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ABSTRACT

Childhood Sexual Abuse and Later-Life Economic Consequences*

The impact of childhood sexual abuse (CSA) on later-life health outcomes has been studied extensively and links with depression, anxiety and self-harm have been established. However, there has been relatively little research undertaken on the possible impact of CSA on later-life economic outcomes. Here, we explore whether older men who report having experienced CSA have weaker labour force attachment and lower incomes compared to other men. We use data from the first wave of the new Irish Longitudinal Study on Ageing (TILDA) which is a nationally-representative survey of people aged 50 and over. We find that male victims of CSA are almost four times more likely to be out of the labour force due to sickness and disability. They also spent a higher proportion of their potential working lives out of the labour force for these reasons and have lower incomes. These effects remain even when we control for mental health difficulties and negative health behaviors. Among the policy implications are the need to be more aware of the complex effects of CSA when designing labour market activation strategies such as training for the unemployed. The results are also relevant in the legal context where compensation awards are determined.

JEL Classification: I18, J12

Keywords: childhood sexual abuse, later-life economic outcomes

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Section 1: Introduction

Recent work by Smith and Smith (Smith & Smith, 2010) and by Goodman et al (Goodman, Joyce, & Smith, 2011) has shown that mental and psychological problems experienced during childhood can have negative long-term economic consequences for the individuals in question. In the case of Goodman et al (2011), mental health problems in childhood are shown to have a much greater impact on long-run economic outcomes when compared to physical health problems. According to this research, psychological problems which occur in childhood are associated with reduced family incomes at age fifty and with reduced labour force participation throughout adulthood.

Given this evidence on the economic impact of childhood mental health, the question arises of whether victims of childhood sexual abuse (CSA) suffer long-term economic consequences arising from their trauma in childhood. It is well established that childhood sexual abuse has long-term adverse effects that carry over into adulthood and later adult life (Johnson, 2004). However, much of the research on this issue has focused on long-term consequences such as adult mental health, physical health and health care utilization. In this research, CSA has been shown to be associated with psychological disorders such as depression (Molnar, Buka, & Kessler, 2001), post-traumatic stress disorder and anxiety disorder (Chen et al., 2010) and borderline personality disorder (Chartier, Walker, & Naimark, 2007). These negative mental health outcomes have been shown across all age groups. Childhood sexual abuse has also been linked to substance abuse and suicide attempts.

In contrast to the work on health outcomes, there has been relatively little empirical research examining the impact that childhood sexual abuse might have on economic outcomes in adulthood. Hyman (Hyman, 2000) examined a sample of lesbian women in the U.S. and

found sexual abuse to be linked to lower earnings. Robst and Smith (Robst & Smith, 2008) examined the effect of CSA on women's income and found that incomes were lower only for those women who reported that the abuse had affected their lives. Curie and Widom (Curie & Widom, 2011) matched data arising from court cases of childhood physical and sexual abuse with data from other survey sources on non-abused children. Comparing labour market outcomes at age 41, they found that those who had been maltreated as children were less likely to be employed and, if employed, were less likely to be in skilled or professional occupations. In addition, those who had been maltreated had lower earnings and fewer assets (for example, they were less likely to own stock, a car, or a home).

As CSA is linked with mental and physical health problems later in life, it seems likely that having been a victim of CSA would also have economic implications in later adult life, for example, through withdrawal from the labour market and lower income. Previous findings indicate that adults with a history of CSA are likely to develop depression, anxiety, personality disorder, substance abuse, perceptions of poor health in adulthood, cancer, ischemic heart disease, chronic lung disease, skeletal fractures and liver disease. In turn, labour economics research finds that adults who suffer from depression earn as much as $10 less per hour than non-depressed workers (Savoca & Rosenheck, 2000). Depression has also been found to negatively affect sufferers' employment status (Dooley, Prause, & Ham-Rowbottom, 2000).

