

Survey of adverse childhood experiences in the Czech Republic



Survey of adverse childhood experiences in the Czech Republic

ABSTRACT

A cross-sectional survey was undertaken to estimate the prevalence of child maltreatment and adverse childhood experiences in the Czech Republic, as data on these is scarce. The survey was conducted among 1760 randomly selected students from five Czech universities. Participants filled in the adverse childhood experiences survey instrument. The results showed that the prevalence of child maltreatment and other adverse childhood experiences is high: emotional abuse was reported by 20.7%, physical abuse by 17.1%, sexual abuse by 6.4%, and physical neglect by 8.0%. Household dysfunction was also high, with household street drug use reported by 4.9%, alcohol misuse by 15.3%, mental disorder by 13.4%, parental violence by 22.1% and parental separation by 23%. Thirty-eight per cent had not experienced any adverse childhood experience, while 9.9% reported experiencing four or more types of adverse childhood experiences. There was a significant association between adverse childhood experiences and health-harming behaviours such as suicide attempt, drug use, risky sexual behaviour and tobacco use. The findings suggest that there is a need to invest in prevention programming.

KEYWORDS

CHILD ABUSE – PREVENTION AND CONTROL
CHILD NEGLECT
HEALTH RISK BEHAVIOUR
VIOLENCE – PREVENTION AND CONTROL
HEALTH SURVEYS

Address requests about publications of the WHO Regional Office for Europe to:

Publications
WHO Regional Office for Europe
UN City, Marmorvej 51
DK-2100 Copenhagen Ø, Denmark

Alternatively, complete an online request form for documentation, health information, or for permission to quote or translate, on the Regional Office web site (<http://www.euro.who.int/pubrequest>).

© World Health Organization 2017

All rights reserved. The Regional Office for Europe of the World Health Organization welcomes requests for permission to reproduce or translate its publications, in part or in full.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either express or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use. The views expressed by authors, editors, or expert groups do not necessarily represent the decisions or the stated policy of the World Health Organization.

CONTENTS

Acknowledgements	iv
Abbreviations	v
Executive summary	vi
1. Introduction	1
Policy developments in the Czech Republic	2
National data on child maltreatment in the Czech Republic	2
Service response to child maltreatment in the Czech Republic	2
Consequences of child maltreatment and other adverse childhood experiences	3
Ecological model	3
Aims	4
Data collection	5
Ethics approval	5
Data analysis	5
2. Methods	5
3. Results	6
History of childhood exposure to adverse experiences, including maltreatment	7
Correlations among the categories of adverse childhood experiences	8
Prevalence and odds ratios of health risk behaviours with respect to adverse childhood exposures	10
Prevalence and adjusted odds ratios of health-harming behaviours with respect to number of ACEs	12
4. Discussion	13
Limitations	14
The way forward	15
References	16
Annexes	19
Annex 1. Legislative framework on child abuse	19
Annex 2. Peer-reviewed publications on the service response to child maltreatment	21

ACKNOWLEDGEMENTS

The survey team responsible for planning, preparing and implementing the survey, data analysis and report writing were as follows:

Professor Miloš Velemínský, Dr Jana Samková, Mr Jakub Samek, Faculty of Health and Social Studies, University of South Bohemia in České Budějovice, Czech Republic; Dr Michael Rost, Faculty of Economics, University of South Bohemia in České Budějovice, Faculty of Economics, Czech Republic; Dr Alena Steflova, WHO Country Office, Czech Republic; and Dr Dinesh Sethi, WHO Regional Office for Europe, Copenhagen, Denmark. The authors are very grateful to Professor Mark Bellis from Public Health Wales, United Kingdom for his advice on data analysis and interpretation.

The authors would like to extend most sincere gratitude to all individuals and institutions that enabled this study: Ministry of Health; Ministry of Education; Faculty of Health and Social Studies, University of South Bohemia in České Budějovice; Technical University of Liberec; Faculty of Health Studies, University of Pardubice; Faculty of Biomedical Engineering in Kladno, Czech Technical University in Prague; and College of Polytechnics Jihlava. We thank the deans and staff of the faculties and universities for their collaboration that enabled this survey and the lecturers who allowed us to access their classes. Particular thanks are also expressed to: Professor Zdeněk Kůs, Technical University of Liberec; Professor Arnošt Pelant, Faculty of Health Studies, University of Pardubice;

Professor Leoš Navrátil, Faculty of Biomedical Engineering in Kladno; Professor Aleš Roztočil, College of Polytechnics Jihlava; Professor Libor Grubhoffer, University of South Bohemia in České Budějovice, Professor Miloslav Rakovič (translator); Dr Eliška Lukášová, Faculty of Health and Social Sciences, University of South Bohemia in České Budějovice. Our field survey administrators made an invaluable contribution to this study, and we thank them for their patience and perseverance in administering the survey instruments even in difficult circumstances. We are very grateful indeed to the students from all faculties for their participation in the study.

We are grateful to the following peer reviewers for their helpful comments and contribution to improve the quality of this publication: Dr Alex Butchart, WHO; Dr Martin Willi Weber, WHO Regional Office for Europe; and Professor Mark Bellis, Public Health Wales.

We also express our deep appreciation to Ms Pavla Kortusová, WHO Country Office, Czech Republic and Mr Yongjie Yon, WHO Regional Office for Europe, for their support. And finally, we would like to thank Dr Gauden Galea, Director of Noncommunicable Disease and Promoting Health through the Life-course, WHO Regional Office for Europe.

**Miloš Velemínský, Michael Rost, Jana Samková,
Jakub Samek, Alena Steflova, Dinesh Sethi**

ABBREVIATIONS

ACE	adverse childhood experience
CDC	US Centers for Disease Control and Prevention
CI	confidence interval
EU	European Union
NCD	noncommunicable disease
OR	odds ratio
SDG	Sustainable Development Goal
TEACH-VIP	Training, Educating, Advancing, Collaboration in Health on Violence and Injury Prevention
UNCRC	United Nations Convention on the Rights of the Child

EXECUTIVE SUMMARY

Child maltreatment has been described as a highly prevalent societal and public health problem globally and in Europe. Protecting children from violence and exploitation, and helping children achieve their full potential is a national priority in the Czech Republic. Although data from child protection services are available in the Czech Republic, there are no reliable data on the prevalence of adverse childhood experiences. Adverse childhood experiences are known to be associated with worse mental and physical health, and social outcomes. These experiences include child maltreatment and/or household dysfunction (household member with a drug or alcohol problem, mental illness or incarceration, or intraparental violence or separation). This study was undertaken to address this shortfall of data, as part of a collaborative agreement between WHO and the Ministry of Health of the Czech Republic.

Aims

The aims of study were to measure the prevalence of child maltreatment and other adverse childhood experiences in a representative sample of university students in the Czech Republic, investigate the association between adverse childhood experiences and health-harming behaviours, and test whether there is a significant relationship between increased exposure to adverse childhood experiences and risks for developing health-harming behaviours.

Material and methods

The cross-sectional research had 1760 participants, both men and women, from five Czech universities. A pre-tested local version of the Adverse Childhood Experiences Questionnaire was used to collect data. Prevalence and odds ratio estimates were calculated in order to obtain the level of correlation between the variables. Logistic regression analysis was conducted to adjust for the potentially confounding effects of age, sex and socioeconomic status.

Results

A total of 1681 respondents took part: 480 men and 1201 women. Their average age was 20.4 years; the largest group included single persons (64.2%) and a considerable majority came from families whose parents had completed high school (79.5%). Respondents reported that they encountered the following adverse childhood experiences: emotional abuse (20.7%), physical abuse (17.1%), sexual abuse (6.4%), and physical neglect (8.0%). Some lived in families with household dysfunction, where a family member used street drugs (4.9%), misused alcohol (15.3%), had a mental disorder (13.4%), had witnessed the mother being beaten (22.1%) and parental separation (23%). Of the respondents, 37.8% did not mention any adverse experience in their childhood; 24.9% reported one adverse experience, 27.4% reported two–three experiences, and 9.9% reported four or more adverse experiences. The prevalence of adverse childhood experiences was significantly associated with increased health-harming behaviours. Having four or more adverse childhood experiences was associated with an increased odds of suicide attempt (odds ratio [OR] 23.6), early pregnancy (OR 3.7), risky sexual behaviour (OR 4), use of illegal drugs (OR 2.9) and tobacco use (OR 2.4).

