) of the original cohort members were interviewed. The following measures were selected for inclusion in this analysis.

### *Exposure to Childhood Sexual Abuse (CSA)*

At ages 18 and 21, cohort members were questioned about their exposure to any forms of childhood sexual abuse prior to age 16, including: (a) non-contact episodes involving indecent exposure, public masturbation, or unwanted sexual propositions; (b) episodes involving sexual contact in the form of sexual fondling, genital contact, or attempts

to undress the respondent; and (c) episodes involving attempted or completed vaginal, oral, or anal intercourse (Fergusson, Horwood, & Lynskey, 1996; Fergusson, Lynskey, & Horwood, 1996). Based upon the most severe form of CSA reported at either time point, cohort members were classified into a single 4 point categorical variable (from least to most severe) based on their level of CSA exposure; no CSA (85.9% of the sample), non-contact CSA (2.7%), contact CSA not involving attempted or completed sexual penetration (5.1%), and severe CSA involving attempted or completed sexual penetration including vaginal, oral, and anal intercourse (6.3% of the sample). A previous analysis of this repeated measures CSA data revealed that the reports of CSA exposure were not influenced by current mental state assessments and the combined measure had good predictive validity (Fergusson, et al., 2000).

### *Partnership Outcomes at Age 30*

At the 30 year assessment, cohort members were extensively interviewed about their current and past romantic partner relationships. Based on this questioning, the following measures were created to assess partnership outcomes:

*Cohabitation/marriage and offspring.* The age cohort members first entered a cohabiting or married relationship, the total number of cohabiting relationships they had been in, and the number of offspring, if any, from these relationships was recorded and cross-checked against previous assessments.

*Relationship quality.* Perceptions of relationship quality were assessed with the 25 item Intimate Relations scale (Braiker & Kelley, 1979). Participants responded to each item based on a 3-point scale (1=does not apply; 2=applies somewhat; 3=definitely applies). This measure has four subscales (love, investment, ambiguity, and conflict) that were summed together into two broad indices of positive (love and investment) and negative (ambiguity and

conflict) relationship perceptions. Internal reliability for both indices was good ( $\alpha = .89$  and  $.84$  respectively).

*Interpartner violence (IPV).* Interpartner conflict and violence was assessed with the Revised Conflict Tactics Scale (CTS2; Straus, et al., 1996). Respondents reported both the extent to which they had been the victim ( $\alpha = .83$ ) or perpetrator ( $\alpha = .79$ ) of any interpartner physical violence in the last 12 months. The two measures were significantly correlated ( $r = .41, p = .001$ ), and for the purposes of this analysis, items were scaled as suggested by Straus et al. (1996) and summed to provide a total measure of IPV in any partner relationship over the last 12 months.

*Partner adjustment/conduct problems.* At age 30 cohort members were questioned about their current romantic partner. Eight items based on a 3 point scale (does not apply, applies somewhat, definitely applies) were used to assess partner adjustment and conduct problems (sample items include: My partner has a lot of personal problems. My partner does things that are against the law such as stealing or vandalism. My partner has problems due to the use of alcohol.) The internal reliability of this scale was modest but acceptable ( $\alpha = .74$ ). For the purposes of the present analysis, cohort members were coded as having a partner with adjustment/conduct problems if they answered, “definitely applies” to any of the 8 items.

#### *Childhood Covariate Factors.*

To assess the extent to which associations between CSA and later partnership outcomes at age 30 could be explained by the effects of confounding and intervening factors, a wide range of measures, based on previous research and theory, were chosen from the CHDS database.

*Family living standards (0-10 years).* A composite measure of material living standards between the ages of birth to 10 years was computed by summing interviewer

ratings. Ratings were made annually on a five-point scale that ranged from ‘very good’ to ‘very poor’. For the purposes of the present study, scale scores were reverse coded and averaged so that lower scores were indicative of poorer living standards.

*Maternal age at first birth.* This was assessed in whole years at the time of the cohort member’s birth.

*Parental adjustment problems.* At age 11, parent(s) of cohort members were questioned about the extent to which they had used cannabis or other illicit substances. At age 15, parent(s) were questioned about any history of alcoholism or alcohol problems, and any history of criminal offending. Scores on these items were combined to create a composite measure of parental adjustment problems ranging from zero to four.

*Changes of parents (0-10 years).* Comprehensive data on family placement and changes of parents were collected at annual intervals from birth to age 16 years. All changes of custodial parents were included to construct one overall measure of parental change from birth to ten years.

*Parental use of physical punishment.* At ages 18 and 21, cohort members reported on the extent to which their parents used physical punishment during their childhood (prior to age 16 years). If applicable, separate ratings were made for mother figures and father figures. These ratings were then combined into a single four point metric of parental physical punishment based on the most severe rating at either the 18 or 21 year interview: (1) parents never used physical punishment; (2) parents seldom used physical punishment; (3) at least one parent regularly used physical punishment; (4) at least one parent used frequent or severe punishment or treated the participant in a harsh/abusive manner (Fergusson & Lynskey, 1997).

*Gender.* Recorded at birth.