However, it is also possible the CSA might have a direct impact on economic outcomes, independent of its impact via health outcomes. Clearly, the long-run effects of traumatic childhood experiences are complex, impacting through the range of outcomes listed above but also potentially through traits such as self-esteem, confidence and the ability to trust.

In this paper, we examine the impact of having suffered sexual abuse as a child on later life economic outcomes using a rich new data source from Ireland. As discussed in a number of official reports in Ireland in recent years, CSA was (and may still be) a disturbing feature of Irish society. These reports sought to investigate CSA in the context of the Catholic Church in Ireland and revealed widespread sexual and physical abuse in "industrial schools"[1] controlled by Catholic religious orders from 1936 onwards (the Ryan Report, 2009) and also sexual abuse in the community setting by members of Catholic clergy from the 1940s to 2004 (the Murphy Report, 2009). While both of these reports focused on the Catholic Church, McGee et al (McGee, Garavan, Byrne, O'Higgin, & Conroy, 2010) showed that in most cases the problem of CSA goes beyond the Catholic Church in that most abusers were either family members or at least known to the survivor. Of course, CSA is not just a feature of Irish life but is a disturbing and serious issue being confronted in many countries. The prevalence, depending on the definition and population used, has been estimated at between 2 percent and 62 percent for women and between 3 percent and 16 percent for men (Johnson, 2004).

There are a number of important dimensions to the analysis undertaken in this paper. First, within the economics literature the impact of negative circumstances in childhood on later life outcomes is becoming increasingly clear. However, the specific issue of CSA has been relatively under-explored and so this is an important addition. Second, as the existence and prevalence of CSA becomes more fully appreciated, there is an increasing need to understand how the victims have been affected, particularly in the long-term. Through this increased understanding, better interventions can be designed to help victims. The analysis below may

[1] Industrial schools were residentially-based schools for neglected, orphaned and abandoned children.

also act as an input into compensation calculations, as we attempt to quantify some dimensions of the economic impact of CSA for individuals.

The paper is structured as follows. In the remainder of this Introduction, we expand briefly upon our discussion of the existing literature. In Section 2, we discuss the data upon which our analysis is based and also the methods which we use to explore whether or not there is a link between CSA and later-life economic outcomes. In Section 3, we present the results. In Section 4, we conclude with some observations on the importance of our results.

Section 2: Data and Methods

The data used in the analysis below come from the first wave of the Irish Longitudinal Study on Ageing (TILDA). TILDA is a nationally representative dataset containing information on over 8,000 individuals aged 50 and older and living in Ireland. The survey has been designed to mirror other longitudinal studies on ageing such as the Health and Retirement Survey (HRS) in the US, the English Longitudinal Study on Ageing (ELSA) and the pan-European Survey of Health, Ageing and Retirement (SHARE). The fieldwork for Wave 1 was completed between late 2009 and mid 2011.

The data used here were collected using two modes. First, respondents provided answers to standard socio-economic questions on issues such as age, gender, educational attainment, labour force status, income and wealth through a computer-assisted personal interview (CAPI). The second mode of data collection was a self-completed questionnaire (SCQ). This was used to obtain responses to questions of a sensitive nature, including questions on sexual abuse during childhood. The response rate for the completion of the CAPI component was 62%. Of those, 82% returned SCQs, thereby providing combined CAPI and SCQ responses

for over 7,000 individuals. Weights have been constructed to adjust for sampling techniques (stratification and clustering) and for non-response and these are used in the analysis.

Only men aged 50-64 years are included in the analysis below. One of the dependent variables of interest is labour force participation and for many older women in Ireland, extended time out of the labour force (including permanent withdrawal upon marriage or motherhood) was the norm. This makes it difficult to establish meaningful empirical links between variables and labour force participation for older women. Hence, we focus our analysis on men.

The approach we take to examining whether CSA has a long-run impact on the economic outcomes of individuals involves the estimation of ordinary least squares regressions in the case of continuous outcomes variables and multinomial logistic regressions for categorical outcomes. The continuous outcomes we consider are as follows: household income, individual labour income and years worked as a proportion of potential years worked[2]. The main categorical outcome is employment status but we also estimate a model of marital status.

