

# **Child Physical Abuse and concurrence of other types of Child Abuse – associations with health and risk behaviors**

Annerbäck E-M <sup>a, b</sup>, Lotta Sahlqvist <sup>b</sup>, Svedin CG <sup>a</sup>, Wingren G <sup>c</sup> and Gustafsson PA <sup>d</sup>

<sup>a</sup> Linköping University, Child and Adolescent Psychiatry, Department of Clinical and Experimental Medicine, Faculty of Health Sciences, S-581 85 Linköping, Sweden.

<sup>b</sup> Research and Development Centre, Sörmlands County Council, S-631 88 Eskilstuna, Sweden

<sup>c</sup> Occupational and Environmental Medicine, Department of Clinical and Experimental Medicine, Faculty of Health Sciences, S-581 85 Linköping, Sweden.

<sup>d</sup> Child and Adolescent Psychiatry Clinic, University Hospital, S-581 85 Linköping, Sweden

Corresponding author:

Annerbäck Eva-Maria

Linköping University

Child and Adolescent Psychiatry,

University Hospital

S-581 85 Linköping, Sweden

Fax +46 10 103 42 34

Tel +46 708 97 11 32

E-mail:eva-maria.annerback@dll.se

## **Abstract**

**Objective:** To examine the associations between child physical abuse executed by a parent or caretaker and self-rated health problems/risk-taking behaviors among teenagers. Further to evaluate concurrence of other types of abuse and how these alone and in addition to child physical abuse were associated with bad health status and risk-taking behaviors.

**Methods:** A population-based survey was carried out in 2008 among all the pupils in two different grades (15 respectively 17 years old) in Södermanland County, Sweden (N=7 262). The response rate was 81.8 %. The pupils were asked among other things about their exposure to child physical abuse, exposure to parental intimate violence, bullying and exposure to being forced to engage in sexual acts. Adjusted analyses were conducted to estimate associations between exposure and ill-health/risk-taking behaviors.

**Results:** Child physical abuse was associated with poor health and risk-taking behaviors with adjusted Odds Ratios (OR) ranging from 1.6 to 6.2. The associations were stronger when the pupils reported repeated abuse with OR ranging from 2.0 to 13.2. Also experiencing parental intimate partner violence, bullying and being forced to engage in sexual acts was associated with poor health and risk-taking behaviors with the same graded relationship to repeated abuse. Finally there was a cumulative effect of multiple abuse in the form of being exposed to child physical abuse plus other types of abuse and the associations increased with the number of concurrent abuse.

**Conclusions:** This study provides strong indications that child abuse is a serious public health problem based on the clear links seen between abuse and poor health and behavioral problems. Consistent with other studies showing a graded relationship between experiences of abuse and poor health/risk-taking behaviors our study shows poorer outcomes for repeated and multiple abuse. Thus, our study calls for improvement of methods of comprehensive assessments, interventions and treatment in all settings where professionals meet young people.

#### **Abbreviations**

CPA, Child Physical Abuse

CSA, Child Sexual Abuse

IPV, Intimate Partner Violence

## **1.1 Introduction**

Child Physical Abuse (CPA) is a major public health and social-welfare problem all around the world because of its high prevalence and its association with adverse health and social outcomes (R. Gilbert et al., 2009; Hazen, Connelly, Roesch, Hough, & Landsverk, 2009). In 1979, Sweden became the first country in the world to prohibit all corporal punishment of children. Attitudes toward physical punishment and the use of violence in bringing up children have changed markedly in Sweden during the last 50 years and especially since the law was passed (R. Gilbert et al., 2009; Janson, 2001; Janson, Långberg, & Svensson, 2007). In a study we carried out in 2010, 15 % of the children 13-17 years old reported experiencing

CPA (Annerback, Wingren, Svedin, & Gustafsson, 2010). This study also showed a high number of unreported cases and that only 7 % of exposed children had told any authority such as school, social services, health care or police about the physical abuse. Thus, even though corporal punishment in Sweden has decreased markedly, violence against children remains a public-health and a social welfare problem in Sweden as well as in other high-income countries (Annerback et al., 2010; R. Gilbert et al., 2009).

Earlier research has revealed that experience of CPA is strongly associated with poor health status. Individuals with a history of physical abuse often experience poor mental and/or physical health in adulthood (Bonomi, Cannon, Anderson, Rivara, & Thompson, 2008; Widom, DuMont, & Czaja, 2007).

There are strong associations between CPA and health compromising behaviors such as use of tobacco, alcohol and drugs (Becker & Grilo, 2006; Simantov, Schoen, & Klein, 2000). Risk-taking behaviors among teenagers such as delinquency and sexual risk-taking have also been shown to be associated with having a history of CPA (Mason, Zimmerman, & Evans, 1998; Pelcovitz, Kaplan, Goldenberg, & Mandel, 1994). Studies show that these associations with CPA are also prevalent in connection with Child Sexual Abuse (CSA) and witnessing parental Intimate Partner Violence (IPV) (McFarlane, Groff, O'Brien, & Watson, 2003; Simantov et al., 2000). In some studies CPA and CSA were found to be associated with self-injurious and repeated suicidal behaviors (Yates, Carlson, & Egeland, 2008; Ystgaard, Hestetun, Loeb, & Mehlum, 2004). A review-article published in 2009 states, however, that there is only weak support for the association between CSA and self-injurious behaviors and that the association is especially weak for CPA (R. Gilbert et al., 2009).

Exposure to peer-victimization in the form of bullying is another type of child abuse that is associated with poor health expressed in the form of depression, suicidality and social anxiety (Abada, Hou, & Ram, 2008; Gren-Landell, 2010; Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2007). Even if bullying behavior decreases when children get older it is still a considerable problem among high school students (Klomek et al., 2007).

## **1.2 Implications of child physical abuse – theoretical framework**

As described above, previous research has shown that CPA causes in addition to immediate physical and psychological damage, effects in the child's future life and is associated with poor health and risk-taking behaviors. This cannot be explained by any single cause since health depends on a complex web of different factors (Kendall-Tackett, 2002).