Conclusion

The study supports the argument that child maltreatment and other adverse childhood experiences are common public health problems in the Czech Republic. Worryingly, it is strongly associated with health-harming behaviours, suggesting that physical and mental health may be harmed in the long term. The findings suggest that a stronger policy response is needed to coordinate prevention programmes such as parenting programmes, home visitation, investing in safe, stable family relationships and other protective factors, and counteracting risk factors such as drug and alcohol misuse and parental violence. This problem should be at the forefront of society's attention to prevent child maltreatment and promote child development.

1. INTRODUCTION

Childhood is a period of immense cognitive, behavioural, physical and emotional development, and thus potentially a period of vulnerability. Children need a safe, supportive and nurturing environment that is free from violence and other adversity to allow them to develop and realize their full potential. Even though many European countries have adopted legislative frameworks that protect children from violence and other adverse childhood experiences (ACEs), many children still fall victim to abuse and neglect in various forms. The protection of children's rights is enshrined in the United Nations Convention on the Rights of the Child (UNCRC), to which most countries are signatories. The UNCRC is the key international instrument for protecting children from all forms of violence and ensuring that their voices are heard (UNCRC, 1989). This states that all rights should apply to children without discrimination on the basis of gender, social class or ethnicity, that the best interests of the child should be borne in mind, that the views of children should be respected, and that they should be protected against all forms of violence and exploitation. The current approach to child development perceives childhood as a crucial period that provides a springboard for a healthy and satisfying adult life.

The main objective of child protection policies is to protect children from violence and exploitation to ensure their overall development. The issue of child abuse and neglect is not new. It has always existed, although the scale of it has relatively recently begun to be understood (Krug et al. 2002). It is generally thought that the lifetime prevalence of childhood abuse and neglect is unacceptably high. Nothing can ever justify physical abuse and other forms of child abuse and neglect that disturb and violate the child's dignity and prevent healthy development. Unfortunately, the occurrence of child abuse and neglect continues in European countries, especially within the family setting. Most such cases, however, remain hidden. Unless community surveys are conducted, the scale of the problem is likely to be underestimated. Data are also incomplete from institutions, authorities and professionals whose task it is to provide child protection and effective prevention from abusive behaviour.

Child maltreatment is one of the hidden forms of violence, and evidence shows that the prevalence is unacceptably high in the 53 countries of the WHO European Region. The *World report on violence and health* defines child maltreatment as physical, sexual or emotional abuse, and/or deprivation and neglect (Krug et al. 2002). Child abuse, if severe, can lead to

homicide. Although this appears to be relatively low, at about 850 deaths each year in children under 15 years of age in the 53 countries of the European Region, deaths are the tip of the iceberg. Reports suggest that the prevalence of child maltreatment can be much higher; for example, in the WHO European Region, the prevalence of sexual abuse is 9.6%, physical abuse 22.9%, and mental abuse 29.1% (Sethi et al. 2013). Child maltreatment is one of the more serious forms of ACE, though other adversity may also be present, such as that due to household dysfunction, where a household member may have a mental illness, drug or alcohol problem, be incarcerated, or where there is parental violence or separation (Felitti et al. 1998).

The lack of safe and nurturing relationships in childhood is thought to adversely affect neurodevelopmental growth and, in turn, the emotional, cognitive and behavioural development of a child. ACEs are linked both to a propensity for increased violence later in life and health-harming behaviours, such as alcohol and drug misuse, physical inactivity, depression and self-harm, leading to poor health outcomes, including an increased risk of developing noncommunicable diseases (NCDs) and psychiatric disorders. The scale, risks, consequences and evidence base for preventive action and policy options are summarized in the *European report on preventing child maltreatment* (Sethi et al. 2013). In view of the concern about the scale and consequences of child maltreatment, all 53 Member States of the WHO Regional Committee for Europe gave their unanimous support to resolution RC64/R6 "Investing in children: the European child and adolescent health strategy 2015–2020 and the European child maltreatment prevention action plan 2015–2020" (WHO Europe, 2014). This calls for leadership by the health sector in coordinating an intersectoral prevention response focusing on improved surveillance, developing a comprehensive national action plan for prevention, and more widespread implementation of prevention programmes. More recently, the 2030 Agenda for Sustainable Development 2016–2030 (United Nations, 2015) adopted in 2015 has Sustainable Development Goal (SDG) target 16.2 that calls for ending all forms of violence against children by 2030.

The Czech Republic has scant data on the prevalence of child maltreatment in the community. In view of the importance of child maltreatment and other ACEs in causing mental ill-health and health-harming behaviours that can lead to the development of NCDs, a survey of ACEs was planned in the

Czech Republic as part of the collaboration between WHO and the Ministry of Health. For pragmatic reasons and in keeping with other surveys in Europe, this was conducted in a representative sample of university students (Qirjako et al. 2012; Baban et al. 2013; Institute of Public Health of Montenegro, 2014).

Policy developments in the Czech Republic

The Czech Republic developed a “National Strategy for the Prevention of Child Abuse and Neglect, 2008–2018”. The strategy defines abuse according to a number of subtypes: emotional, physical and sexual abuse, including non-contact abuse, as well as systematic abuse or commercial sexual abuse (i.e. child prostitution, pornography and trafficking). The strategy calls for legislative intervention and the need for a reliable data collection system to prohibit all forms of child abuse and neglect (Vaníčková et al. 2009). Moreover, the strategy outlines preventive measures, including public campaigns to raise awareness and promote zero tolerance of child abuse. The prevention measures also address other related risk factors such as divorce, alcohol, drug and tobacco abuse (Alkohol u dětí..., 2008; Děti jako svědci..., 2013; Dopady alkoholismu..., 2013; Nešpor, 2013) as well as the illegal possession of weapons. The strategy also outlines prevention measures that address poverty and unemployment, training of first responders to recognize signs of abuse, as well as improving data collection and access to services. A multidisciplinary approach is taken to achieve the six main objectives of the strategy:

1. promote the development of parenting skills;
2. create equal partnerships between schools and workplaces on preventing child abuse using the social media;
3. provide an accessible range of recreational, leisure and sports activities for children;
4. meet the special needs of children placed in institutional care;
5. create safe communities; and
6. convey understanding of the child’s right to protection from violence to society to effect attitudinal change.

Further, the Czech Republic is a signatory to the Council of Europe’s policy on the prevention of child sexual abuse. Given the increase in prevalence of abuse involving electronic communication among children, there has been an increased focus to address the risks of online abuse. Legislation in this area is described in Annex 1.

National data on child maltreatment in the Czech Republic

Data are limited on the prevalence of child abuse in the Czech Republic. Many children may be at risk for abuse due to the high rates of divorce and social exclusion. Administrative data suggest that over the past decade, the number of abuse cases coming to the attention of the social services has increased. Cases of physical violence have increased fourfold and emotional abuse twelvefold. Furthermore, since 1995, the number of sexually abused children has doubled.

Data from the Ministry of Labour and Social Affairs of the Czech Republic show that in 2011, 6642 cases were investigated for child abuse, an increase of 855 from the previous year. The majority of these cases involved children aged 6–15 years. Forty-one per cent of cases occurred in two-parent households and 36% in single-parent households. In 2014, in the Czech Republic, 5484 children with maltreatment were reported and, in 2455 children, this was chronic and repeated. Part of the problem may be due to deinstitutionalization and inadequate welfare support to families at risk. There is increasing concern about pornography and sexual abuse.

In 2010, the Czech police record indicated 133 cases of child rape, with 84 of those cases perpetrated by people providing child care (i.e. parents, teachers, coaches, etc.). It is estimated that between 1% and 2% of children aged 15 years and younger experienced abuse in the past year. According to the latest census, 11% of women and 8% of men were sexually abused at the age of 15 years and younger.