We include in all models an explanatory variable which indicates whether or not an individual was a victim of CSA and this dummy variable is constructed in the following way. In the self-completion questionnaire, respondents are asked the following two questions: (1) "Before you were 18 years old, were you ever sexually abused by either of your parents?"; (2) "Before you were 18 years old, were you ever sexually abused by anyone other than your

[2] This variable is calculated as the number of years worked divided by current age minus age when the individual left full-time education. Although this variable is bounded by zero and 1, we have taken the simple estimation approach of using a linear model.

parents?" For each event, respondents are asked to indicate whether the event occurred ("yes" or "no"), and the year in which the event occurred. If an individual responded "yes" to either of these questions, they are given a value of 1 for the CSA dummy variable and zero if they replied "no" or left the items unanswered[3].

Given the nature of CSA, there is a risk of significant under-reporting as a result of factors such as a desire to forget unpleasant events or a sense of shame. It is difficult to provide any measure of the extent of the under-reporting, in an absolute sense, but we can at least assess whether the responses within TILDA align with another sources within Ireland. McGee et al (2002) was a study which sought to investigate the prevalence of sexual abuse across all age groups and occurring at all stages of life. The formulation of questions in this report is different to that in TILDA and so comparisons are not easy. In particular, while TILDA only asked "if you were ever sexually abused", the McGee et al asked about a range of forms of sexual abuse such as having been shown pornography, having been subjected to indecent exposure and having been raped. According to the TILDA data, the overall reported prevalence of CSA was 5.9 % for men. For men aged 50-64 years the reported prevalence was 6.7%, for those aged 65-74 years it was 6.3% and for those over 75 it was 2.3%. From McGee et al, if we only consider people who reported having experienced an attempted rape or actual penetration, the reported prevalence was 4.3 % for men aged 50-64, 3.7% for men aged 65-74 and 3.8 % for men in the oldest age category. Based on these figures, it seems that the TILDA figures are certainly not out of line with those from McGee et al. It is also the case that patterns of reporting are similar, such as the likelihood of reporting increasing with educational attainment.

[3] The actual incidence of non-response on these questions was very low, at 2 percent.

In addition to the CSA dummy variable, the models estimated include several additional controls such as age, marital status, childhood health and father's education. Childhood health is measured using the following question: "Consider your health while you were growing up, from birth to age 14. Would you say that your health during that time was excellent, very good, good, fair, or poor?" The first three categories and last two are combined to create a dummy variable. Father's education is intended to act as a proxy for childhood socioeconomic status. Control variables for childhood adversity other than sexual abuse were included. Specifically, dummy variables for parental substance abuse, childhood physical abuse by parents and/or by others are included. Childhood physical abuse is asked in two questions: "Before you were 18 years old, were you ever physically abused by either of your parents?"; "Before you were 18 years old, were you ever physically abused by anyone other than your parents?". Parental substance abuse is asked as follows: "Before you were 18 years old, did either of your parents drink or use drugs so often that it caused problems in the family?".

Many studies in labour economics look to control for the effects of unobserved heterogeneity. In the case of CSA, we cannot see that there might be an unobserved individual characteristic which makes it more likely to have been a victim of CSA and to have poorer labour market outcomes after the age of 50. Similarly, the available evidence would suggest that CSA is distributed across all socioeconomic groups (Fergusson, Lynskey, & Horwood, 1996; Putnam, 2003; Stein & Barrett-Connor, 2000) and so we are unlikely to be omitting socioeconomic or neighbourhood variables which are correlated with both later-life economic outcomes and the probability of being a victim of CSA. Hence, the estimation strategy used here is relatively simple.