This study has its focus on violence perpetrated by a parent or other care-givers, as there are reasons to believe that this causes damage in different ways than does violence against children executed by other adults. Attachment theory provides a basic and universal explanation of implications of CPA and also points to the difference between being exposed to violence by parents and to violence committed by other adults. If the person who should represent *the Secure Base* for a child is the same person who hurts the child this will seriously harm the vital relationship between child and parent. The individual's *Internal Working Model* (IWM), which is an essential part of personality development, will risk being adversely affected. This will have life-long impact since IWM refers to the framework by which individuals perceive stressful situations, the action of others and their own capacity to influence their own situation (Bowlby, 1988; Broberg, Almqvist, Tjus, Iliste, & Nilsson, 2003). Theories about *shame* show that victims of abuse often live with *external*

*shame*, a sense of being disgraced by the abuse. This can affect the psychobiological maturation and functioning and result in being prone to shame and to psychopathology for the rest of the individual's life. Such delayed effects may become a "source of later inter-personal relationship difficulties including violence" (P. Gilbert & Andrews, 1998). In Sweden where all violence against children has been banned for more than 30 years and where corporal punishment is regarded as a crime, exposure to violence from a parent has come to be viewed as a deviant experience. This experience may be perceived as marginalization and exclusion in the society. These back-ground theories give a fundamental base for the present study but are not directly explored; only the later expressions were obtained in the form of self-reported poor health and risk behaviors.

Repeated exposure to abuse has been shown to lead to worse adverse outcomes than single or isolated experiences, which is also true for other types of traumatic experiences that are repeated (Cloitre et al., 2009; Finkelhor, Ormrod, & Turner, 2009; R. Gilbert et al., 2009; Gustafsson, Nilsson, & Svedin, 2009).

There is growing evidence that demonstrates that different types of abuse often co-occur. Research shows that exposure to multiple types of abuse is associated with worse effects on health than exposure to single forms of abuse. Research focusing on only one type of exposure could therefore have serious limitations arising from the underestimation of the full burden of child abuse and overestimation of the impact of one single type (Bensley, Spieker, Van Eenwyk, & Schoder, 1999; Ford, Elhai, Connor, & Frueh, 2010; Hahm, Lee, Ozonoff, & Wert, 2009; Hazen et al., 2009; Ney, Fung, & Wickett, 1994; Westenberg & Garnefski, 2003).

Poor health has been shown to be linked to socio-economic factors (Richter, Moor, & van Lenthe, 2010) and it is therefore necessary to control for such factors in order

to get knowledge about how much the abuse independently contributes to the outcome of poor health.

### **1.3 Aim**

The main objective of this study was to investigate the relationship between child physical abuse (CPA) perpetrated by parents/caregivers and physical health problems, mental health problems and risk-taking behaviors among Swedish adolescents. Since we hypothesize that multiple abuse has a stronger association with bad health and risk-taking behaviors than CPA alone, we also examined the participant's experiences of other types of abuse and how these alone and in addition to CPA were associated with health status and risk-taking behaviors.

## **2.1 Material and Method**

This cross-sectional study of a study population consisting of all the pupils (N=7 262) in two different grades in schools in Södermanland County in Sweden in 2008 was conducted by the Centre of Public Health in cooperation with Centre for Clinical Research, County Council in Södermanland.

All the schools in the county with pupils in grade 9 (ca 15 years old) in compulsory school and grade 2 (ca 17 years old) in upper secondary school were invited to participate in the surveys. (Upper secondary education is comparable to high school education and is free of charge and is non-compulsory.) The pupils were asked about their physical and mental health, lifestyle and life experiences (FoU-centrum, 2008).

### **2.2 Data collection**

Contact persons in the schools (school nurses and teachers) were responsible for distribution and collection of the questionnaires. These were completed in classrooms and were collected anonymously. In order to assure confidentiality, the

children left their questionnaires in sealed envelopes. The children were informed orally and in writing about the study and that the purpose was to improve children's and adolescent's every day lives. They were also told that all the information collected would be strictly confidential. The parents of the children in grade nine were informed about the survey by the school and that they could keep their children from participating by informing the school about this. The parents of the children in grade two in upper secondary school were not informed since children > 15 years of age in Sweden have the right to make their own decisions in such matters.

### **2.3 Study-population**

The response rate was 81.8 % (n = 5940), 84 % in grade nine and 78 % in grade two. The dropouts (1 322) consisted mainly of pupils absent from school on the days the questionnaires were given out. These pupils were absent because of required work to obtain practical experience, illness or for unspecified reasons. A second chance was given for those not attending on the first day of the survey. Answers from seven individuals were rejected since they showed signs of hyper-response: the children had given answers to every question that were the worst/most serious alternative choices for the question. The final sample included 5933 pupils. The internal dropout of the questions used in the study was <3.5 % except for parental occupation (6.5 %), sexual risk-taking (5.7 %) and self-injurious behaviors (5.6 %). The total numbers of individuals included in different analyses varies as a result of internal dropout for some of the questions.

### **2.4 The questionnaires**

The main purpose of the survey was to collect data on young people's health; the same kind of survey had been conducted previously on two occasions (2004 and 2006) with minor modifications of the questionnaires between occasions. The

questions had multiple answer options and the questionnaire 2008 consisted of 96 questions for grade nine and 98 for grade two. The questions about violence against the child; IPV and sexual force were piloted in a survey 2006 and were based on previous national Swedish studies (Janson et al., 2007; SCB, 1996). In the pilot study we found a high response rate to these questions and that the results correlated well with the previous Swedish studies.

## **2.5 Measures**

Definitions used:

*Child physical abuse.* Physical violence against a child executed by a parent or a caretaker.

*Caretaker.* A parent or a person who, instead of the parent, had the responsibility for the child at the time of the abuse.

*Child.* A person younger than 18 years.

### **Child Abuse variables**

*Child Physical Abuse (CPA)* was coded in two categories. *CPA 1* was indicated if the child answered “Yes once” and *CPA 2* “Yes several times” (i.e. more than once) to the question “Have you been boxed on the ear/been hit by an adult?” and the question “By whom have you been boxed on the ear/been hit” and had answered that they had been hit by a parent or other caretaker. If the child answered that he/she had been hit only by “another adult” but not by the parent/caretaker, the answer was regarded as “missing”.

*Bullying.* This variable was assessed using answers to the question “Have you been bullied by someone?” *Bullying 1* was indicated if the child answered “yes once in this semester” (that is during the preceding two months, since the questionnaire was conducted in the end of February) or “yes once a month”. *Bullying 2* was indicated if the child answered “yes once a week” or “almost every day”.

*Intimate Partner Violence (IPV)* was assessed using answers to the question “Has violence occurred between the adults in your family?”. *IPV 1* was indicated if the child answered “yes once or twice” and *IPV 2* if the child answered “Yes, several times”.