Service response to child maltreatment in the Czech Republic

There is a network of crisis centres for children and families in the Czech Republic, including a 24-hour hotline provided by the Fond ohrožených dětí (Children Protection Fund). Moreover, a number of programmes have been developed to address child abuse. For example, the Mezinárodní bezpečná škola (International Safe School) is a prevention programme to address violence against children. Other programmes include the Bezpečná mateřská škola (Safe Nursery) of the National Coordination Centre for Prevention of Violence and Injuries Inflicted on Children developed by the Motol University Hospital. This programme used educational activities (such as TEACH-VIP – Training, Educating, Advancing, Collaboration in Health on Violence and Injury Prevention) to build capacity among medical and other professionals working in the area of violence prevention (Vaníčková, 2012). Changes have been made to better support children under

the age of 3 years, including the establishment of children's centres, which aim to provide professional care to all children at risk of abuse and their families. Clients could receive day care and other community care services. A specialized educational module based on TEACH-VIP has been accredited to build the capacity of staff to provide support to children. A pilot project to collect injury data by the University Hospital Brno called the National Registry of Children's Injuries should provide valuable information on violence against children; it focuses on intentional and unintentional injuries, their causes, mechanisms and circumstances. The National Coordination Centre for Prevention of Child Abuse and Injury and Promotion of Child Safety has been established in the Motol University Hospital, which works on networking, capacity-building and advocacy.

Some national peer-reviewed publications that address the issue of child abuse are described in Annex 2.

Consequences of child maltreatment and other adverse childhood experiences

The signs of physical abuse may appear as fractures, bruises or skin discolouration (e.g. after burns). These can lead to swelling, eyesight problems, hearing impairment, brain injuries, contusions or death. Ross & Juarez (2014) and Dunovský et al. (1999) provide a list of fatal consequences of violence inflicted on children.

The consequences of child maltreatment and other ACEs have been summarized in numerous publications, including the *European report on preventing child maltreatment* (Sethi et al. 2013). Abuse and neglect will cause immediate emotional and physical harm but may also have far-reaching consequences. Maltreatment may often be chronic and repetitive, with an increased propensity to cause harm. More than one type of abuse or adversity may coexist, and multiple types and greater severity are associated with worse health outcomes in studies on ACE.

The evidence base for poor health outcomes following ACEs is well established (Norman, 2012; Maniglio, 2009). There is strong evidence of mental disorders, including depression, anxiety, eating disorders, attention deficit disorders, drug and alcohol misuse, self-harm and suicide. When taken together, estimates from the WHO world mental health surveys suggest that ACEs are responsible for 30% of all mental disorders at a population level (Kessler et al. 2010).

There is strong evidence that child maltreatment is associated with risky sexual behaviours, with higher teenage pregnancy, a larger number of sexual partners, and sexually transmitted

diseases, including HIV (Maniglio, 2009; Gilbert et al. 2009). Obesity is strongly associated with sexual abuse, and there is emerging evidence of the links between ACEs and reduced physical activity. Increased risks of smoking, drug and alcohol misuse have also been described. These are important risk factors for NCDs (Felitti et al. 1998; Gilbert et al. 2009; Sethi et al. 2013). Young people who have experienced maltreatment in childhood are at increased risk of being involved in further violence in adolescence and adulthood (Sethi et al. 2010; Krug et al. 2003).

The *European report on preventing child maltreatment* (Sethi et al. 2013) highlighted the scale, associated burden and risk factors for ACEs, and prevention programmes. This led to the adoption of *Investing in children: the European child maltreatment prevention action plan 2015–2020* (WHO Europe, 2015). Several countries have conducted ACE surveys among university students in collaboration with WHO, and a combined analysis of the results of these have been published, highlighting that the problem is common and that the consequences may be far-reaching (Bellis et al. 2014).

Ecological model

The ecological model is an important conceptual model proposed by the *World report on violence and health* to understand the risk factors for violence and how prevention programmes may be developed to tackle it (Krug et al. 2002). It consists of four interrelated levels in the causation and prevention of violence. These are at the individual, family, community and societal levels.

At the *individual level* are biological risk factors such as age and gender. In the Czech Republic, as elsewhere, most risk factors are linked to perpetrators. These include an alcohol or drug problem in a parent or household member, a history of victimization as a child, approval of physical punishment, suffering from mental health problems, social isolation, and/or poor parenting skills. Childhood factors linked to an increased likelihood of maltreatment include conduct disorders such as attention deficit hyperactivity disorder, and children with disability or chronic illness.

Family relationships, i.e. the quality of relationships in the family, affect individual risks associated with violence. At this level, the most frequent risk factors are family breakdown, with separation, intimate partner violence, a lack of support from the extended family or isolation in the community. Other factors include a household member with a mental illness and other causes that lead to a lack of attachment between parents and children. The importance

of an upbringing in a family environment is stressed by many authors, such as Vaníčková (2012), and Verny and Weintraubova (2013).

At the *community level*, factors such as social relationships in the neighbourhood, at the work site or in the school can contribute to child maltreatment. Risk factors at this level include high unemployment and poverty, easy access to alcohol and drugs, and community tolerance of violence.

Societal factors include conditions in the society that contribute to the likelihood of maltreatment occurring. The following factors are of concern in the Czech Republic: economic inequality among families, high rates of divorce, high unemployment rates of parents, and the use of physical punishment to discipline children. Further, there is

increasing concern regarding the influence of the media and video games in glorifying violence.

It is also important to emphasize protective factors that protect from violence against children, such as secure attachments, and warm and nurturing relationships.

Aims

The aims of study were to measure the prevalence of child maltreatment and other ACEs in a representative sample of university students in the Czech Republic, to investigate the association between ACEs and health-harming behaviours, and to test whether there is a significant relationship between increased exposure to ACEs and the odds of developing health-harming behaviours.

2. METHODS

We recruited undergraduate students from five different universities in the Czech Republic, mostly those in their first and second years. The students were enrolled in non-medical study programmes. The study was conducted from January to June 2013. Of the total of 2030 students selected, 1760 students or 87% participated: 506 men and 1254 women. Seventy-nine questionnaires (49 women and 30 men) were not included in the evaluation due to the fact that the responses were incomplete, particularly for questions concerning sexual abuse. Thus, a total of 1681 participants completed the study.

A random selection resulted in the following universities: Faculty of Health and Social Studies (University of South Bohemia) in České Budějovice; Technical University of Liberec; Faculty of Health Studies (University of Pardubice); Faculty of Biomedical Engineering in Kladno (Czech Technical University in Prague); and College of Polytechnics Jihlava. Another random selection was implemented at this stage.

The primary data of the empirical research were collected via a quantitative method of questionnaire application. The ACEs questionnaire was developed by the US Centers for Disease Control and Prevention (CDC) for the original survey (Felitti et al. 1998; Butchart & Finney, 2006). The questionnaire was translated and back-translated, and the validated questionnaire for women and men was implemented as part of the research.

Data collection

Research was conducted by a team of experienced university personnel who were trained in data collection via ACE questionnaires. Data collection via individual completion of questionnaires was chosen, because the respondents might feel uncomfortable during guided interviews with the researcher, and therefore unwilling to admit to ACEs, which would lead to data distortion.

Ethics approval

The study was approved by the Ethical Committees of the Faculty of Health and Social Studies, University of South Bohemia and all the participating faculties. Each student signed his/her informed consent form for the research. Participation was voluntary. If respondents declined to participate, the researchers respected their decision. Participants were informed about the anonymity of data provision. Resources including help lines for victims of child abuse were made available to students.

Data analysis

The prevalence of ACEs was established from the collected data. The next stage was to determine odds ratio estimates in order to understand the relationship between the different categories of ACEs (e.g. household dysfunction and childhood abuse and neglect).

Childhood experiences and types of health risk behaviour. Logistic regression analysis was used to adjust for the potential confounding effects of age, sex and socioeconomic status.