Section 3: Results

We begin our presentation of results by recapping on the reported prevalence of CSA in our data and also by showing the breakdown across abuse by parents and others (see Table 1). While the analysis below focuses on men aged 50-64, we include older age groups in Table 1 for the purposes of comparison. As noted above, the reported prevalence declines markedly for the oldest age group but it is difficult to interpret why this might be. It could be the result of actual lower prevalence but equally it could be the result of non-reporting. More worryingly, if childhood CSA led to earlier mortality, this would be consistent with the pattern shown in Table 1. It is striking from the table that abuse by people other than parents was much more common than abuse by parents. However, such perpetrators could include other family members such as siblings or aunts/uncles. The mean reported age of last incidence of CSA was 10.6 years old.

In Table 2 we present the descriptive statistics for all variables used in the analysis, both dependent and control, by CSA victims and others. In Table 2 and the remaining tables, we are only looking at men aged 50-64. Looking first at the control variables, statistically significant differences are found for marital status, alcohol problems and physical abuse. While just under 70 percent of CSA victims are married, the corresponding proportion for non-CSA victims is just over 80 percent. A similar pattern of difference across the groups is shown for alcohol problems. However, the most notable differences between CSA victims and non-victims are seen in the case of the variables capturing physical abuse. The proportions having suffered physical abuse are dramatically higher for CSA victims, thereby suggesting environments that were generally abusive for the individuals involved.

Turning to the dependent variables in Table 2, we see three statistically significant differences. CSA victims are more likely to be currently retired and sick/disabled and to have spent a greater proportion of their working lives sick/disabled[4]. The difference in the proportions sick/disabled is particularly striking, at 19.1 percent for CSA victims compared to 7.8 percent for non-CSA victims. We do not see differences across the two groups when looking at the income measures.

In Table 3, we move on to the presentation of regression results. The first outcome variable that we consider is current labour force status. Based on responses to the relevant question in the questionnaire, we can categorise individuals as being in one of the following five labour market states: employed, unemployed, retired, sick/disabled and "other", where "other" includes states such as being in education, training or home duties. As the dependent variable is a five-way categorical variable, we use a multinomial logit regression. The base outcome is employed and the results presented are odd-ratios.

The most striking result in Table 3 is the estimated impact of CSA on being sick/disabled as opposed to being employed. The estimated odd-ratios indicate that adults who had experienced CSA were 3.8 times more likely to be permanently sick or disabled as opposed to employed when compared to adults who did not experience CSA. The result is significant at the 1 percent level and so is both quantitatively large and precisely estimated. According to the estimates, having been a victim of CSA does not impact on the relative likelihoods of being employed and unemployed, retired or "other". However, it should be noted that the precise distinctions being these various states and sick/disabled may be less clearcut than the categorization might suggest, with some element of unemployment being captured too.

[4] The precise construction of this variable is discussed below.

A number of the other estimated odd-ratios are in line with expectations. For example, older men (within this 50-64 age band) are more likely to be retired or sick/disabled. Having a college degree makes it more likely that men are retired and less likely that they are unemployed or sick/disabled. Being married leads these men to be less likely to be unemployed, sick/disabled and in the "other category". A higher level of education for the fathers of these men makes them less likely to be unemployed. In contrast to the result on CSA, we do not find any statistically significant impact of having been physically abused.

The dependent variable in Table 3 is an indicator of current circumstances. In Table 4 we report on a regression in which the dependent variable has been constructed to capture possible impacts of CSA over the working life. For each individual in the sample, we construct a variable which is the number of years spent out of work due to sickness/disability/retirement[5] divided by the total potential working years. In this way, we are calculating the proportion of the potential working life spent out of work due to sickness/disability. A simple linear regression has been used. As can be seen, we find that having been a victim of CSA increases the proportion of time that is spent out of work due to sickness/disability. The magnitude of the marginal effect, at 2.4 percentage points, is large relative to the average proportion of time spent in sickness/disability/retirement by non-CSA victims which is just under 3 percent (see Table 2). However, it appears not to be as big as the effect shown in Table 3 where current labour force status is examined. This may indicate that the effect of CSA on labour force status arises through earlier withdrawal relative to men which were not victims as opposed to a uniform disadvantage over the lifespan.