*Forced Sex* was indicated if the child answered “Yes, by a peer” and/or “Yes by an adult” to the question “Have you been forced to engage in sexual acts?” (There were only three alternative answers “No, Yes by a peer or Yes by an adult“.)

*Multiple child abuse.* The children were assigned to four groups using the following criteria: 1) those who had at some time experienced CPA; 2) had at some time experienced CPA plus one other type of abuse (Bullying, IPV or forced sex); 3) had at some time experienced CPA plus two other types of abuse; 4) had at some time been subjected to CPA plus three other types of abuse.

*No abuse* was indicated when the child answered “No” to the questions “Have you been boxed on the ear/been hit by a parent or other caretaker?”, “Have you been bullied by someone during the last two months?”, “Has violence occurred between the adults in your family?”, “Have you been forced to engage in sexual acts by an adult and/or by a person of the same age”.

### **Socio demographic variables**

*Parents employment,* the answers of the question “What is your mother’s/father’s occupation?” were trichotomized in three categories: 1) Both parents employed; 2) One parent unemployed/on sick leave; 3) Both parents unemployed/on sick leave.

*Parents foreign born,* was dichotomized 1)  $\geq$ one parent born in Sweden 2) both parents foreign born.

*Housing accommodation*, was measured using the answers of the question “How do you live?” and the answers were dichotomized as 1) living in own house and 2) living in rented flat.

*Family situation/child living with* was measured with the question “Who do you live with?”. The answers were dichotomized 1) living with both biological parents 2) having separated parents.

### **Health indicators**

*Poor general health*. This variable was measured using answers to the question “How do you generally feel?” There were five answer options: 1) very good 2) good 3) neither good nor poor 4) poor 5) very poor. The answers were dichotomized and *Poor general health* was designated when the child answered “poor” or “very poor” (Richter et al., 2010).

*Physical health problems* were measured using answers to the question “How often have you had the following complaints: headache, migraine, stomach-ache (not menstrual pain), tinnitus, pain in back/hips/shoulders?” The responses were dichotomized and *Physical health problems* were indicated if the child answered “yes, almost every day” to at least one of the alternatives.

*Mental health problems* were measured using answers to the question “how often have you had the following complaints: insomnia, anxiety and trouble, depression?” The responses were dichotomized and *Mental health problems* were indicated if the child answered “yes, almost every day” to at least one of the alternatives.

*Self-injurious behavior* was measured using answers to the question “have you during the last 12 months tried to cut, scratch or in some other way harm yourself?” *Self-injurious behavior* was indicated if the child answered “yes, more than once”.

### **Risk- taking behaviors**

*Tobacco* risk-taking was measured using answers to the question “Do you smoke/take snuff?” and *Tobacco risk* was designated when the answer was “yes, I am smoking and/or taking snuff almost every day”.

*Alcohol* risk-taking was indicated when the answer was “have been drunk more than once a month during the last 12 months”.

*Drug* risk-taking was indicated when the child answered “yes” to the question “have you ever used drugs?”

*Sexual risk* was indicated when the child reported that he or she was younger than 14 at first sexual intercourse.

*Shoplifting* was indicated if the answer was “yes, more than once” to the question “have you ever shoplifted?”

*Violent acts* was indicated when the child answered “yes more than once” to the question “have you ever on purpose hit someone so he/she got injured?”

## **2.6 Statistical analyses**

Data were analysed using the Statistical package for Social Sciences, SPSS (ver. 17.0). Demographic factors are described with numbers and percentages (Table 1). Multiple logistic regression analyses were used to estimate associations with different types of abuse, parent’s employment, parents foreign born, housing accommodation, family situation and gender as independent variables and health indicators/risk-taking behaviors as dependent variables. Separate analyses were conducted for each abuse type (Table 2 and 3) or for combinations of abuse types (Table 4) and health indicators/risk-taking behaviors. Adjusted Odds ratios (aOR) and 95 % confidence intervals (CI) are presented in tables 2-4.

## **2.7 Ethical considerations**

Questions about violence could be sensitive to deal with and therefore the pupils were informed in the questionnaires about where they could get counselling if participation had caused feelings of distress.

The study was approved by the Regional Ethical Review Board of Linköping. (Dnr, M180-08).

### **3.1 Results**

Of the total sample of 5933 children, 966 (16.3 %) reported experience of CPA and 417 of these (7.0 % of all children) reported that they had been hit more than once. CPA was the most frequently reported type of abuse and experience of IPV was the second most common. Of the total group 739 (12.5 %) reported IPV and 253 of these (4.3 % of all children) reported that violence had occurred between the adults in the family more than twice. Bullying was reported by 551 (9.3 % of all children) and of these 134 (2.3 % of all children) reported frequent bullying. Experience of being forced to engage in sexual acts was reported by 330 children with 2.2 % reporting that an adult was involved and 3.6 % that a peer was involved. Girls reported CPA, IPV and forced sexual acts more often than boys did, while there were only small differences for infrequent bullying whereas more boys reported frequent bullying (Table 1). Socio demographic characteristics of the different groups are described in Table 1 and have been analyzed in a previous study (Annerback et al., 2010)

### **3.2 Associations with health indicators**

Having a history of CPA was found to be associated with health problems among boys and girls in comparison with children who reported no abuse for all except one health outcome in analyses controlling for parents' employment, foreign born parent,

housing accommodation and family situation (Table 2). The associations were stronger among the children who reported repeated CPA (adjusted OR ranged from 2.4 to 13.2) than among those who reported that they had been hit once (adjusted OR ranged from 1.7 to 3.8).

Also having a history of experiencing IPV, bullying or being forced to engage in sexual acts was associated with all health problem variables for boys and girls in the same type of analyses (adjusted OR ranged from 1.9 to 45.3). The strongest associations were found for frequent bullying and repeated IPV as well as for being forced to engage in sexual acts.

### **3.3 Associations with risk-taking behaviors**

Having a history of CPA was associated with risk-taking outcomes for boys and girls in comparison with children who reported no abuse in analyses controlling for socio-demographic factors (Table 3). The associations with risk-taking behaviors were stronger among the children who reported repeated CPA (adjusted OR ranged from 2.0 to 12.8) as compared to those who reported that they had been hit once (adjusted OR ranged from 1.6 to 6.2).