For comparison of the distribution of behavioural/lifestyle factors in men versus women, a chi-squared test and/or the Fisher exact test was used (see Table 2). Prevalence and estimates of odds ratios were computed to obtain a model of association between ACEs and the outcomes of health risk behaviours. For this purpose, we used binary logistic regression analysis to adjust for the potential confounding effects of age categories and sex (Hosmer et al. 2013). Statistical significance was set at $P \leq 0.05$ for all analyses. Numerical calculation was performed by the statistical software IBM SPSS (Statistical Package for Social Sciences, version 20).

3. RESULTS

The characteristics of the study population are described in Table 1. The mean age was 20.4 years, and there were considerably more women than men (71.4%). Almost two thirds were single; 17.9% had parents who were at least graduates and 86.6% had parents in full-time employment.

Table 1. Sociodemographic characteristics of 1681 study participants, Czech Republic, 2013

Characteristics	N	%
<i>Age in years</i>		
Mean	20.42	-
18–19	387	23.0
20–21	600	35.7
22–23	538	32.0
24–25	152	9.0
25–26	4	0.2
<i>Gender</i>		
Men	480	28.6
Women	1201	71.4
<i>Marital status</i>		
Married	195	11.6
Single, living with a partner	356	21.2
Widowed/divorced	51	3.0
Single	1079	64.2
<i>Parental education</i>		
Primary	90	2.7
Secondary – vocational	1364	40.6
Secondary with school-leaving exam	1307	38.9
University graduate/Technical college	242	7.2
Higher university postgraduate	359	10.7
<i>Parental employment status</i>		
Full-time	2911	86.6
Part-time	216	6.4
Currently not employed	235	6.9

History of childhood exposure to adverse experiences, including maltreatment

The prevalence of the different types of ACEs reported in this study is summarized in Table 2. There was no difference between men and women in the prevalence of different types of maltreatment and household dysfunction. Emotional abuse was the commonest form of maltreatment (20.7%) followed by physical abuse (17.1%). Sexual abuse was the least prevalent at 6.4%. Household dysfunction was also

common, with domestic violence being witnessed by 22.1% and parental separation by 23%. Alcohol misuse by, or mental illness in, a household member was reported by 15.3% and 13.4%, respectively.

In terms of categories of ACEs, the largest group were respondents who reported having no ACE (37.8%). One type of ACE was reported by 24.9% of respondents. Two or three types of ACEs were reported by 27.4%, and four or more types of ACEs by 9.9%.

Table 2. Prevalence of adverse childhood experiences (ACEs) during the first 18 years of life among men and women, Czech Republic, 2013

CATEGORY	Men	Women	Both sexes	P-value	
	Men, % of total	Women, % of total	% of total (n)	Chi-square test	Fisher exact test
ACE	(n = 480)	(n=1201)	100% (n=1681)		
Childhood abuse and neglect					
Physical abuse	18.3% (88)	16.7% (200)	17.1% (288)	0.409	0.431
Contact sexual abuse	6.3% (30)	6.4% (77)	6.4% (107)	0.903	1.000
Emotional abuse	21.9% (105)	20.2% (243)	20.7% (288)	0.453	0.464
Physical neglect	8.1% (39)	7.9% (95)	8.0% (134)	0.883	0.921
Household dysfunction					
Household member with drug abuse	5% (24)	4.9% (59)	4.9% (83)	0.940	1.000
Household member with alcohol abuse	15.2% (73)	15.4% (185)	15.3% (258)	0.920	0.940
Household member with mental illness	14.4% (69)	13% (156)	13.4% (225)	0.451	0.475
Attempt to commit suicide in family	3.3% (16)	4.2% (50)	3.9% (66)	0.429	0.489
Domestic violence ... mother treated violently	21.3% (102)	22.5% (270)	22.1% (372)	0.583	0.603
Family member imprisoned	1.3% (6)	1.4% (17)	1.4% (23)	0.792	1.000
Parental separation or divorce	22.1% (106)	23.3% (280)	23.0% (386)	0.588	0.608
Number of categories of adverse childhood experiences					
0 ACE	39.2% (188)	37.3% (448)	37.8% (636)		
1 ACE	23.3% (112)	25.6% (307)	24.9% (419)		
2–3 ACEs	26.7% (128)	27.6% (332)	27.4% (460)		
4+ ACEs	10.8% (52)	9.5% (114)	9.9% (166)		

Correlations among the categories of adverse childhood experiences

Table 3 shows the relationship between the categories of ACEs. Interpretation is as follows. Of those respondents who reported living in a family with an imprisoned family member, 78.3% experienced living with separated or divorced parents. In general, the study found associations among all the adverse childhood experiences except between those who experienced childhood sexual abuse and imprisonment of a family member.

In terms of mental illness, emotional abuse was the most frequent (41.8%). The most significant risk factors were alcohol problems in the family (24.9%) and parental divorce (33.3%). In terms of physical neglect, there was a connection to emotional abuse (65.7%) and, similarly, there was an increased risk of physical abuse, alcohol problems in a family, and parental divorce; in other words, an incomplete family background. Adverse experiences involving sexual abuse increased the risk factors even more, especially in cases with parental divorce (35.5%). The respondents, who at times

experienced physical neglect, had lower exposure levels in the other categories. Physical abuse, however, was linked with a higher exposure to emotional abuse (44.1%), followed by a higher exposure to alcohol problems in a family (21.2%).

The evaluation of family dysfunction and respondents' exposure to other categories of adverse experiences showed that respondents who reported being exposed to drug use had the highest risk of exposure to parental divorce (48.2%) and to alcohol abuse in the family (28.9%). In case of exposure to experiences of alcohol abuse in the family, there was a higher risk of parental separation (43.8%), followed by emotional abuse (30.6%).

An increase in emotional abuse (43.5%) was seen in those living in a family with an imprisoned family member. Domestic violence committed on a respondent's mother was accompanied by higher exposure to alcohol in the family (30.1%) and significantly increased exposure to an incomplete family setting (43.5%). Parental separation or divorce was associated with alcohol abuse in the family (29.3%) and emotional abuse (28.2%).

Table 3. Relationship among categories of adverse childhood exposures, Czech Republic, 2013

First category of adverse experiences	Sample size ^a	Percentage (%) exposed to another category of adverse childhood experience										
		Alcohol	Mental illness	Drug abuse	Parental separation	Attempt to commit suicide	Family member imprisoned	Domestic violence	Physical neglect	Emotional abuse	Physical abuse	Sexual abuse
Alcohol abuse	258	-	21.7%	9.3%	43.8%	7.4%	3.9%	43.4%	9.7%	30.6%	23.6%	10.9%
Mental illness	225	24.9%	-	8.0%	33.3%	6.2%	1.8%	28.9%	13.3%	41.8%	30.2%	12.0%
Drug abuse	83	28.9%	21.7%	-	48.2%	15.7%	4.8%	24.1%	14.5%	36.1%	37.3%	16.9%
Parental separation	386	29.3%	19.4%	10.4%	-	7.5%	4.7%	42.0%	9.8%	28.2%	22.5%	9.8%
Attempt to commit suicide	66	28.8%	21.2%	19.7%	43.9%	-	4.6%	30.3%	13.6%	28.8%	36.4%	18.2%
Family member imprisoned	23	43.5%	17.4%	17.4%	78.3%	13.0%	-	56.5%	21.7%	43.5%	13.0%	0.0%
Domestic violence	372	30.1%	17.5%	5.4%	43.5%	5.4%	3.5%	-	14.0%	29.6%	32.5%	10.2%
Physical neglect	134	18.7%	22.4%	9.0%	28.4%	6.7%	3.7%	38.8%	-	65.7%	41.0%	9.0%
Emotional abuse	348	22.7%	27.0%	8.6%	31.3%	5.4%	2.9%	31.6%	25.3%	-	36.5%	13.8%
Physical abuse	288	21.2%	23.6%	10.8%	30.2%	8.3%	1.0%	42.0%	19.1%	44.1%	-	12.8%
Sexual abuse	107	26.2%	25.2%	13.1%	35.5%	11.2%	0.0%	35.5%	11.2%	44.9%	34.6%	-

^a Number exposed to first category

Prevalence and odds ratios of health risk behaviours with respect to adverse childhood exposures

Table 4 presents the prevalence and association between exposure to different types of ACEs and health-harming behaviours reported by students. This table shows that being exposed to a family member with a mental illness, using street drugs, and one who has attempted suicide, as well as parental separation during childhood, and being victims of emotional, physical and sexual abuse are significantly

associated with increase odds for suicide attempt. Those students who experienced childhood sexual abuse are more likely to report engaging in risky sexual behaviour (sexual intercourse before 16 years of age or having four or more partners), using illegal drugs and starting to smoke early. Moreover, students who reported childhood physical neglect have about four times the odds for unintended pregnancy. Living with a family member who used street drugs during childhood has more than six times the odds for using illegal drugs, more than three times the odds for risky sexual behaviour and three times the odds for suicide attempt.