[5] Retirement is added to sickness/disability at this point because the question on job history in the survey asked about the three statuses together in one question.

In Table 5, we move on to look at additional economic outcomes, but with the focus now on incomes and earnings as opposed to labour force status. Within the TILDA questionnaire, respondents are asked about household income and an aggregate figure capturing the totality of household income, from all sources, is sought. In the first row of Table 5, we show the estimated coefficient for the CSA dummy variable from a linear regression with the log household income as the dependent variable. As can be seen, having been the victim of CSA has a significant negative impact on total net family income, with CSA victims living in households with incomes that are 40% lower than comparable households[6].

As is typical in studies of household income, we also look at equivalised incomes to assess whether the pattern observed in Row 1 of Table 5 is the result of household structure. The approach to equivalising is that used by the Irish Central Statistics Office whereby the first adult is given a weight of 1, all other adults are given a weight of .66 and all children are given a weight of .33. The results from this regression are shown in the second row of Table 5. The estimated coefficient on equivalised income is still negative, although it is now only significant at the 10 percent level. The reduction in the size of the coefficient (in absolute terms) as we move from total household income to equivalised can be explained by the greater tendency for victims of CSA to live alone and not to have married. The odds of being separated or divorced relative to being married were 2.2 ($p<0.01$) times greater for those who reported CSA (see Table 6) and the odds of living alone (vs. living with spouse and children) were 1.8 times ($p<0.05$) greater for this group (see Table 7).

[6] Goodman et al (2011) find that family incomes are reduced by 28 percent by age 50 for people who had psychological problems in childhood.

In the last row of Table 5, we examine the effect of CSA on the log of wage income. For this regression, we restrict the sample to those who are employed. Although the estimated coefficient is large (-16.4 percent), it is not statistically significant and so it is difficult to draw definitive conclusions. However, the point estimate is certainly large relative to other estimated coefficients in typical wage equations.

We noted in the Introduction that CSA was likely to be related to labour market outcomes through its impact on mental health. As the data contain measures of mental health variables such as depression (through CESD) and anxiety (through HADS), it is possible for us to re-run our labour force status model and to see if an independent effect of CSA remains, controlling for depression and anxiety. We will only present the results of the multinomial logit model for sick/disabled (vs. employed) because the results for the other employment statuses were not significant.

In Table 8, the first column of results repeats the third column of results from Table 3 so that the odd-ratios of CSA can be compared as extra control variables are added. In the second column of results, the depression and anxiety variables have been added. The addition of these two variables does reduce the estimated odds-ratio of CSA but an independent effect of CSA remains. When we control for smoking and drinking problems, the estimated CSA effect is reduced again but a large positive and statistically significant effect is still observed. Hence, the effect which CSA would appear to have on early withdrawal from the labour force is not solely related to resulting mental health problems or negative behavioral traits.

Section 4: Discussion

In this paper, we have examined the association between CSA and later life economic outcomes, namely, current employment status, the proportion of the working life spent out of work due to sickness/disability/retirement, family income, equivalised income and individual labour income. Although the impact of childhood sexual abuse on mental health has been intensively explored, few studies have addressed the relationships between CSA and economic outcomes.

We found a large and statistically significant link between CSA and being out of employment due to being sick and/or permanently disabled. The effect did not appear to be as strong when viewed over the working life, although a negative effect was still observed. We interpreted these results as suggesting that the biggest impact of CSA on labour force status was through an early withdrawal from the labour force rather than a uniform negative effect over the lifespan. Given that many men aged 50 to 64 who report themselves as being sick or permanently disabled never return to the labour market, this early withdrawal interpretation seems reasonable. We also find that CSA is associated with lower household incomes and the estimated effect is large, at over 40 percent. While this effect is reduced when equivalised household income is used as the dependent variable, the smaller impact is related to a lower propensity on the part of CSA victims to be married and/or living with others (including children or a spouse).