Table 3 also shows that having a history of other types of abuse had associations with risk-taking behaviors in analyses controlling for socio-demographic factors (OR ranged from 1.6 to 14.9 for IPV and forced sex). There was an exception for bullying, where several outcomes were not significantly associated. For boys who reported infrequent bullying, the association with alcohol risk was significantly negative (OR 0.6). The strongest associations were found between repeated IPV and violent acts among girls and between forced sexual acts and drug use among boys (OR 14.0 resp. 14.9).

### **3.4 Multiple abuse**

More than half of all children who reported CPA (n=966) also reported concurrence of other types of abuse (56.3 %, n= 544). Most of these reported CPA plus one other type of abuse (n=385) and the most frequent combination was CPA plus IPV (n = 261). 123 children reported CPA plus two other types of abuse and 36 individuals reported CPA plus three other types. As shown in Table 4 the associations with health indicators as well as risk-taking behaviors increase with the number of concurrent abuse in analyses controlling for socio demographic factors.

#### **4.1 Discussion**

In this cross-sectional study, we examined associations between CPA as well as other types of abuse/concurrent abuse and self-reported health and risk-taking behaviors among Swedish boys and girls 15 and 17 years old. The study is based on information from a “normal” population (i.e. a non-clinical material) of young people and the study-design provides us with knowledge of adolescent’s health and behavioral problems based on their own reports. It gives information also on cases within the large number of unreported cases. Less than 10 % of the adolescents who reported that they had been exposed to CPA had told any authority about this (Annerback et al., 2010). Many other studies of the implications of CPA are based on clinical materials or reports from adults. Self-rated health is considered a source of valuable data on health status, and prospective studies have shown predictive power with regard to the relationship between self-rated health and morbidity and mortality (Breibdablik, Meland, & Lydersen, 2008; Idler & Benyamini, 1997; Larsson, Hemmingsson, Allebeck, & Lundberg, 2002).

The results of this study showed that CPA perpetrated by a parent is independently associated with health problems and confirm previous studies (Bonomi et al., 2008; R. Gilbert et al., 2009). For boys as well as girls the strongest associations were

revealed with poor general health and self-injurious behaviors. The strong association between CPA and self-injurious behaviors is an important finding and contrasts with earlier studies (R. Gilbert et al., 2009). The results also confirmed that children who have been exposed to CPA are more likely to engage in harmful activities (Kendall-Tackett, 2002; Pelcovitz et al., 1994). The strongest associations were found between repeated CPA and violent acts for both boys and girls. This finding also corresponds well with what was found in a study mapping inmates placed in special approved institutions by the National Board of Institutional Care in Sweden. These inmates comprise a group of young people with severe psycho-social problems, criminal behaviors and drug abuse. The report stated that 50 % of the girls and 28 % of the boys placed in the institutions had been exposed to CPA (Allmän SiS-rapport, 2008). Further the results showed a dose-response effect insofar as the children who reported that they had been hit more than once generally more often also reported bad health and risk-taking behaviors. The findings from the present study are consistent with other studies on multiple abuse, showing that experiencing more than one type of abuse is related to the poorest outcomes (Bonomi et al., 2008; R. Gilbert et al., 2009; Hahm et al., 2009; Turner, Finkelhor, & Ormrod, 2010). The cumulative effect of CPA plus other types of abuse showed a linear pattern and the strongest associations were found with self-injurious behavior and bad general health among the health variables, and with violent behavior as well as drug abuse among risk-taking variables.

#### **4.2 Strengths and limitations**

To our knowledge this study is the first in Sweden to have investigated the associations between exposure to child abuse and health/risk-taking behaviors. The statistical power and the overall response rate were high. The large sample enables us

to determine associations between different variables and child physical abuse also in relatively small subgroups. We have included both boys and girls in the study and asked for both infrequent as well as repeated experiences of the different abuse types. The sample consists of the total number of pupils in two school-grades in a Swedish county and might be considered as representative for Sweden, since the county has a similar socio demographic composition as the country as a whole.

One objection to cross-sectional studies is the limitation of temporal ordering of incidents, which thereby limits the possibility of addressing the question of causality. Still, the strong associations found and the coherence between the results of this study and other cross-sectional and prospective studies (R. Gilbert et al., 2009) gives a basis for assumptions of causal consequences of child abuse.

Another limitation of the study-design is the risk that the validity of the children's answers could be reduced by recall biases, especially because of the sensitive nature of the questions. It is not possible to draw conclusions of real life-time experiences, since a child cannot remember what happened during the early years. The reported incidence in this sample may thus underestimate the true incidence of having been exposed to abuse. The dropouts of pupils absent from school for unspecified reasons may also distort the results since the absence of these pupils could depend on truancy and they might be a group of less well-off pupils. Another limitation is that it could be impossible for some children with disabilities as e.g. developmental disease or visual impairment to answer this kind of questionnaire. These children probably constitute some of the dropout. Finally another limitation in the study arises from the condition that upper secondary school is non-compulsory and about 6 % of all children in Sweden interrupt their school attendance before grade two (Skolverket, 2012). The answers from pupils in grade two may not be fully representative for this

age group, since children who are worst-off are more likely to have dropped out of school.

### **4.3 Conclusion**

Despite the limitations mentioned above, our study provides strong evidence that child abuse is a serious public health problem based on the clear links seen between abuse and poor health and behavioral problems. Consistent with other studies showing a graded relationship between experiences of abuse and poor health/risk-taking behaviors our study shows poorer outcomes for repeated abuse and multiple abuse in the form of CPA in combination with other types of abuse.

These findings indicate that children who are exposed to child abuse constitute a group at high-risk for current and future ill-health and social problems. To promote early detection and to create opportunities for talking about experiences of different types of abuse would probably mitigate the effects of the exposure. Thus, our study calls for improvement of methods of comprehensive assessment, intervention and treatment in all settings where professionals meet young people. It is especially important in investigations and assessment to ask direct questions about experiences of abuse. Future research needs to focus on examination and evaluation of such methods. Another important field for future research is to investigate protective factors. What distinguishes the children who do not report poor health or risk-taking behaviors although they have been exposed to child abuse?