*IQ (8-9 years)*. This was assessed at ages 8 and 9 years using the Revised Wechsler Intelligence Scale for Children (WISC-R: Wechsler, 1974). The split half reliabilities of the scales were .93 at age 8 and .95 at age 9. For this study, the WISC-R total IQ scores at age 8 and 9 were combined by averaging over the two administrations.

### *Intervening Factors*

To examine the extent to which associations between CSA and partnership outcomes at age 30 were influenced by intervening adolescent factors, a wide range of variables were considered that included the adolescent parent-child relationship, personality, self-esteem, education, sexual behavior, mental health, substance abuse, and conduct problems. For participants currently in cohabiting relationships relevant relationship factors were also considered such as number of cohabiting relationships, and current relationship length. The following measures were included based on their contribution to the [final](#) fitted regression models.

*Self-esteem (15 years)*. At age 15, self-esteem was assessed using the Coopersmith Self Esteem Inventory (1981). The four subscale scores (general, academic, social, and home) were summed together to create one overall measure of self-esteem ( $\alpha = 0.87$ ).

*Adolescent sexual activity (16-18 years)*. At 16 and 18 years, cohort members were questioned about their history of consensual sexual activity ([at age 18 this was separate from the sexual abuse questions](#)). The number of [consensual](#) sexual partners between 16 and 18 years was recorded, and those who reported having consensual sexual intercourse before the age of 16 were considered to have had early sex.

*Substance abuse (16-18 years)*. At age 18 years, cohort members were questioned about their use of nicotine, alcohol, cannabis, and other illicit drugs over the previous 2 years using a questionnaire based on the Composite International Diagnostic Interview (CIDI;

World Health Organization, 1993). From these items, DSM-IV (American Psychiatric Association, 1994) criteria were used to construct substance abuse diagnoses for each sample member. In the present analysis, these diagnoses were summed together for one overall measure of substance abuse.

### Statistical Analysis

In the first phase of the analysis the bivariate associations between the extent of CSA and outcome measures (Table 1) were tested for linear trend using Mantel-Haenszel chi square tests [for dichotomous measures \(early cohabitation, early parenthood, partner adjust/conduct problems\)](#) and [one way analysis of variance for continuous measures \(number of cohabitations, interpartner violence, relationship satisfaction, relationship ambiguity\)](#). To test for gender differences in the strength of association between CSA and outcome measures, the data were first stratified by gender and regression models then fitted to predict each outcome as a function of gender, CSA, and a gender x CSA interaction. For dichotomous outcomes multiple logistic regression models were fitted whereas for continuous outcomes multiple linear regression models were fitted. No significant interaction effects were found, suggesting that the nature of the associations between the extent of CSA and the partnership outcomes were similar for men and women. [For interpartner violence, poisson regression was employed with correction for over dispersion instead of linear regression due to the distribution characteristics of this variable.](#)

The analysis was then extended to consider (a) possible confounding by a series of childhood, family and individual characteristics (Table 2), [and](#) (b) a series of intervening factors (Table 3). The bivariate associations between CSA and confounders and intervening factors were tested using similar tests of linearity to those used for Table 1. Control for confounding was achieved by fitting multiple regression models to model each outcome as a

function of CSA exposure and covariate factors. In each case model fitting was conducted using methods of both forwards and backwards variable elimination to identify the best fitting and most parsimonious model (Table 4). The regression models were then extended in the same way to incorporate the intervening factors. [Tests of significance for the combined indirect effect of the intervening factors were conducted in MPlus \(Muthen & Muthen, 2007\) using weighted least squares regression.](#)

## Results

### *Associations between the Extent of Childhood Exposure to Sexual Abuse and Later Adult Partnership Outcomes*

Table 1 shows the associations between the extent of exposure to childhood sexual abuse (CSA) and a range of subsequent partnership outcomes at age 30. Significant linear associations were found between the extent of CSA and a number of partnership outcomes. Specifically, individuals who experienced more severe forms of CSA were more likely to have entered an early cohabiting or marital relationship ( $p < .001$ ), become a parent at a young age ( $p < .001$ ), and reported more cohabiting relationships in total by age 30 ( $p < .001$ ).

[Increasing severity of CSA was also associated with higher rates of partner adjustment/conduct problems \( \$p = .007\$ \), higher rates of interpartner violence \( \$p < .001\$ \), and for those currently in cohabiting or married relationships, lower levels of relationship satisfaction and investment \( \$p = .001\$ \). No association was found between the extent of CSA and perceived relationship ambiguity and conflict.](#)

### *Social, Family and Individual Factors Associated with Exposure to Childhood Sexual Abuse*

Although the results in Table 1 suggest the presence of clear associations between the extent of exposure to CSA and a range of partnership outcomes in adulthood, it is possible

that these associations may reflect the effects of confounding factors correlated with both CSA and later partnership outcomes. To examine this issue, Table 2 shows the associations between CSA and a wide range of socioeconomic, family, and individual factors previously identified as predictive of CSA (Fergusson, et al., 2008). Examination of Table 2 shows evidence of clear and significant ( $p < .001$ ) tendencies for increasing severity of CSA to be associated with greater social and economic disadvantage (lower family living standards, younger mother) and more dysfunctional childhood family environments (higher rates of parental adjustment problems, more frequent changes of parents, exposure to regular/severe physical punishment). In addition, those exposed to more severe forms of CSA were more likely to be female ( $p < .001$ ), and to have lower mean IQ scores ( $p = .005$ ) ~~and to exhibit higher rates of childhood conduct problems ( $p < .001$ ).~~