In addition to these findings, we also showed how the negative impact of CSA on labour force participation remains even when we control for depression and anxiety. This is potentially an important finding when interventions are being designed. If it was thought that any labour market disadvantage suffered by victims of CSA was as a result of depression, it

might be assumed that the treating of depression might “solve” any labour market problems. The results here suggest that this would not be the case. It seems that CSA affects people in ways beyond depression and anxiety and that these other effects must be understood and treated.

A further policy implication arises in the context of compensation for victims of CSA. As our results show a clear and quantifiable earnings disadvantage for victims, the results could be used as an input into compensation calculations. To the extent that compensation claims are pursued through the courts, this quantification of earnings loss would be used within the legal sphere and would typically apply to individual cases. However, if a state decides to provide compensation to victims through public funds, then the use of the income-related results above could move from the purely legal sphere to the legal/public finance sphere.

While our results are potentially important, we need to be clear that, as in many studies on CSA, there is potential source of bias through the accuracy of retrospective recall (Molnar et al, 2001). As shown in the literature, the source of bias is more likely to be under-reporting than over-reporting these experiences (Chen, et al., 2010; McGee, et al., 2010). It is difficult to provide a hypothesis on whether the possible under-reporting would create an upward or downward bias in our results. It could be that people who are now doing well in life are better able to cope with past-traumas and so are more willing to report having been abused. If this is the case, then our results understate the true level of disadvantage of CSA victims. However, if these same people want to forget past problems in the context of later life success, then our results would over-state the disadvantage. Issues such as this remain to be teased out in future research.

Tables

Table 1: Prevalence of CSA for men by age

	N	Total (%)	50-64	65-75	75+
CSA	458	5.9	6.7	6.3	2.3
CSA by parents	19	0.6	0.6	0.6	0.6
CSA by other than parents	412	5.8	6.6	6.3	2.3

Mean age of last incident (CSA)= 10.8 years-old

Sample: To date 3167 SCQ has been coded (response rate 83%)

Table 2: Descriptive statistics

	CSA	non-CSA
Age	57.2 (0 .36)	56.9 (0.11)
Married	0.69 (0.05)	0.81 (0.01)*
Education		
primary	28.0	26.5
secondary	35.1	52.1
tertiary	36.9	21.5
Living alone	0.25 (0.044)	0.16 (0.009)**
Smoking (=never)	22.0	39.6**
Alcohol problem	69.3	80.4**
Father's education (=primary)	72.5	78.5
Parents experienced a drink/drug problem	78.0	90.0
Physically abused by parents	0.181 (0.038)	0.024 (0.003)***
Physically abused by others	0.536 (0.048)	0.045 (0.001)***
Employment status		
retired	16.6	13.3*
employed	49.5	63.1
unemployed	13.1	13.0
permanent disabled/sick	19.1	7.8**
others	1.8	2.8
Weekly individual labor income	864.52(658.40)	944.28 (844.73)
Weekly family income	751.23(110.66)	846.84 (40.39)
Proportion of years sick/ total working years	0.065 (0.014)	0.029 (0.004)**

*p<0.05,**p<0.01, ***p<0.001

Standard error in parenthesis

Table 3: Multinomial logit model -Effects of childhood sexual abuse on employment status

	Retired	Unemployed	Permanent Disabled/Sick	Others
csa	1.322	1.030	3.679***	1.383
	(0.421)	(0.366)	(1.322)	(1.066)
age	1.342***	1.003	1.113***	1.085*
	(0.0294)	(0.0193)	(0.0279)	(0.0404)
education(=1 if college degree)	1.397**	0.674***	0.454***	0.953
	(0.157)	(0.0808)	(0.0700)	(0.222)
married	0.679	0.492*	0.429*	0.197***
	(0.248)	(0.147)	(0.161)	(0.0856)
living alone	0.713	0.908	1.054	0.287*
	(0.292)	(0.304)	(0.428)	(0.159)
childhood health	0.565	0.903	0.495	0.364
	(0.203)	(0.333)	(0.188)	(0.203)
father's education	1.024	0.854*	1.080	1.125
	(0.0632)	(0.0669)	(0.0970)	(0.136)
childhood physical abuse by others	1.438	1.664	0.601	0.000000459
	(0.432)	(0.510)	(0.264)	(0.000279)
childhood physical abuse by parents	0.816	0.917	1.275	2.002
	(0.367)	(0.396)	(0.652)	(1.585)