## 5.1 References

- Abada, T., Hou, F., & Ram, B. (2008). The effects of harassment and victimization on self-rated health and mental health among Canadian adolescents. *Social Science & Medicine*, 67(4), 557-567.
- Allmän SiS-rapport, -. (2008). *Årsrapport ADAD. 07 Ungdomar som skrivits in på särskilda ungdomshem under år 2007 : tabeller*. Stockholm: Statens institutionsstyrelse.
- Annerback, E. M., Wingren, G., Svedin, C. G., & Gustafsson, P. A. (2010). Prevalence and characteristics of child physical abuse in Sweden - findings from a population-based youth survey. *Acta Paediatr*, 99(8), 1229-1236.
- Becker, D. F., & Grilo, C. M. (2006). Prediction of drug and alcohol abuse in hospitalized adolescents: Comparisons by gender and substance type. *Behaviour Research and Therapy*, 44(10), 1431-1440.
- Bensley, L., Spieker, S., Van Eenwyk, J., & Schoder, J. (1999). Self-reported abuse history and adolescent problem behaviors. II. Alcohol and drug use. *Journal of Adolescent Health*, 24, 173-180.
- Bonomi, A. E., Cannon, E. A., Anderson, M. L., Rivara, F. P., & Thompson, R. S. (2008). Association between self-reported health and physical and/or sexual abuse experienced before age 18. *Child Abuse & Neglect*, 32(7), 693-701.
- Bowlby, J. (1988). *A secure base : clinical applications of attachment theory*. London: Routledge.
- Breidablik, H. J., Meland, E., & Lydersen, S. (2008). Self-rated health in adolescence: a multifactorial composite. *Scand J Public Health*, 36(1), 12-20.
- Broberg, A., Almqvist, K., Tjus, T., Iliste, A., & Nilsson, B. (2003). *Klinisk barnpsykologi : utveckling på avvägar*. Stockholm: Natur och kultur.
- Cloitre, M., Stolbach, B. C., Herman, J. L., Kolk, B. v. d., Pynoos, R., Wang, J., & Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of Traumatic Stress*, 22(5), 399-408.
- Finkelhor, D., Ormrod, R. K., & Turner, H. A. (2009). Lifetime assessment of poly-victimization in a national sample of children and youth. *Child Abuse Negl*, 33(7), 403-411.
- Ford, J. D., Elhai, J. D., Connor, D. F., & Frueh, B. C. (2010). Poly-Victimization and Risk of Posttraumatic, Depressive, and Substance Use Disorders and Involvement in Delinquency in a National Sample of Adolescents. *Journal of Adolescent Health*, 46(6), 545-552.
- FoU-centrum. (2008, 100825). Questionnaire "Liv & Hälsa ung". from [http://www.landstinget.sormland.se/Sidans\\_katalog/10207/Liv%20&%20Hälsa%20ung%202008%20-%20enkät%20åk%209.pdf](http://www.landstinget.sormland.se/Sidans_katalog/10207/Liv%20&%20Hälsa%20ung%202008%20-%20enkät%20åk%209.pdf)
- Gilbert, P., & Andrews, B. (1998). *Shame - Interpersonal behavior, Psychopathology and Culture*. New York: Oxford University Press.
- Gilbert, R., Widom, C. S., Browne, K., Fergusson, D., Webb, E., & Janson, S. (2009). Burden and consequences of child maltreatment in high-income countries. *Lancet*, 373(9657), 68-81.

- Gren-Landell, M. (2010). *Social anxiety disorder in Swedish adolescents : prevalence, victimization & development*. Linköping: Faculty of Health Sciences, Linköping University.
- Gustafsson, P. E., Nilsson, D., & Svedin, C. G. (2009). Polytraumatization and psychological symptoms in children and adolescents. *Eur Child Adolesc Psychiatry, 18*(5), 274-283.
- Hahm, H. C., Lee, Y., Ozonoff, A., & Wert, M. J. (2009). The impact of multiple types of child maltreatment on subsequent risk behaviors among women during the transition from adolescence to young adulthood. *Journal of Youth and Adolescence, 39*(5), 528-540.
- Hazen, A. L., Connelly, C. D., Roesch, S. C., Hough, R. L., & Landsverk, J. A. (2009). Child maltreatment profiles and adjustment problems in high-risk adolescents. *Journal of Interpersonal Violence, 24*(2), 361-378.
- Idler, E. L., & Benyamini, Y. (1997). Self-rated health and mortality: a review of twenty-seven community studies. *J Health Soc Behav, 38*(1), 21-37.
- Janson, S. (2001). *Barn och misshandel: en rapport om kroppslig bestraffning och annan misshandel i Sverige vid slutet av 1900-talet (Children and Abuse - A report of Physical Punishment and other types of Abuse in Sweden) (In Swedish)*. Stockholm:: Fritzes
- Janson, S., Långberg, B., & Svensson, B. (2007). *Våld mot barn 2006-2007 (Violence against Children) (In Swedish)* Stockholm: Stiftelsen Allmänna Barnhuset.
- Kendall-Tackett, K. (2002). The health effects of childhood abuse: Four pathways by which abuse can influence health. *Child Abuse & Neglect, 26*(6-7), 715-729.
- Klomek, A. B., Marrocco, F., Kleinman, M., Schonfeld, I. S., & Gould, M. S. (2007). Bullying, Depression, and Suicidality in Adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 46*(1), 40-49.
- Larsson, D., Hemmingsson, T., Allebeck, P., & Lundberg, I. (2002). Self-rated health and mortality among young men: what is the relation and how may it be explained? *Scand J Public Health, 30*(4), 259-266.
- Mason, W., Zimmerman, L., & Evans, W. (1998). Sexual and physical abuse among incarcerated youth: Implications for sexual behavior, contraceptive use, and teenage pregnancy. *Child Abuse & Neglect, 22*(10), 987-995.
- McFarlane, J. M., Groff, J. Y., O'Brien, J. A., & Watson, K. (2003). Behaviors of children who are exposed and not exposed to intimate partner violence: an analysis of 330 black, white, and Hispanic children. *Pediatrics, 112*(3 Pt 1), e202-207.
- Ney, P. G., Fung, T., & Wickett, A. R. (1994). The worst combinations of child abuse and neglect. *Child Abuse & Neglect, 18*(9), 705-714.
- Pelcovitz, D., Kaplan, S., Goldenberg, B., & Mandel, F. (1994). Post-traumatic stress disorder in physically abused adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 33*(3), 305-312.
- Richter, M., Moor, I., & van Lenthe, F. J. (2010). Explaining socioeconomic differences in adolescent self-rated health: the contribution of material, psychosocial and behavioural factors. *J Epidemiol Community Health.*
- SCB. (1996). *Barn och aga : en undersökning om vuxnas och högstadielävers inställning, erfarenheter och kunskap (Children and Physical Punishment) (In Swedish) (No. 91-618-0856-3)*. Stockholm: Statistiska centralbyrån.
- Simantov, E., Schoen, C., & Klein, J. D. (2000). Health-compromising behaviors: why do adolescents smoke or drink?: identifying underlying risk and protective factors. *Arch Pediatr Adolesc Med, 154*(10), 1025-1033.
- Skolverket. (2012, 12/1 2012). from [http://skolnet.skolverket.se/polopoly/statistik/Tabell\\_1\\_11.xls](http://skolnet.skolverket.se/polopoly/statistik/Tabell_1_11.xls)