*Associations between Exposure to Childhood Sexual Abuse and Partnership Outcomes at Age 30 After Adjustment for Covariates*

To examine the extent to which the significant associations between CSA and the adult partnership outcomes in Table 1 could be explained by the confounding effects of the early childhood and family factors in Table 2, a series of multiple regression models were fitted in which each outcome was regressed on the measure of CSA and covariate factors. The results of these analyses are summarized in the middle column of Table 4, which shows the unstandardized coefficients, standard errors, and  $p$  values for adjusted associations between the dependent variables and CSA exposure, along with a list of the significant covariates for each analysis. For comparative purposes the unadjusted bivariate associations are shown in the left column of Table 4.

The results show that after inclusion of childhood covariates, all of the associations between CSA and the partnership outcomes were somewhat attenuated, with two variables,

[early parenthood and partner adjustment/conduct problems, no longer significantly associated with CSA](#). The 4 remaining variables continued to have a significant ( $p < .05$ ) association with CSA exposure after adjustment, suggesting that not all of the impact of CSA on later partnership outcomes could be explained by the correlated effects of other childhood factors. Among the covariates, increased use of physical punishment in childhood was also associated with each of the partnership outcomes.

### *Intervening Factors*

The results thus far suggest a possible causal relationship between CSA and adverse partnership outcomes and raise additional questions about the life course processes and pathways that may mediate these associations. To address this issue we examined a range of measures that have previously been associated with CSA that reflected potential intervening pathways between CSA exposure and later outcomes. As mentioned above, these factors spanned a number of domains from adolescence and young adulthood, but only those variables that contributed to the final regression models are reported in Table 3. Table 3 shows that with increasing severity of CSA, respondents during adolescence were more likely to be characterized by lower self-esteem ( $p < .001$ ), early consensual sexual intercourse ( $p < .001$ ), a greater number of sexual partners ( $p < .001$ ), and increased substance abuse ( $p < .001$ ).

### *Associations between Exposure to Childhood Sexual Abuse and Partnership Outcomes at Age 30 After Adjustment for Covariates and Intervening Factors*

[To examine the influence of these intervening factors on the associations between CSA and the partnership outcomes, the multiple regression models reported on the left side of Table 4 were extended to include the intervening variables from Table 3. In addition, for the](#)

relationship characteristics measures, the number of cohabiting relationships was included as a further covariate to reflect the quality of previous partner relationships. The results of these analyses are summarized in the right-hand columns of Table 4.

The inclusion of intervening factors further reduced the association between CSA and each of the partnership outcomes. For early cohabitation and number of cohabiting relationships, any remaining associations with CSA after adjustment for intervening factors were negligible and statistically non-significant ( $p > .05$ ). Significant intervening factors for these measures included adolescent sexual risk taking (early sexual onset, number of sexual partners) as well as problems with substance abuse. After adjustment for intervening variables the association with CSA remained significant for interpartner violence ( $p = .01$ ) and marginal for relationship satisfaction/investment ( $p = .08$ ). Intervening adolescent processes included self-esteem and number of sexual partners in adolescence, in addition to the number of cohabiting/marriage relationships as a young adult. In each instance, the combined indirect effect of the intervening variables was significant indicating partial or full mediation.

## Discussion

Using data gathered over the course of a 30-year longitudinal study, we have examined associations between young people's reports of exposure to sexual abuse prior to age 16 and their later partnership outcomes in adulthood. Strengths of this study include the semi-prospective longitudinal design, the regular and long-term follow-up of the cohort, and the inclusion of an extensive range of relevant confounding and intervening factors. These strengths address the methodological limitations of previous studies, and enable an examination of the developmental consequences of childhood sexual abuse using a life-

course approach (Fergusson & Mullen, 1999; DeLillo & Damashek, 2003; [Senn, Carey, & Vanable, 2008](#)).

Exposure to CSA, [particularly severe forms of CSA involving attempted or completed intercourse](#), was associated with a number of adverse adult partnership outcomes ranging from an early onset of cohabitation and parenthood (< 21 years), to increased relationship instability, lower relationship satisfaction, and higher rates of interpartner violence. Furthermore, most of these associations remained significant, although modestly attenuated, after controlling for a number of early childhood confounding factors. Thus, even after taking into account other childhood factors correlated with CSA and later partner outcomes, exposure to [more severe](#) CSA seems to have a long-term influence on later partnership stability, relationship quality, and risks of violence. These findings build on and extend previous cross-sectional and short-term longitudinal studies that have shown CSA to be associated with patterns of relationship formation and concurrent relationship functioning (Tsai, et al., 1979; Finkelhor, et al., 1989; Mullen, et al., 1994; Colman & Spatz Widom, 2004;).