Table 4. Prevalence and odds ratio of types of health risk behaviour with respect to adverse childhood exposures, Czech Republic, 2013

	Currently smoking	Early smoking habit (15 years or younger)	Currently drink alcohol	Illegal drug use	Early sex (16 years and younger)	More partners (≥4)	Unintended pregnancy	Early pregnancy	Weight ≥85 kg	Suicide attempt
Number of respondents	1681	684	1681	1681	1681	1681	1201	1201	1681	1681
Prevalence (frequency)	25.8 (433)*	24.71 (169)	85.01 (1429)	17.73 (298)	20.52 (345)	33.02 (555)	6.16 (74)	3.91 (47)	10.53 (177)	3.21 (54)
Household member problem drinker	1.36 (1.0–1.8)	1.10 (0.7–1.7)	0.86 (0.6–1.2)	1.68 (1.2–2.3)	1.55 (1.1–2.1)	1.37 (1.0–1.8)	1.56 (0.9–2.8)	1.94 (1.0–3.8)	0.94 (0.6–1.5)	1.26 (0.6–2.5)
Household member has mental illness	1.36 (1.0–1.9)	1.54 (1.0–2.4)	0.73 (0.5–1.1)	1.44 (1.0–2.0)	1.03 (0.7–1.4)	1.92 (1.4–2.5)	1.47 (0.8–2.7)	3.74 (2.0–7.0)	1.07 (0.7–1.7)	9.96 (5.7–17.4)
Household member using street drugs	2.44 (1.6–3.8)	1.50 (0.8–2.7)	1.69 (0.8–3.5)	6.64 (4.2–10.5)	1.72 (1.1–2.8)	3.46 (2.2–5.5)	0.81 (0.2–2.6)	0.86 (0.2–3.6)	0.53 (0.2–1.3)	3.04 (1.3–6.9)
Parental separation	1.51 (1.2–1.9)	1.05 (0.7–1.6)	1.08 (0.8–1.5)	1.59 (1.2–2.1)	1.70 (1.3–2.2)	1.78 (1.4–2.2)	1.33 (0.8–2.2)	0.66 (0.3–1.5)	1.09 (0.8–1.6)	2.38 (1.4–4.2)
Living with someone who has attempted suicide	1.00 (0.6–1.8)	1.35 (0.5–3.3)	0.59 (0.3–1.1)	1.15 (0.6–2.1)	0.86 (0.4–1.6)	1.62 (1.0–2.7)	2.63 (1.1–6.1)	3.69 (1.5–9.2)	1.18 (0.6–2.5)	3.27 (1.3–7.9)
Imprisoned family member	2.20 (1.0–5.2)	1.50 (0.5–5.2)	0.49 (0.2–1.3)	2.06 (0.8–5.0)	3.04 (1.3–7.0)	1.31 (0.6–3.0)	0.95 (0.1–7.3)	0.96 (0.9–1.0)	0.81 (0.2–3.5)	1.38 (0.2–10.4)
Witnessed domestic violence	1.4 (1.1–1.8)	1.40 (1.0–2.0)	1.05 (0.8–1.5)	1.56 (1.2–2.1)	1.29 (1.0–1.7)	1.75 (1.4–2.2)	1.12 (0.6–1.9)	0.81 (0.4–1.7)	0.79 (0.5–1.2)	1.80 (1.1–3.2)
Physical neglect	1.3 (0.9–1.9)	1.17 (0.6–2.1)	0.67 (0.4–1.1)	1.07 (0.7–1.7)	1.13 (0.7–1.7)	1.56 (1.1–2.2)	4.01 (2.2–7.2)	2.52 (1.1–5.6)	0.99 (0.6–1.8)	3.13 (1.6–6.2)
Emotional abuse	1.2 (0.9–1.5)	1.03 (0.7–1.5)	0.90 (0.7–1.2)	1.19 (0.9–1.6)	1.08 (0.8–1.4)	1.79 (1.4–2.3)	1.50 (0.9–2.6)	1.90 (1.0–3.6)	0.87 (0.6–1.3)	7.11 (4.0–12.5)
Physical abuse	1.57 (1.2–2.1)	2.28 (1.5–3.4)	0.90 (0.6–1.3)	1.68 (1.2–2.3)	1.13 (0.8–1.5)	1.72 (1.3–2.2)	1.54 (0.9–2.7)	1.76 (0.9–3.5)	0.99 (0.7–1.5)	3.52 (2.0–6.1)
Sexual abuse	1.50 (1.0–2.3)	2.38 (1.4–4.1)	1.00 (0.6–1.7)	2.91 (1.9–4.4)	2.27 (1.5–3.4)	3.02 (2.0–4.5)	0.39 (0.1–1.6)	0.99 (0.3–3.3)	0.87 (0.4–1.7)	3.58 (1.8–7.3)

* Values in parentheses indicate 95% confidence intervals. Note: numbers rounded to the nearest decimal point.

Prevalence and adjusted odds ratios of health-harming behaviours with respect to number of ACEs

Table 5 shows the association between health-harming behaviours and number of ACEs. It shows that there are significant associations between some health-harming

behaviours and the occurrence of ACEs. For example, students who reported having four or more ACEs had 3.7 times the odds for reported early pregnancy, 2.5 times the odds for unintended pregnancy, 2.4 times the odds of current smoking, 2.9 times the odds for illegal drug use, 4.0 times the odds for having more than four partners, and 23.6 times the odds for suicide attempts.

Table 5. Prevalence and adjusted odds ratios of health risk behaviours with respect to number of adverse childhood exposures, Czech Republic, 2013 (adjusted odds to age and gender)

Health risk behaviour	Number of adverse childhood exposures				
	Prevalence (%)	None (n=636)	1 (n=419)	2–3 (n=460)	4 + (n=166)
Currently smoking		21.38%	25.29%	27.61%	38.55%
Total sample, N = 1681	433 (25.76)	136	106	127	64
OR (95% CI)		1.0 (reference)	1.23 (0.92–1.65)	1.37 (1.04–1.82)**	2.38 (1.65–3.44)***
Early smoking habit		7.07%	7.15%	13.47%	19.27%
Total sample, N = 684	169 (24.71)	45	30	62	32
OR (95% CI)		1.0 (reference)	0.82 (0.49–1.39)	1.57 (1.0–2.45)*	1.84 (1.08–3.16)**
Currently drink alcohol		83.80%	89.02%	83.67%	83.13%
Total sample, N= 1681	1421 (84.53)	533	373	385	138
OR (95% CI)		1.0 (reference)	1.59 (1.09–2.31)**	1.01 (0.73–1.39)	0.974 (0.62–1.54)
Illegal drug use		11.95%	15.27%	23.91%	28.92%
Total sample, N = 1681	298 (17.73)	76	64	110	48
OR (95% CI)		1.0 (reference)	1.29 (0.90–1.85)	2.28 (1.65–3.15)***	2.90 (1.92–4.39)***
Early sex		18.55%	14.31%	26.09%	28.31%
Total sample, N = 1681	345 (20.52)	118	60	120	47
OR (95% CI)		1.0 (reference)	0.73 (0.52–1.03)	1.55 (1.16–2.06)***	1.75 (1.18–2.59)***
≥ 4 partners		25.31%	28.88%	38.26%	58.43%
Total sample, N = 1681	555 (33.02)	161	121	176	97
OR (95% CI)		1.0 (reference)	1.20 (0.91–1.58)	1.86 (1.43–2.42)***	4.02 (2.81–5.76)***
Body weight above 85 kg		9.75%	11.93%	11.52%	7.23%
Total sample, N = 1681	177 (10.53)	62	50	53	12
OR (95% CI)		1.0 (reference)	1.26 (0.85–1.87)	1.20 (0.81–1.77)	0.74 (0.39–1.42)
Suicide attempt		0.63%	0.95%	5.65%	12.05%
Total sample, N = 1681	54 (3.21)	4	4	26	20
OR (95% CI)		1.0 (reference)	1.52 (0.38–6.13)	9.37 (3.24–27.09)***	23.63 (7.91–70.59)***
Health risk behaviours specific to women, N = 1201	Prevalence (%)	None (n=448)	1 (n=307)	2–3 (n=332)	4 + (n=114)
Early pregnancy, women		2.9%	4.23%	3.01%	9.65%
Total sample, N = 1201	47 (3.91)	13	13	10	11
OR (95% CI)		1.0 (reference)	1.54 (0.70–3.38)	1.07 (0.46–2.49)	3.70 (1.60–8.53)***
Unintended pregnancy, women		4.69%	4.89%	7.83%	10.53%
Total sample, N = 1201	74 (6.16)	21	15	26	12
OR (95% CI)		1.0 (reference)	1.09 (0.55–2.16)	1.81 (1.0–3.29)	2.49 (1.18–5.25)**