- Turner, H. A., Finkelhor, D., & Ormrod, R. (2010). Poly-victimization in a national sample of children and youth. *Am J Prev Med*, 38(3), 323-330.
- Westenberg, E. A. M., & Garnefski, N. (2003). Depressive symptomatology and child abuse in adolescents with behavioral problems. *Child & Adolescent Social Work Journal*, 20(3), 197-210.
- Widom, C. S., DuMont, K., & Czaja, S. J. (2007). A prospective investigation of major depressive disorder and comorbidity in abused and neglected children grown up. *Archives of General Psychiatry*, 64(1), 49-56.
- Yates, T. M., Carlson, E. A., & Egeland, B. (2008). A prospective study of child maltreatment and self-injurious behavior in a community sample. *Development and Psychopathology*, 20(2), 651-671.
- Ystgaard, M., Hestetun, I., Loeb, M., & Mehlum, L. (2004). Is there a specific relationship between childhood sexual and physical abuse and repeated suicidal behavior? *Child Abuse & Neglect*, 28(8), 863-875.

**Table 1 Abuse types and socio demographic characteristics presented as numbers and percentages**

	No abuse n (%) <sup>a</sup>	CPA 1 n (%) <sup>a</sup>	CPA 2 n (%) <sup>a</sup>	Bullying 1 n (%) <sup>a</sup>	Bullying 2 n (%) <sup>a</sup>	IPV 1 n (%) <sup>a</sup>	IPV 2 n (%) <sup>a</sup>	Forced sex. n (%) <sup>a</sup>
<b>Grade</b>								
9 (ca 15 years old)	1971 (64.8)	329 (11.3)	218 (7.5)	292 (9.4)	91 (3.0)	268 (8.7)	138 (4.5)	163 (5.3)
2 (ca 17 years old)	1856 (68.6)	220 (8.4)	199 (7.6)	125 (4.5)	43 (1.5)	218 (8.0)	115 (4.2)	167 (6.1)
<b>Gender</b>								
Boys	1969 (68.3)	254 (9.3)	190 (7.0)	193 (6.5)	86 (2.9)	189 (6.5)	91 (3.1)	76 (2.6)
Girls	1856 (64.9)	294 (10.5)	226 (8.1)	222 (7.6)	48 (1.6)	296 (10.3)	161 (5.6)	252 (8.7)
<b>Parents employment</b>								
Both parents employed	3140 (69.5)	390 (9.0)	286 (6.6)	316 (6.8)	86 (1.9)	336 (7.4)	140 (3.1)	234 (5.1)
One parent unemployed/on sick leave	446 (56.1)	104 (13.7)	78 (10.3)	75 (9.2)	23 (2.8)	107 (13.3)	68 (8.5)	52 (6.5)
Both parents unemployed/on sick leave	53 (57.0)	7 (8.0)	15 (17.2)	7 (7.4)	7 (7.4)	9 (9.8)	13 (14.1)	14 (14.9)
<b>Parents foreign born</b>								
≥ 1 parent born in Sweden	2943 (69.5)	364 (8.9)	242 (5.9)	312 (7.2)	94 (2.2)	331 (7.7)	141 (3.3)	221 (5.1)
Both parents foreign born	847 (59.0)	178 (13.1)	163 (12.0)	97 (6.6)	30 (2.1)	148 (10.3)	101 (7.0)	97 (6.7)
<b>Housing accommodation</b>								
Living in own house	3156 (68.3)	428 (9.6)	307 (6.9)	330 (7.0)	102 (2.2)	350 (7.5)	169 (3.6)	251 (5.4)
Living in rented flat	654 (60.6)	116 (11.4)	97 (9.5)	80 (7.3)	24 (2.2)	133 (12.3)	72 (6.7)	69 (6.3)
<b>Family situation, child living with<sup>b</sup></b>								
Both biological parents	2429 (73.2)	267 (9.9)	171 (6.6)	201 (7.6)	60 (2.4)	182 (7.0)	55 (2.2)	129 (5.0)
Separated parents	1205 (59.9)	242 (16.7)	177 (12.8)	183 (13.2)	49 (3.9)	243 (16.8)	146 (10.8)	127 (9.5)

<sup>a</sup> Percent of children in respective group with exposure to respective abuse type

<sup>b</sup> Internal drop-out is 10.1 %

CPA 1 = been hit once, CPA 2 = been hit twice or more

Bullying 1 = been bullied < once a week, Bullying 2 = been bullied ≥ once a week

IPV 1 = violence between the adults in the family once or twice, IPV 2 = violence between the adults in the family > twice

**Table 2 The association between abuse types and experienced health among boys and girls with No abuse as the comparison group. Presented results (aOR) and 95% CI are based on multiple logistic regression analyses with adjustment for socio demographic factors**