While each outcome was associated with a slightly different mix of [early childhood](#) covariates, [exposure to more frequent or severe childhood physical punishment was a significant](#) factor associated with all of the outcomes. [This supports the general pattern of findings in this area, in which the accumulation of adverse childhood experiences greatly increases the risk of long-term adversities in individual and interpersonal functioning \(Anda et al., 2006\). There is considerable evidence that child maltreatment, including sexual abuse, is associated with a number of childhood conduct problems including internalizing and externalizing problems, deviant peer affiliations, and peer rejection \(Trickett, et al., 1994; Fergusson & Horwood, 1999; Bolger & Patterson, 2001; Walrath, et al., 2003; Jaffee, et al., 2004\). In addition, a recent study has documented a similar link between child maltreatment,](#)

child conduct problems, and unstable or unhealthy adult partnership experiences (Brown, et al., 2008). Previous research has also shown that sexual abuse and physical abuse often co-occur (see Fergusson & Mullen, 1999), and these results highlight the need for future research to consider other forms of child maltreatment when examining CSA.

An examination of the intervening life course processes that help to explain the later partnership outcomes among those exposed to CSA revealed three factors from adolescence that together either fully or partially mediated these associations. The first adolescent factor significantly associated with all of the adult partnership outcomes was sexual risk taking, in the form of multiple sexual partners and/or early sexual activity. The link between CSA and sexual risk taking is one of the most consistent findings in the literature (Senn et al., 2008). Previous research with the present cohort found that among females, the extent of exposure to CSA was related to earlier onset of consensual sexual intercourse, which in turn was associated with higher rates of unprotected intercourse, higher numbers of sexual partners, and risk of sexually transmitted infection (Fergusson, et al., 1997).

The present findings also suggest that this early or increased adolescent sexual activity appears to lead to an early entry into more serious cohabiting relationships and increased risk of relationship instability and poorer functioning. Yet, only a few studies have identified an association between sexual risk taking in adolescence and partnership outcomes in adulthood. In a study with data from the National Longitudinal Study of Adolescent Health, Amato et al. (2008) used measures of sexual risk taking as part of a latent factor of adolescent attitudes and behavior. Results showed that this latent factor was significantly associated with later family formation patterns, distinguishing between those who did and did not make an early transition to parenthood.

Substance abuse in adolescence was the second significant factor that, together with sexual risk taking, mediated the association between CSA exposure and the timing and frequency of cohabitation or marriage. Tyler (2002) reviewed five studies that found a similar link between CSA and substance abuse in both males and females and in general population samples. We found three adolescent factors—early consensual sexual intercourse, multiple sexual partners, and substance abuse problems—that mediated the association between CSA and rates of partnership and parenthood prior to age 21, and the number of cohabiting relationships by age 30. While this study is the first to document the role of mediating adolescent factors between CSA exposure and the timing and frequency of adult partnership outcomes, previous studies lend support to this life course causal process. Both adolescent sexual activity and substance abuse have been linked with CSA exposure in previous research (Chandy, et al., 1996; Harrison, et al., 1997; Nelson et al., 2006). For example, an earlier study with the present cohort found that among females, the extent of exposure to CSA was related to earlier onset of consensual sexual intercourse, which in turn was associated with higher rates of unprotected intercourse, higher numbers of sexual partners, and risk of sexually transmitted infection (Fergusson, et al., 1997). In recent work on substance abuse, Nelson et al. (2006) studied a large twin cohort and found that among twins where only one sibling had been exposed to CSA, there was a much greater risk of substance abuse problems than their co-siblings who had not been exposed to CSA.

Our findings on interpartner violence (IPV) supports cross-sectional studies that have found links between CSA and violent or conflict ridden intimate relationships (Kallstrom-Fuqua et al., 2002; Campbell, et al., 2008). Self-esteem and number of sexual partners were the significant adolescent intervening factors, and together with number of cohabiting relationships, partially mediated the link between CSA and IPV. For those currently in a cohabiting relationship, the pathway from CSA to The influence of adolescent self-esteem on

IPV extends earlier CHDS findings suggesting that low self-esteem may be a small but significant contributor to later self-reported acts of aggression and hostility in young adulthood (Boden, Fergusson, & Horwood, 2007), and extends the results of a recent cross-sectional study with a large Greek sample that also found low self-esteem to be predictive of IPV (Papadakaki, Tzamalouka, Chatzifotou, & Chliaoutakis, 2009). In this instance, the influence of self-esteem on IPV should be considered along side of adolescent decision making processes regarding sexual activity, mate selection, and patterns of relationship formation. ~~later relationship satisfaction and investment was mediated by increased sexual partnerships and substance abuse problems in adolescence, more frequent cohabiting relationships, and current partner adjustment problems; while the pathway from CSA to perpetration of inter partner violence was mediated by lower self esteem in adolescence and current partner adjustment problems. Other cross sectional studies have found that those exposed to CSA are more likely to be in a violent or conflict ridden intimate relationship (Kallstrom Fuqua et al., 2002; Campbell, et al., 2008), however, in this study this association was only found for perpetrated partner violence and not victimization. This rather domain specific pattern of associations is difficult to interpret and it is not possible to judge why exposure to CSA would be related to measures of relationship quality rather than relationship difficulties, and the perpetration of interpartner violence rather than victimization, but could reflect the limitations of a single assessment of these variables.~~