Values in parentheses indicate 95% confidence limits for odds ratios. *P-value ≤0.1; ** P-value ≤0.05; *** P-value ≤0.01

4. DISCUSSION

This study shows that the prevalence of child maltreatment and other ACEs is high among a representative population of university students in the Czech Republic. The lifetime prevalence of physical abuse was 17%, emotional abuse 20.7%, physical neglect 8% and sexual abuse 6.4%, with no difference between the sexes. These rates are in keeping with those described in previous ACE surveys conducted in similar European populations (Bellis et al. 2014). They are somewhat lower than those described in the *European report on preventing child maltreatment* (Sethi et al. 2013), where emotional abuse was described in 29%, emotional neglect in 18.4%, physical abuse in 22.9%, sexual abuse in 9.6% (13.4% girls, 5.7% boys), and physical neglect in 16.3%. The lower prevalence among university students may be explained by the fact that they are from a relatively privileged population, and that ACEs are socioeconomically determined to a large extent (Sethi et al. 2013; Bellis et al. 2014; Butchart & Phinney, 2006). It is interesting to note that there was no difference in the prevalence of sexual abuse by sex, which was different from the findings in the existing literature; for example, a prevalence of sexual abuse of 13.4% in girls and 5.7% in boys has been described in Europe (Sethi et al. 2013). Some studies from the Balkan countries describe the reverse pattern (Qirjako et al. 2013; Raleva et al. 2013).

The prevalence of household dysfunction was also high. For example, 22.1% reported having witnessed their mother being treated violently, 23% had parents who were separated, 15.3% reported that a household member had an alcohol problem and 13.4% reported a mental illness. Importantly, whereas 38% of the population experienced no ACEs, almost one in 10 experienced four or more ACEs. The findings show that there was an increased association between the number of ACEs experienced and health-harming behaviours. In particular, there was an almost 24-fold increased odds of attempted suicide, 4-fold increased odds of risky sexual behaviour, 3-fold increased odds of illegal drug use, and 2-fold increased odds of tobacco use in students who had experienced four or more ACEs compared to those who had experienced none. This is in keeping with the literature, which demonstrates that the consequences of ACEs are far-reaching, resulting in health-harming behaviours. These may lead to poorer physical and mental health and social outcomes (Bellis et al. 2014; Butchart & Phinney, 2006; Sethi et al. 2013; Felitti et al. 1998; Anda et al. 2006). A study by Ramiro in the Philippines and a combined analysis of Eastern European ACE surveys also

show a strong relationship between exposure to ACEs and health-harming behaviours (Bellis et al. 2015; Ramiro et al. 2010).

The effects of family dysfunction on the development of Czech children has been described (Dunovský, 1986a, b; Dunovský et al. 1999; Matějček & Dytrych, 1994, 2002; Flaherty et al. 2006), and results in negative psychological and health problems. Living with a family member who is dependent on alcohol or drugs, who has a mental disease or who was imprisoned for a certain type of criminal activity and violence, can adversely affect children. Such children may have higher levels of aggression, delinquency, sensation-seeking, hyperactivity, impulsiveness, anxiety, negative activity and problems at school (Flaherty et al. 2006; Dolan & Whitworth, 2013; Giancola & Parker, 2001; Anda et al. 2006; Dube et al. 2006; Kleinman et al. 1998). Children from families where the parents were separated or divorced suffer from post-traumatic stress disorder (Graham-Bermann & Levendosky, 1998). These children are at considerable risk for violation of the law, dependence on substances, absence from school and problems in relationships (Devries et al. 2014; Finkelhor et al. 2007).

Childhood trauma can not only cause immediate physical injury, but may cause long-lasting biological, physiological and psychological changes by triggering toxic stress. The propensity of ACEs to cause an increase in smoking and drug use in this study is linked to the development of NCDs in later life. Alcohol misuse, physical inactivity and obesity have been described in other studies, also with an increased risk of NCDs (Bellis et al. 2014; Bellis et al. 2015; Felitti et al. 1998). Further victimization in childhood is associated with increased risks of either being a victim or perpetrator of violence in adolescence and adult life, thereby contributing to the intergenerational transmission of violence (Sethi et al. 2013; Krug et al. 2002; Butchart & Phinney, 2006).

The importance of the life-course approach for attaining better population health is being increasingly emphasized. Recently, the Minsk Declaration recognized the importance of early childhood development, nurturing relationships, and the absence of adversity in childhood as critical to preventing ill-health in later life (WHO Europe, 2015). Investing in early childhood development, and preventing and dealing with crises in a timely manner at critical stages of life such as childhood and adolescence would lead to better health and social outcomes, with less NCDs, mental illness and

reproductive health disorders. Such investment would also help individuals and societies achieve their full developmental and economic potential.

Limitations

Our study had some limitations. Twenty-nine per cent of the participants were men, which was lower than the proportion of men (42%) in tertiary studies (Eurostat, 2015). This may be partly attributable to the fact that the faculties studied had a higher proportion of women, but may also be due to higher non-response rates by men. The random selection resulted in universities that had a higher attendance of women. Although the overall response rate was high, the possibility of non-responder bias cannot be excluded.

The population selected consisted of university students. Clearly, these are not representative of the population as a

whole and represent a relatively privileged section of society. Results cannot therefore be extrapolated to the whole of society, where ACEs and their consequences are likely to be higher. Further, the cross-sectional design limits inference of causality between ACEs and health-harming behaviours. The questionnaire is self-reported, and as the questions are about sensitive topics, this may have influenced the responders to provide more socially acceptable responses. Participants who submitted incomplete questionnaires and those who had not signed the consent forms were excluded from the study. The retrospective approach may have resulted in a recall bias. In spite of these limitations, the results of the study nevertheless show the high prevalence of ACEs, and are in keeping with a growing body of literature (Bellis et al. 2014; Anda et al. 2006; Felitti et al. 1998; Baban et al. 2013; Qirjako et al. 2012; Raleva et al. 2013; Mugosa et al. 2014; Kacheva et al. 2014; Ramiro et al.2010).