	No abuse	CPA1	aOR <sup>b</sup>	CPA2	aOR <sup>b</sup>	Bullying 1	aOR <sup>b</sup>	Bullying 2	aOR <sup>b</sup>	IPV1	aOR <sup>b</sup>	IPV2	aOR <sup>b</sup>	Forced	aOR <sup>b</sup>
	n (%) <sup>a</sup>	n (%) <sup>a</sup>	(95 % CI)	n (%) <sup>a</sup>	(95 % CI)	n (%) <sup>a</sup>	(95 % CI)	n (%) <sup>a</sup>	(95 % CI)	n(%) <sup>a</sup>	(95 % CI)	n(%) <sup>a</sup>	(95 % CI)	sex. n(%) <sup>a</sup>	(95 % CI)
Health problems															
Bad general health, Boys	18 (0.9)	6 (2.4)	2.6 (0.88-7.47)	17 (9.0)	9.6 (4.01-22.89)***	12 (6.2)	7.9 (3.34-18.61)***	16 (18.6)	19.9 (7.77-50.73)***	8 (4.3)	4.3 (1.43-12.67)**	10 (12.1)	11.7 (4.05-33.69)***	15 (19.7)	14.1 (4.28-46.28)***
Bad general health, Girls	49 (2.7)	23 (7.9)	2.6 (1.43-4.61)**	46 (20.4)	7.6 (4.58-12.72)***	28 (12.7)	5.1 (2.95-8.69)***	23 (48.9)	26.6 (12.05-58.67)***	35 (11.9)	4.5 (2.67-7.49)***	41 (25.6)	8.4 (4.55-15.63)***	51 (20.3)	6.5 (3.90-10.86)***
Physical health problems, Boys	172 (8.8)	37 (14.6)	1.8 (1.21-2.86)**	45 (23.7)	2.8 (1.82-4.31)***	35 (18.2)	2.1 (1.35-3.20)**	22 (25.6)	2.4 (1.24-4.62)**	37 (19.6)	2.1 (1.37-3.35)**	25 (27.5)	2.4 (1.31-4.52)**	28 (36.8)	4.5 (2.37-8.58)***
Physical health problems, Girls	330 (17.8)	81 (27.6)	1.7 (1.25-2.35)**	86 (38.2)	2.4 (1.70-3.45)***	68 (30.8)	2.0 (1.39-2.78)***	26 (54.2)	4.5 (2.20-9.16)***	99 (33.6)	2.2 (1.64-3.04)***	67 (41.6)	2.7 (1.75-4.14)***	98 (38.9)	2.7 (1.95-3.83)***
Mental health problems, Boys	149 (7.6)	38 (15.1)	1.7 (1.09-2.69)*	43 (22.8)	2.8 (1.80-4.42)***	29 (15.3)	1.9 (1.20-3.11)**	31 (36.0)	6.0 (3.41-10.73)***	37 (19.6)	2.4 (1.52-3.82)***	22 (24.2)	3.1 (1.66-5.66)***	24 (32.0)	4.9 (2.58-9.45)***
Mental health problems, Girls	255 (13.8)	89 (30.3)	2.8 (2.03-3.79)***	96 (42.9)	4.6 (3.28-6.56)***	73 (32.9)	3.1 (2.19-4.34)***	27 (56.3)	8.1 (3.96-16.72)***	103 (34.9)	3.4 (2.48-4.63)***	71 (44.1)	4.2 (2.75-6.51)***	111 (44.0)	4.7 (3.35-6.59)***
Self-injurious behavior, Boys	35 (1.9)	14 (5.7)	2.7 (1.29-5.75)**	31 (17.1)	13.2 (7.25-23.99)***	19 (9.7)	4.9 (2.48-9.76)***	32 (38.6)	33.6 (17.44-64.68)***	16 (8.8)	4.0 (1.90-8.32)***	18 (20.9)	13.1 (6.10-28.26)***	33 (45.2)	45.3 (21.50-95.36)***
Self-injurious behavior, Girls	75 (4.3)	48 (16.7)	3.8 (2.39-5.87)***	68 (31.1)	10.3 (6.68-15.89)***	50 (23.1)	6.9 (4.52-10.67)***	21 (44.7)	11.1 (5.13-24.14)***	56 (19.6)	5.4 (3.53-8.29)***	48 (30.2)	7.0 (4.01-12.16)***	81 (32.7)	10.0 (6.64-15.15)***

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

<sup>a</sup> Percent of children in respective group with exposure to respective abuse type

<sup>b</sup> aOR = Odds Ratio adjusted for parent's employment, foreign born parents, housing accommodation and family constellation

CPA 1 = been hit once, CPA 2 = been hit twice or more

Bullying 1 = been bullied < once a week, Bullying 2 = been bullied ≥ once a week

IPV 1 = violence between the adults in the family once or twice, IPV 2 = violence between the adults in the family > twice

**Table 3 The association between abuse types and risk-taking behaviour among boys and girls with “No abuse” as the comparison group. Presented results (aOR) and 95% CI are based on multiple logistic regression analyses with adjustment for socio demographic factors**