~~The present findings provide further support for the findings of Testa et al. (2005) who found that characteristics of the partner are an important mediating variable between CSA exposure and relationship satisfaction. Exposure to more severe CSA has been linked with other partner characteristics such as alcohol problems (Fleming et al., 1999; Dube et al., 2005), aggression and sexual risk taking (Testa et al., 2005), and uncaring and controlling~~

~~behavior (Mullen et al., 1994; Fleming et al., 1999). Further research is clearly warranted that specifically examines exposure to CSA and mate selection processes.~~

———The findings and implications of this study should also be considered alongside the following limitations. First, since CSA was assessed retrospectively in early adulthood it could be argued that these measures were subject to memory and reporting errors. However, examination of this issue suggests that it is much more likely that the incidence and severity of CSA were under-reported rather than over-reported in this cohort (Fergusson, et al., 2000). Second, while this study has addressed partnership outcomes that have previously not been examined, the scope of our dependent variables was somewhat limited. It is possible that exposure to CSA could have direct effects on other areas of intimate relationship functioning that were not considered in this work. Finally, these findings apply to a specific cohort, thus, further replication will be important to assess the extent to which these findings generalize to other cohorts and cultures.

Bearing these limitations in mind, our findings do suggest that greater exposure to more severe sexual abuse in childhood places individuals at later risk of poorer partnership outcomes by way of adolescent risk taking. More specifically, these results support a causal chain process, whereby early childhood and family factors place some individuals at risk for childhood sexual abuse. The extent of sexual abuse exposure is in turn related to adolescent sexual activity, substance abuse problems, and low self-esteem, which in turn leads to early and more frequent cohabitation, lower relationship satisfaction and investment, and risk of interpartner violence. Identifying this process of life course events that surround childhood sexual abuse provides important clues for those clinicians designing intervention programs and treatment strategies as to the related issues that individuals and families face when contending with sexual abuse.

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### Declaration of Interest

None.

## References

- Amato PR, Landale NS, Havesevich-Brooks TC, Booth A, Eggebeen DJ, Schoen R, McHale SM** (2008). Precursors of young women's family formation pathways. *Journal of Marriage and Family* **70**, 1271-1286.
- American Psychiatric Association** (1994). *Diagnostic and Statistical Manual of Mental Disorders (4th ed)*. American Psychiatric Association: Washington.
- Anda RF, Felitti VJ, Bremner DJ, Walker JD, Whitfield CL, Perry BD, Dube SR, Giles WH** (2006). The enduring effects of abuse and related adverse experiences in childhood. *European Archives of Psychiatry and Clinical Neuroscience* **256**, 174-186.
- Boden JM, Fergusson DM, Horwood LJ** (2007). Self-esteem and violence: Testing links between adolescent self-esteem and later hostility and violent behavior. *Social Psychiatry and Psychiatric Epidemiology* **42**, 881-891.
- Boden JM, Horwood LJ, Fergusson DM** (2007). Exposure to childhood sexual and physical abuse and subsequent educational achievement outcomes. *Child Abuse & Neglect* **31**, 1101-1114.
- Bolger KE, Patterson CJ** (2001). Developmental pathways from child maltreatment to peer rejection. *Child Development* **72**, 549-568.
- Braiker H, Kelley H** (1979). Conflict in the development of close relationships. In *Social Exchange and Developing Relationships* (eds. R. Burgess and T. Huston), pp. 127-154. Academic Press: New York.
- Brown GW, Craig TKJ, Harris TO, Handley RV** (2008). Parental maltreatment and adulthood cohabiting partnerships: A life-course study of adult chronic depression - 4. *Journal of Affective Disorders* **110**, 115-125.
- Campbell R, Greeson MR, Brybee D, Raja S** (2008). The co-occurrence of childhood sexual abuse, adult sexual assault, intimate partner violence, and sexual harassment: A

mediational model of posttraumatic stress disorder and physical health outcomes. *Journal of Consulting and Clinical Psychology* **76**, 194-207.

**Chandy JM, Blum RW, Resnick MD** (1996). Gender-specific outcomes for sexually abused adolescents. *Child Abuse & Neglect* **20**, 1219-1231.

**Colman RA, Spatz Widom C** (2004). Childhood abuse and neglect and adult intimate relationships: A prospective study. *Child Abuse and Neglect* **28**, 1133-1151.

**Conners CK** (1969). A teacher rating scale for use in drug studies with children. *American Journal of Psychiatry* **126**, 884-888.

**Conners CK** (1970). Symptom patterns in hyperkinetic, neurotic and normal children. *Child Development* **41**, 667-682.

**Coopersmith S** (1981). *SEI - Self esteem inventories*. Consulting Psychologists Press: Palo Alto, CA.

**Costello A, Edelbrock C, Kalas R, Kessler M, Klaric SA** (1982). Diagnostic Interview Schedule for Children (DISC). Bethesda, MD: National Institute of Mental Health

**DiLillo D, Tremblay G, Peterson L** (2000). Linking of childhood sexual abuse and abusive parenting: The mediating role of maternal anger. *Child Abuse & Neglect* **24**, 767-779.