THE WAY FORWARD

The far-reaching consequences of childhood adversity emphasizes the importance of preventing child maltreatment and other ACEs from occurring in the first place. Numerous cost-effective interventions have been described in the *European report on preventing child maltreatment* and related documents (Sethi et al. 2013; Butchart & Phinney, 2006; Hardcastle et al. 2015; WHO, 2016). These include positive parenting, preschool education, home visitation, school-based training of children to recognize the signs of sexual abuse, hospital-based training of parents to prevent abusive head trauma, and changing norms about the use of violence for disciplining children. In view of the high prevalence of ACEs and associated health-harming behaviours in the Czech Republic, and the likelihood of a high burden of consequent disease, it is important that greater priority be given to prevention programming. All 53 Member States of the WHO European Region, including the Czech Republic, supported the adoption of *Investing in children: the European child maltreatment prevention action plan 2015–2020* at the Sixty-fourth Regional Committee (WHO Europe, 2015). The European action plan calls for better surveillance and surveys, greater investment in prevention programming, and national action plans to coordinate the delivery of prevention programmes. To help Member States and practitioners achieve this, the WHO Regional Office for Europe has developed three handbooks for the three objectives: (1) *Measuring and monitoring prevalence of child maltreatment: a practical handbook* (Meinck et al. 2016); (2) *Handbook on developing national action plans to prevent child maltreatment* (Grey et al. 2016); (3) *Implementing child maltreatment prevention programmes: what the experts say* (Hardcastle et al. 2015). The *European report on preventing child maltreatment* (Sethi et al. 2013) provides eight key action points for preventing child maltreatment in the European Region:

- developing national policies for prevention through multisectoral action;
- taking action with evidence-based prevention interventions/programmes;

- strengthening health systems' prevention and rehabilitation responses;
- building capacity and exchanging good practices;
- improving data collection for monitoring and evaluation;
- defining research priorities;
- raising awareness of, and targeting investment to, best buys;
- addressing equity in child maltreatment in the Region.

Only about 10% of child maltreatment occurring in the community is detected and reported to child maltreatment agencies, emphasizing the importance of surveys to increase awareness and knowledge of the scale of the problem, and to advocate for prevention programmes and service responses (Sethi et al. 2013; Gilbert et al. 2009; Meinck et al. 2016). Our survey among university students in the Czech Republic reported a high prevalence of ACEs and associated health-harming behaviours. Although routine information systems such as from child protection services also report cases of child maltreatment, these are cases at risk who have come to the attention of the welfare and justice services, and underestimate the scale of the problem in the community. Such information also needs to be supplemented by health systems data, such as those being collected by the child injury surveillance system established in the Czech Republic, and population surveys of children. This survey has contributed towards delivering on the first objective of the European action plan. It highlights the need for more coordinated action by different sectors to deliver prevention programming. A strong national policy response is needed to address the unmet needs of the population and to enact prevention programming in the community.

REFERENCES

1. Alkohol u dětí a mládeže [editorial] (2008). [Alcohol in children and youth]. In: Sociální práce [website]. [cit. 2013-10-12] (<http://socialni-prace.webnode.cz/alkoholismus-a-koureni/>, accessed 22 December 2016). (in Czech)
2. Anda RF, Felitti VJ, Walker J, Whitfield CL, Bremner JD, Perry BD et al. (2006). The enduring effects of abuse and related adverse experiences in childhood: a convergence of evidence from neurobiology and epidemiology. *Eur Arch Psychiatry Clin Neurosci*. 56:174–86.
3. Baban A, Cosma A, Balaszi R, Sethi D, Olsavsky V (2013). Survey of adverse childhood experiences among Romanian university students: study report from the 2012 survey. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0009/187713/e96846.pdf?ua=1, accessed 22 December 2016).
4. Bellis MA, Hughes K, Leckenby N, Jones L, Baban A, Kachaeva M et al. (2014). Adverse childhood experiences and associations with health-harming behaviours in young adults: surveys in eight eastern European countries. *Bull World Health Organ*. 92:641–55B. doi: <http://dx.doi.org/10.2471/BLT.13.129247>
5. Bellis MA, Hughes K, Leckenby N, Hardcastle KA, Perkins C, Lowey H (2015). Measuring mortality and the burden of adult disease associated with adverse childhood experiences in England: a national survey. *J Public Health*. 37(3):445–54.
6. Butchart A, Phinney A. (2006). Preventing child maltreatment: a guide to taking action and generating evidence. Geneva: WHO (http://apps.who.int/iris/bitstream/10665/43499/1/9241594365_eng.pdf, accessed 22 December 2016).
7. Convention on the Rights of the Child. Adopted and opened for signature, ratification and accession by General Assembly resolution 44/25 of 20 November 1989 entry into force 2 September 1990, in accordance with Article 49 (1989). New York (NY): United Nations, Office of the High Commissioner (<http://www.ohchr.org/en/professionalinterest/pages/crc.aspx>, accessed 9 December 2016).
8. Děti jako svědci domácího násilí [editorial] (2013). [Children as witnesses of domestic violence]. Informační a poradenské centrum ROSA [website]. [cit. 2013-10-08]. (<http://www.rosa-os.cz/fileadmin/rosa/StatistikaROSA2003.pdf>) (in Czech).
9. Devries KM, Child JC, Allen E, Walakira E, Parkes J, Naker D (2014). School violence, mental health, and educational performance in Uganda. *Pediatrics*. 133:129–37.
10. Dolan M, Whitworth H (2013). Childhood sexual abuse, adult psychiatric morbidity, and criminal outcomes in women assessed by medium secure forensic service. *J Child Sex Abus*. 22:191–208.
11. Dopady alkoholismu rodičů na děti [editorial] (2013). [The impact of parental alcoholism on children]. Nadace Síruš [website]. [cit. 2013-08-25]. (<http://www.sancedetem.cz/cs/hledam-pomoc/rodina-v-problemove-situaci/rodice-jsou-zavisli/dopady-alkoholismu-rodicu-na-deti.shtml>, accessed 22 December 2016) (in Czech).
12. Dube SR, Miller JW, Giles WH, Felitti VJ, Dong M, Anda RF (2006). Adverse childhood experiences and the association with ever using alcohol and initiating alcohol use during adolescence. *J Adolesc Health*. 38:444.e1–e10.
13. Dunovský J (1986a). Dítě a poruchy rodiny. [The child and family disorders]. 1st ed. Prague: Avicenum (in Czech).
14. Dunovský J (1986b). Rodina a její poruchy ve vztahu k dítěti. [The family and its disorders in relation to the child]. Prague: SEVT (in Czech).
15. Dunovský J (1999). Sociální pediatrie: vybrané kapitoly. [Social pediatrics: selected chapters]. 1st ed. Prague: Grada (in Czech).
16. Tertiary education statistics. In: Eurostat statistics explained [website] (http://ec.europa.eu/eurostat/statistics-explained/index.php/Tertiary_education_statistics#Further_Eurostat_information, accessed 10 February 2017).
17. Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V et al. (1998). The relationship of adult health status to childhood abuse and household dysfunction to many of the leading causes of death in