Risk-taking behaviour	No Abuse	CPA 1	aOR <sup>b</sup> (95 % CI)	CPA 2	aOR <sup>b</sup> (95 % CI)	Bullying 1 n (%) <sup>a</sup>	aOR <sup>b</sup> (95 % CI)	Bullying 2 n (%) <sup>a</sup>	aOR <sup>b</sup> (95 % CI)	IPV 1 n(%) <sup>a</sup>	aOR <sup>b</sup> (95 % CI)	IPV 2 n (%) <sup>a</sup>	aOR <sup>b</sup> (95 % CI)	Forced sex. n (%) <sup>a</sup>	aOR <sup>b</sup> (95 % CI)
Tobacco, Boys	258 (13.1)	63 (24.8)	2.0 (1.38-2.81)***	68 (35.8)	3.1 (2.14-4.58)***	21 (10.9)	0.7 (0.39-1.15)	37 (43.0)	4.2 (2.48-7.24)***	60 (31.7)	2.9 (2.00-4.27)***	40 (44.4)	3.9 (2.29-6.57)***	39 (52.0)	5.7 (3.11-10.35)***
Tobacco, Girls	130 (7.0)	47 (16.1)	2.3 (1.53-3.54)***	72 (31.9)	5.4 (3.60-8.17)***	27 (12.2)	1.7 (1.03-2.82)*	21 (43.8)	4.5 (1.99-10.38)***	69 (23.4)	3.2 (2.16-4.73)***	55 (34.4)	4.6 (2.81-7.53)***	97 (38.6)	6.6 (4.49-9.73)***
Alcohol, Boys	482 (24.7)	86 (34.0)	1.6 (1.18-2.18)**	84 (44.7)	2.3 (1.62-3.29)***	31 (16.3)	0.6 (0.35-0.86)**	44 (53.0)	3.3(1.94-5.51)***	68 (36.4)	1.8 (1.22-2.50)**	51 (57.3)	3.3 (2.01-5.55)***	46 (63.9)	5.1 (2.71-9.50)***
Alcohol, Girls	396 (21.5)	86 (29.7)	1.6 (1.18-2.18)***	79 (35.3)	2.0 (1.38-2.80)***	34 (15.5)	0.7 (0.43-1.01)	18 (37.5)	0.9 (0.39-2.18)	89 (30.4)	1.6 (1.15-2.16)**	64 (40.3)	1.9 (1.22-2.96)**	129 (51.6)	3.8 (2.70-5.21)***
Drugs, Boys	138 (7.1)	48 (19.0)	2.2 (1.46-3.44)***	65 (34.9)	5.8 (3.89-8.76)***	20 (10.5)	1.3 (0.75-2.29)	35 (41.7)	7.9 (4.51-13.79)***	40 (21.6)	2.8 (1.74-4.42)***	37 (42.0)	7.7 (4.47-13.36)***	41 (55.4)	14.9 (8.07-27.37)***
Drugs, Girls	84 (4.6)	37 (12.7)	3.0 (1.91-4.73)***	56 (25.1)	5.4 (3.42-8.47)***	15 (6.8)	1.6 (0.89-2.98)	20 (41.7)	8.8 (3.91-19.59)***	46 (15.7)	3.1 (1.96-4.91)***	44 (27.7)	5.4 (3.15-9.36)***	79 (31.3)	7.5 (4.95-11.48)***
Sexual risk, Boys	126 (6.8)	28 (12.0)	1.6 (0.99-2.65)	39 (22.4)	3.1 (1.92-4.97)***	19 (10.9)	1.7 (0.97-2.88)	20 (27.4)	3.9(1.99-7.73)***	23 (13.2)	1.8 (1.01-3.07)*	19 (24.1)	3.0 (1.51-5.92)**	30 (52.6)	12.1 (6.02-24.36)***
Sexual risk, Girls	87 (4.9)	29 (10.1)	1.8 (1.06-3.01)*	43 (19.7)	3.8 (2.32-6.19)***	24 (11.1)	2.4(1.41-4.08)**	16 (35.6)	5.4 (2.19-3.16)***	42 (14.8)	2.7 (1.65-4.24)***	34 (21.8)	4.0 (2.23-7.19)***	83 (34.3)	8.7 (5.75-13.02)***
Shoplifting, Boys	382 (19.5)	107 (43.3)	2.7 (2.00-3.70)***	106 (56.7)	4.4 (3.12-6.33)***	58 (30.9)	1.5 (1.08-2.20)*	42 (49.4)	3.9(2.34-6.63)***	90 (49.5)	3.4 (2.36-4.80)***	54 (60.7)	4.6 (2.74-7.69)***	41 (56.2)	4.0 (2.21-7.40)***
Shoplifting, Girls	187 (10.1)	90 (30.6)	4.0 (2.87-5.47)***	198 (48.2)	7.3 (5.06-10.39)***	53 (24.1)	2.6 (1.77-3.80)***	24 (50.0)	5.0(2.36-10.48)***	92 (31.1)	3.5 (2.54-4.94)***	78 (48.4)	5.2 (3.35-8.20)***	114 (45.4)	5.9 (4.12-8.35)***
Violent acts, Boys	267 (13.8)	73 (29.7)	2.3 (1.65-3.26)***	99 (53.2)	6.3 (4.41-9.07)***	42 (22.3)	1.6 (1.09-2.42)*	35 (41.2)	4.1(2.42-7.01)***	72 (39.1)	3.7 (2.56-5.36)***	47 (53.4)	4.9 (2.91-8.25)***	41 (56.2)	7.1 (3.84-13.03)***
Violent acts, Girls	42 (2.3)	34 (11.7)	6.2 (3.72-10.32)***	61 (27.4)	12.8 (7.77-21.10)***	19 (8.7)	3.9 (2.13-7.28)***	19 (39.6)	12.2 (5.03-29.77)***	42 (14.2)	7.2(4.34-12.07)***	47 (29.9)	14.0 (7.58-25.99)***	57 (22.9)	10.0 (6.07-16.55)***

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

<sup>a</sup> Percent of children in respective group with exposure to respective abuse type

<sup>b</sup> aOR = Odds Ratio adjusted for parent’s employment, foreign born parents, housing accommodation and family constellation

CPA 1 = been hit once, CPA 2 = been hit twice or more

Bullying 1 = been bullied < once a week, Bullying 2 = been bullied ≥ once a week

IPV 1 = violence between the adults in the family once or twice, IPV 2 = violence between the adults in the family > twice

**Table 4 Association between groups with different combinations of abuse and health indicator/risk-taking behavioral outcomes among boys and girls with “No abuse” as the comparison group. Presented results (aOR) and 95% CI are based on multiple logistic regression analyses with adjustment for socio demographic factors**

	No abuse n = 3420 Reference group	Physical abuse only n = 354 aOR <sup>a</sup> (95 % CI)	Physical abuse +1 other type of abuse n = 303 aOR <sup>a</sup> (95 % CI)	Physical abuse +2 other types of abuse n = 86 aOR <sup>a</sup> (95 % CI)	Physical abuse +3 other types of abuse n = 20 aOR <sup>a</sup> (95 % CI)
<b>Health indicators</b>					
General health/Bad very bad	1	1.5 (.74-3.07)	6.7 (4.27-10.51)***	11.6 (6.20-21.75)***	12.4 (3.91-39.07)***
Physical health problems	1	1.3 (.98-1.79)	2.7 (2.08-3.56)***	2.9 (1.80-4.62)***	7.7 (3.13-18.67)***
Mental health problems	1	2.0 (1.46-2.60)***	3.5 (2.62-4.53)***	5.0 (3.18-7.88)***	9.1 (3.73-22.22)***
Self-injurious behaviors	1	2.4 (1.49-3.89)***	8.1 (5.61-11.59)***	10.3 (5.94-17.68)***	132.1 (42.30-412.19)***
<b>Risk taking behaviors</b>					
Tobacco use	1	2.2 (1.60-2.89)***	2.8 (2.08-3.73)***	4.6 (2.87-7.26)***	6.5 (2.64-15.88)***
Been drunk >once/month	1	1.6 (1.25-2.03)***	2.1 (1.61-2.67)***	1.2 (.76-2.01)	6.5 (2.45-17.48)***
Drug abuse	1	2.7 (1.95-3.82)***	3.5 (2.51-4.84)***	5.7 (3.45-9.41)***	25.6 (10.00-65.55)***
Sexual risk behavior	1	1.5 (.97-2.24)	2.6 (1.79-3.69)***	4.6 (2.68-7.95)***	8.0 (2.84-22.41)***
Shoplifting	1	3.3 (2.60-4.21)***	4.2 (3.23-5.34)***	4.0 (2.52-6.19)***	14.8 (5.30-41.47)***
Violent acts	1	3.2 (2.44-4.30)***	4.2 (3.13-5.56)***	4.9 (2.99-7.87)***	29.9 (10.61-84.34)***

\*\*\*p <0.001

<sup>a</sup> aOR = adjusted Odds Ratio with the variables parent’s employment, parents foreign born, housing accommodation and family situation included in the model.