**Dube SR, Anda RF, Whitfield CL, Brown DW, Felitti VJ, Dong M, Giles WH** (2005). Long-term consequences of childhood sexual abuse by gender of victim. *American Journal of Preventive Medicine* **25**, 430-438.

**Duncan AE, Sartor CE, Scherrer JF, Grant JD, Heath AC, Nelson EC, Jacob T, Bucholz Keenan K** (2008). The association between cannabis abuse and dependence and childhood physical and sexual abuse: Evidence from an offspring of twins design. *Addiction* **103**, 990-997.

**Fergusson DM, Boden JM, Horwood LJ** (2008). Exposure to childhood sexual and physical abuse and adjustment in early adulthood. *Child Abuse and Neglect* **32**, 607-619.

- Fergusson DM, Horwood LJ** (1993). The structure, stability and correlations of the trait components of conduct disorder, attention deficit and anxiety/withdrawal reports. *Journal of Child Psychology and Psychiatry* **34**, 749-766.
- Fergusson DM, Horwood LJ** (1999). Prospective childhood predictors of deviant peer affiliations in adolescence. *Journal of Child Psychology and Psychiatry and Allied Disciplines* **40**, 581-592.
- Fergusson DM, Horwood LJ** (2001). The Christchurch Health and Development Study: Review of findings on child and adolescent mental health. *Australian and New Zealand Journal of Psychiatry* **35**, 287-296.
- Fergusson DM, Horwood, J, Lynskey, MT** (1994). The structure of DSM-III-R criteria for disruptive childhood behaviors. *Journal of the American Academy of Child and Adolescent Psychiatry* **33**, 1127-1134.
- Fergusson DM, Horwood, J, Lynskey, M T** (1996). Childhood Sexual Abuse and Psychiatric Disorder in Young Adulthood: II. Psychiatric Outcomes of Childhood Sexual Abuse. *Journal of the American Academy of Child and Adolescent Psychiatry* **34**, 1365-1374.
- Fergusson DM, Horwood LJ, Woodward LJ** (2000). The stability of child abuse reports: a longitudinal study of the reporting behaviour of young adults. *Psychological Medicine* **30**, 529-544.
- Fergusson DM, Lynskey MT** (1997). Physical punishment/maltreatment during childhood and adjustment in young adulthood. *Child Abuse & Neglect* **21**, 617-630.
- Fergusson DM, Lynskey MT, Horwood LJ** (1996). Childhood sexual abuse and psychiatric disorder in young adulthood: I. Prevalence of sexual abuse and factors associated with sexual abuse. *Journal of the American Academy of Child and Adolescent Psychiatry* **34**, 1355-1364.

- Fergusson DM, Mullen PE** (1999). *Childhood Sexual Abuse: An Evidenced Based Perspective*. Sage: Thousand Oaks.
- Finkelhor D, Hotaling GT, Lewis IA, Smith C** (1989). Sexual abuse and its relationship to later sexual satisfaction, marital status, religion, and attitudes. *Journal of Interpersonal Violence* **4**, 379-399.
- Fleming J, Mullen PE, Sibthorpe B, Bammer G** (1999). The long-term impact of childhood sexual abuse in Australian women. *Child Abuse and Neglect* **23**, 145-159.
- Harrison PA, Fulkerson JA, Beebe TJ** (1997). Multiple substance use among adolescent physical and sexual abuse victims. *Child Abuse & Neglect* **21**, 529-539.
- Harter S, Alexander PC, Neimeyer RA** (1988). Long-term effects of incestuous child abuse in college women: Social adjustment, social cognition, and family characteristics. *Journal of Consulting and Clinical Psychology* **56**, 5-8.
- Jaffee SR, Caspi A, Moffitt TE, Taylor A** (2004). Physical maltreatment victim to antisocial child: Evidence of an environmentally mediated process. *Journal of Abnormal Psychology* **113**, 44-55.
- Kallstrom-Fuqua AC, Weston R, Marshall LL** (2004). Childhood and adolescent sexual abuse of community women: Mediated effects on psychological distress and social relationships. *Journal of Consulting and Clinical Psychology* **72**, 980-992.
- Lee J** (1981). Covariance adjustment of rates based on the multiple logistic regression model. *Journal of Chronic Diseases* **34**, 415-426.
- Moffitt TE, Silva PA** (1988). Self-reported delinquency: Results from an instrument for New Zealand. *Australian and New Zealand Journal of Criminology* **21**, 227-240.
- Mullen PE, Martin JL, Anderson JC, Romans SE, Herbison GP** (1994). The effect of child sexual abuse on social, interpersonal and sexual function in adult life. *British Journal of Psychiatry* **165**, 35-47.