base outcome: employed
Exponentiated coefficients; Standard errors in parentheses
* p<0.05, **p<0.01, ***p<0.001

Table 4: Effect of CSA on the proportion of not working years over total working years

csa	0.0242*
	(0.0110)
age	0.00328***
	(0.000583)
education(=1 if college degree)	-0.00520
	(0.00378)
married	-0.0333***
	(0.00628)
childhood health	-0.0292*
	(0.0121)
father's education	0.00110
	(0.00213)
childhood physical abuse by others	0.00274
	(0.0105)
childhood physical abuse by parents	0.0240
	(0.0143)
Constant	-0.0914*
	(0.0368)
N	1716

* p<0.05, **p<0.01, ***p<0.001

Table 5: Effects of CSA on other economic outcomes

	β
log net family income	-0.402**
	(0.136)
log equivalised net family income	-0.210
	(0.135)
ln labour income	-0.164
	(0.122)

p<0.1* p<0.05, **p<0.01, ***p<0.001

Adjusted by age, education, marital status, living alone, childhood health, father's education, parent's substance abuse, childhood physical abuse by parents and childhood physical abuse by others.

Table 6: Multinomial logit regression: the effect of CSA on marital status

	never married vs. married	divorced/separated vs. married	widowed vs.married
csa	1.055	2.225**	2.502*
	(0.353)	(0.686)	(1.143)
age	0.980	0.988	1.069
	(0.0183)	(0.0231)	(0.0399)
education	0.535***	0.905	0.586*
	(0.0609)	(0.127)	(0.124)

* p<0.05, **p<0.01, ***p<0.001

Table 7: Multinomial logit regression: the effect of CSA on the living arrangement

	living alone	living with spouse only	living with other relative	living with unrelated people
csa	1.811*	1.124	0.307	1.208
	(0.476)	(0.260)	(0.314)	(1.271)
age	1.096***	1.208***	0.994	1.093
	(0.0196)	(0.0173)	(0.0335)	(0.0713)
edu3	0.657***	1.022	0.548**	0.847
	(0.0687)	(0.0835)	(0.110)	(0.324)

Reference category: living with (spouse) and children

* p<0.05, **p<0.01, ***p<0.001

Table 8: Multinomial logit regression models for mental health and health risk behaviors as mediator between CSA and being permant

	e(β)		
csa	3.680***	3.121**	2.882**
	(1.324)	(1.163)	(1.093)
age	1.114***	1.136***	1.146***
	(0.0278)	(0.0301)	(0.0312)
education(=1 if college degree)	0.455***	0.483***	0.523***
	(0.0701)	(0.0773)	(0.0854)
married	0.411***	0.506**	0.522**
	(0.0869)	(0.114)	(0.120)
childhood health	0.494	0.668	0.710
	(0.188)	(0.273)	(0.295)
father's education	1.081	1.130	1.131
	(0.0973)	(0.103)	(0.105)
childhood physical abuse by others	0.598	0.548	0.563
	(0.262)	(0.246)	(0.256)
childhood physical abuse by parents	1.279	1.184	1.144
	(0.653)	(0.659)	(0.648)
depression (CESD)		1.087***	1.089***
		(0.0152)	(0.0156)
anxiety (HADS)		0.980	0.973
		(0.0377)	(0.0384)
smoking			1.609***
			(0.229)
alcohol problem			0.874
			(0.231)

* p<0.05, **p<0.01, ***p<0.001
Exponentiated coefficients; Standard errors in parentheses

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