- Muthén LK, Muthén BO (2007).** *Mplus: Statistical Analysis with Latent Variables*. Los Angeles, CA: Muthén & Muthén
- Nelson EC, Heath AC, Lynskey MT, Bucholz KK, Madden PAF, Statham DJ, Martin NG (2006).** Childhood sexual abuse and risks for licit and illicit drug-related outcomes: A twin study. *Psychological Medicine* **36**, 1473-1483.
- Papadakaki M, Tzamalouka GS, Chatzifotiou S, Chliaoutakis J (2009).** Seeking for Risk Factors of Intimate Partner Violence (IPV) in a Greek National Sample The Role of Self-Esteem. *Journal of Interpersonal Violence* **24**, 732-750.
- Putnam FW (2003).** Ten-year research update review: Child sexual abuse. *Journal of the American Academy of Child and Adolescent Psychiatry* **42**, 269-278.
- Quay HC, Peterson DR (1987).** *Manual for the Revised Behavior Problem Checklist*. Miami: Authors
- Rumstein-McKean O, Hunsley J (2001).** Interpersonal and family functioning of female survivors of childhood sexual abuse. *Clinical Psychology Review* **21**, 471-490.
- Rutter M, Tizard J, Whitmore K (1970).** *Education, Health and Behaviour*. Longmans: London.
- Senn TE, Carey MP, Venable PA (2008).** Childhood and adolescent sexual abuse and subsequent sexual risk behavior: Evidence from controlled studies, methodological critique, and suggestions for research. *Clinical Psychology Review* **28**(5), 711-735.
- Straus MA, Hamby SL, Boney-McCoy S, Sugarman DB (1996).** The Revised Conflict Tactics Scale (CTS2). *Journal of Family Issues* **17**, 283-316.
- Testa M, VanZile-Tamsen C, Livingston JA (2005).** Childhood sexual abuse, relationship satisfaction, and sexual risk taking in a community sample of women. *Journal of Consulting and Clinical Psychology* **73**, 1116-1124.

- Trickett PK, McBridechang C, Putnam FW** (1994). The Classroom Performance and Behavior of Sexually Abused Females. *Development and Psychopathology* **6**, 183-194.
- Tsai M, Feldman-Summers S, Edgar M** (1979). Childhood molestation: Variables related to differential impacts on women psychosexual functioning in adult women. *Journal of Abnormal Psychology* **88**, 407-417.
- van Roode T, Dickson N, Herbison P, Paul C** (2009). Child sexual abuse and persistence of risky sexual behaviors and negative sexual outcomes over adulthood: Findings from a birth cohort. *Child Abuse & Neglect* **33**, 161-172.
- Waldron M, Heath AC, Turkheimer EN, Emery RE, Nelson E, Bucholz KK, Madden PAF, Martin NG** (2008). Childhood sexual abuse moderates genetic influences on age at first consensual sexual intercourse in women. *Behavior Genetics* **38**, 1-10.
- Walrath C, Ybarra M, Holden EW, Liao QH, Santiago R, Leaf P** (2003). Children with reported histories of sexual abuse: utilizing multiple perspectives to understand clinical and psychosocial profiles. *Child Abuse & Neglect* **27**, 509-524.
- Wechsler D** (1974). *Manual for the Wechsler Intelligence Scale for Children - Revised*. Psychological Corporation: New York.
- World Health Organization** (1993). *Composite International Diagnostic Interview (CIDI)*. World Health Organization: Geneva.

TABLE 1: Associations Between Childhood Sexual Abuse and Partnership Experiences by Age 30

Measure	No CSA	Non-contact CSA	Contact CSA	Severe CSA <sup>a</sup>	$X^2/F$	$p$
<u>Relationship History</u>	( <i>n</i> =840)	( <i>n</i> =28)	( <i>n</i> =52)	( <i>n</i> =64)		
% Cohabitation/marriage < 21 years	37.4	42.9	48.1	67.2	22.15	< .001
Mean (SD) number of cohabiting relationships	1.44 (1.01)	1.79 (1.52)	1.54 (0.96)	2.00 (1.27)	15.55	< .001
% Became parent < 21 years	8.7	3.7	23.5	28.6	31.18	< .001
<u>Relationship Characteristics</u>						
<u>% Partner adjustment/conduct problems</u>	<u>11.1</u>	<u>5.0</u>	<u>18.9</u>	<u>25.0</u>	<u>7.22</u>	<u>.007</u>
<u>Mean (SD) interpartner violence last 12 months</u>	<u>1.13 (5.52)</u>	<u>0.55 (2.69)</u>	<u>2.57 (8.43)</u>	<u>4.10 (12.09)</u>	<u>12.42</u>	<u>&lt; .001</u>
Mean (SD) relationship satisfaction and investment <sup>b</sup>	39.01 (2.94)	39.00 (2.49)	38.13 (4.18)	37.45 (4.66)	10.74	.001
Mean (SD) relationship ambiguity and conflict <sup>c</sup>	12.03 (2.57)	11.75 (2.22)	12.27 (3.04)	12.75 (3.15)	2.44	.12

<sup>a</sup> Severe CSA = attempted or completed vaginal, oral, or anal intercourse

<sup>b</sup> Analysis restricted to the sample in any form of romantic partnership over the previous 12 months

<sup>c</sup> Analysis restricted to the sample currently in cohabiting relationships at 30 year interview

Table 2: Associations between Childhood Sexual Abuse and Socioeconomic, Family, and Individual Factors

Measure	No CSA	Noncontact CSA	Contact CSA	Severe CSA <sup>a</sup>	$X^2/F$	<i>p</i>
<u>Family background</u>						
Mean (SD) family living standards (1-10 years)	3.17 (0.45)	3.10 (0.39)	3.10 (0.51)	2.91 (0.48)	18.78	< .001
Mean (SD) maternal age at first birth	24.02 (4.25)	24.07 (4.24)	22.45 (3.64)	21.76 (2.97)	21.79	< .001
<u>Family functioning</u>						
Mean (SD) number parental adjustment problems	0.74 (0.94)	0.81 (0.87)	0.98 (1.07)	1.24 (1.12)	17.26	< .001
Mean (SD) number of parental changes (0-10 years)	0.67 (1.54)	0.43 (1.40)	0.88 (1.68)	1.95 (3.93)	23.94	< .001
% Exposed to regular or severe physical punishment	9.5	21.4	21.2	26.6	24.03	< .001
<u>Individual factors</u>						
% Female	46.4	89.3	76.9	81.2	50.17	< .001
Mean (SD) WISC IQ (8-9 years)	103.97 (14.53)	107.07 (12.89)	103.47 (13.82)	97.55 (14.31)	7.99	.005
<del>Mean (SD) conduct problems (8-9 years)</del>	<del>-49.62 (7.27)</del>	<del>-47.63 (6.20)</del>	<del>-49.31 (7.67)</del>	<del>54.35 (10.21)</del>	<del>13.60</del>	<del>&lt;.001</del>

<sup>a</sup> Severe CSA = attempted or completed vaginal, oral, or anal intercourse

TABLE 3: Associations Between Childhood Sexual Abuse and Intervening Adolescent/Young Adulthood Covariates

Measure	No CSA	Non-contact CSA	Contact CSA	Severe CSA <sup>a</sup>	$X^2/F$	$p$
<u>Adolescent Psychosocial Factors</u>						
Mean (SD) self-esteem (15 years)	41.71 (5.51)	39.86 (4.62)	37.93 (8.09)	36.98 (6.75)	58.93	< .001
% Early consensual sex (< 16 years)	21.7	25.0	30.0	53.2	28.43	< .001
Mean (SD) number of sexual partners (16-18 years)	2.08 (3.39)	1.86 (2.26)	3.04 (3.75)	6.69 (17.45)	34.20	< .001
Mean (SD) substance abuse problems (16-18 years)	0.41 (0.83)	0.54 (1.07)	0.66 (0.72)	1.16 (1.44)	40.98	< .001

<sup>a</sup> Severe CSA = attempted or completed vaginal, oral, or anal intercourse

TABLE 4. Associations between Childhood Sexual Abuse and Partnership Experiences by Age 30 Adjusted for Early Covariate and Intervening Factors

Measure	Unadjusted B (SE), p	Adjusted for Early Childhood Covariates		Adjusted for Intervening Factors	
		Adjusted B (SE), p	Significant Covariates	Adjusted B (SE), p	Significant Intervening Factors
<u>Relationship History</u>					
Cohabitation/marriage < 21 years	.36 (.08), $p < .001$	.19 (.09), $p = .03$	1, 3, 5, 6	.06 (.09), $p = .51$	2, 4
Number of cohabiting relationships	.16 (.04), $p < .001$	.10 (.04), $p = .02$	2, 3, 4, 5	.04 (.04), $p = .32$	<a href="#">2, 3, 4</a>
Became parent < 21 years	.49 (.09), $p < .001$	.17 (.11), $p = .12$	1, 2, 5, 6, 7		
<u>Relationship Characteristics</u>					
<a href="#">Partner adjustment/conduct problems</a>	<a href="#">.32 (.12), <math>p = .007</math></a>	<a href="#">.10 (.13), <math>p = .42</math></a>	<a href="#">1, 3, 5, 6</a>		
<a href="#">Interpartner violence last 12 months<sup>a</sup></a>	<a href="#">.42 (.06), <math>p &lt; .001</math></a>	<a href="#">.38 (.07), <math>p &lt; .001</math></a>	<a href="#">5, 6</a>	<a href="#">.20 (.08), <math>p = .01</math></a>	<a href="#">1, 3, 5</a>
Relationship satisfaction and investment <sup>b</sup>	-.42 (.15), $p = .006$	-.36 (.15), $p = .02$	5	-.27 (.15), $p = .08$	<a href="#">3, 5</a>

<sup>a</sup> Analysis restricted to the sample in any form of romantic partnership over the previous 12 months

<sup>b</sup> Analysis restricted to the sample currently in cohabiting relationships at 30 year interview

*Covariates:* 1 – Childhood living standards; 2 – Maternal age at first birth; 3 – Parental adjustment problems; 4 – Number of parental changes (0-

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10 years); 5 – Parental use of physical punishment (0-16yrs); 6 – Gender; 7 – WISC IQ (8-9 years)

*Intervening Factors:* 1 – Self-esteem (15 years); 2 – [Early consensual sexual intercourse](#); 3 – [Number of sexual partners \(16-18 years\)](#);

4 – [Substance abuse problems \(16-18 years\)](#); 5 – Number of cohabiting relationships;