- adults: the adverse childhood experiences (ACE) study. *Am J Prev Med.* 14:245–58.
18. Finkelhor D, Ormrod RK, Turner HA (2007). Poly-victimization and trauma in a national longitudinal cohort. *Dev Psychopathol.* 19:149–66.
 19. Flaherty EG, Thompson R, Litrownik AJ, Theodore A, English D, Black M et al. (2006). Effect of early childhood adversity on child health. *Arch Pediatr Adolesc Med.* 160:1232–8.
 20. Giancola PR, Parker AM (2001). A six-year prospective study of pathways toward drug use in adolescent boys with and without a family history of a substance use disorder. *J Stud Alcohol.* 62:166–78.
 21. Gilbert R, Widom CS, Browne K, Fergusson D, Webb E, Janson S (2009). Burden and consequences of child maltreatment in high-income countries. *Lancet.* 373:68–81.
 22. Graham-Bermann SA, Levendosky AA (1998). Traumatic stress symptoms in children of battered women. *J Interpers Violence.* 13:111–28.
 23. Grey J, Jordanova Pesevska D, Sethi D, Ramiro Gonzalez AM, Yon Y (2016). Handbook on developing national action plans to prevent child maltreatment. Copenhagen: WHO Regional Office for Europe (<http://www.euro.who.int/en/health-topics/disease-prevention/violence-and-injuries/publications/2016/handbook-on-developing-national-action-plans-to-prevent-child-maltreatment-2016>, accessed January 2017).
 24. Hardcastle KA, Bellis MA, Hughes K, Sethi D (2015). Implementing child maltreatment prevention programmes: what the experts say. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0009/289602/Maltreatment_web.pdf?ua=1, accessed 22 December 2016).
 25. Hosmer DW, Jr, Lemeshow S, Sturdivant RX (2013). Applied logistic regression, third edition. Hoboken, NJ: Wiley.
 26. Kachaeva MA, Sethi D, Badmaeva VD, Novozhilov AV, Ivanov AV (2014). Survey on the prevalence of adverse childhood experiences among young people in the Russian Federation. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0010/267283/Survey-on-the-prevalence-of-adverse-childhood-experiences-among-young-people-in-the-Russian-Federation-Eng.pdf, accessed 22 December 2016).
 27. Kessler RC, McLaughlin KA, Green JG, Gruber MJ, Sampson NA et al. (2010). Childhood adversities and adult psychopathology in the WHO world mental health surveys. *Br J Psych.* 197:378–85.
 28. Kleinman RE, Murphy JM, Little M, Pagano M, Wehler CA, Regal K et al. (1998). Hunger in children in the United States: potential behavioral and emotional correlates. *Pediatrics.* 101:100–11.
 29. Krug EG, Dahlberg LL, Mercy JA, Zwi AB, Lozano R, editors. (2002). World report on violence and health. Geneva: World Health Organization (http://apps.who.int/iris/bitstream/10665/42495/1/9241545615_eng.pdf, accessed 22 December 2016).
 30. Maniglio R (2009). The impact of child sexual abuse on health: a systemic review of reviews. *Clin Psychol Rev.* 29:647–57.
 31. Matějček Z, Dytrych Z (1994). Děti, rodina a stres: vybrané kapitoly z prevence psychické zátěže u dětí. [Children, family and stress: selected chapters from the prevention of mental load in children]. 1st ed. Prague: Galén (in Czech).
 32. Matějček Z, Dytrych Z (2002). Krizové situace v rodině očima dítěte: dětská závist – žárlivost, nevěra a rozvod – nový partner v rodině, nevlastní sourozenci – vzpomínky z dětství. [Crisis situations in the family through the eyes of a child: children's envy – jealousy, infidelity and divorce – a new partner in the family, half siblings – childhood memories]. 1st ed. Prague: Grada (in Czech).
 33. Meinck F, Steinert JA, Sethi D, Gilbert R, Bellis MA, Mikton C et al. (2016). Measuring and monitoring prevalence of child maltreatment: a practical handbook. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0003/317505/Measuring-monitoring-national-prevalence-child-maltreatment-practical-handbook.pdf, accessed 22 December 2016).
 34. Institute of Public Health of Montenegro (2013). Survey on adverse childhood experiences in Montenegro. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0003/279201/Survey-Adverse-Childhood-Experiences-Montenegro.pdf, accessed 22 December 2016).

35. Nešpor K (2013). Aspekty dětského pití alkoholu a potenciální závislosti na něm [Aspects of children's alcohol drinking and potential dependence on it]. *Alkoholik* [website]. [cit. 2013-10-06]. (http://www.alkoholik.cz/zavislost/deti_a_alkohol/aspekty_detskeho_piti_alkoholu_a_potencialni_zavislosti_na_nem_alkoholismu.html, accessed 22 December 2016) (in Czech).
36. Norman RE, Byambaa M, De R, Butchart A, Scott J, Vos T. The long-term health consequences of child physical abuse, emotional abuse, and neglect: a systematic review and meta-analysis. *PLoS Med.* 2012;9(11):e1001349, DOI:10.1371/journal.pmed.1001349.
37. Qirjako G, Burazeri G, Sethi D, Miho V (2013). Community survey on prevalence of adverse childhood experiences in Albania. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0016/181042/e96750.pdf, accessed 22 December 2016).
38. Raleva M, Jordana Peshevska D, Sethi D, editors (2013). Survey on adverse childhood experiences among young people in the former Yugoslav Republic of Macedonia. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0008/185570/e96810.pdf, accessed 22 December 2016).
39. Ramiro LS, Madrid BJ, Brown DW (2010). Adverse childhood experiences (ACE) and health-risk behaviors among adults in a developing country setting. *Child Abuse Negl.* 34:842–855.
40. Ross AH, Juarez CA (2014). A brief history of fatal child maltreatment and neglect. *Forensic Sci Med Pathol.* 10(3):413–22.
41. Sethi D, Bellis M, Hughes K, Gilbert R, Mitos F, Galea G, editors (2013). European report on preventing child maltreatment. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0019/217018/European-Report-on-Preventing-Child-Maltreatment.pdf, accessed 22 December 2016).
42. Sethi D, Hughes K, Bellis M, Mittis F, Racioppi F, editors. European report on preventing violence and knife crime among young people. Copenhagen: WHO Regional Office for Europe; 2010 (<http://www.euro.who.int/en/health-topics/disease-prevention/violence-and-injuries/publications/2010/european-report-on-preventing-violence-and-knife-crime-among-young-people>, accessed 9 December 2016).
43. United Nations. Transforming our world: the 2030 agenda for sustainable development. In: Sustainable Development Knowledge Platform [website] (<https://sustainabledevelopment.un.org/post2015/transformingourworld>, accessed 23 December 2016).
44. Vaníčková E (2012). Prevence násilí ve výchově dětí: příručka pro rodiče. [Prevention of violence in the upbringing of children: a guide for parents]. 1st ed. Prague: UK 3. LF (in Czech).
45. Vaníčková E. (2009). Národní strategie prevence násilí na dětech v ČR na období 2008–2018. [National Strategy for the prevention of child abuse and neglect in the Czech Republic in 2008–2018]. Prague: Úřad vlády ČR (in Czech).
46. Verny TR, Weintraubová P (2013). Rodičovstvo od počatia. [Parenting from conception]. 1st ed. Bratislava: Pozsony Pressburg (in Slovak).
47. Resolution EUR/RC64/R6. Investing in children: the European child and adolescent health strategy 2015–2020 and the European child maltreatment prevention plan 2015–2020. In: Sixty-fourth session of the Regional Committee for Europe, Copenhagen, Denmark, 15–18 September 2014. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0019/259210/64rs06e_InvestChildren_140731.pdf?ua=1, accessed 22 December 2016).
48. WHO Regional Office for Europe (2015). Investing in children: the European child maltreatment prevention action plan 2015–2020. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0011/282863/Investing-in-children-European-child-maltreatment-prevention-action-plan-2015-2020.pdf, accessed 22 December 2016).
49. WHO Regional Office for Europe (2015). The Minsk Declaration. The life-course approach in the context of Health 2020. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0009/289962/The-Minsk-Declaration-EN-rev1.pdf, accessed 22 December 2016).
50. WHO (2016). INSPIRE: seven strategies for ending violence against children. Geneva: WHO (http://www.who.int/violence_injury_prevention/violence/inspire/en/, accessed 22 December 2016).

ANNEXES

Annex 1. Legislative framework on child abuse

A number of international and national legislative frameworks exist to address child abuse:

- Article 19 of the Convention on the Rights of the Child (No. 104/1991 Sb. as amended): obliges States to adopt all necessary provisions for the protection of children from physical and mental violence, insults or abuse, including sexual abuse, and also protection from neglect, disregarding treatment, maltreatment or exploitation;
- The Penal Code (No. 40/2009 Sb. as amended): particularly defines crimes against the family and children in part 2, Chapter IV. The Provision § 201 “Endangering the child’s upbringing” is aimed at anybody who endangers the rational, emotional or moral development of the child;
- Provision of § 202 “Seduction to Sexual Intercourse” includes sexual intercourse as well as being exposed to sexual content; and
- Regulation §201 of the Criminal Code on “Endangering the child’s upbringing” protects children and young adults from any persuasion or coercion to prostitution, pornography and other sexually inappropriate conduct.

A number of Government resolutions provide additional resources on child abuse:

- Government Resolution No. 1139 from 3 September 2008, in addition to the National Strategy for Prevention of Child Abuse in the Czech Republic 2008–2018;
- Government Resolution No. 1046 from 30 October 2002, in addition to the Long-term Program of Public Health Promotion for All in the 21st Century;
- Government Resolution No. 611 from 4 June 2007, in addition to the State Policy Concept for Children and Young People for 2007–2013;
- Government Resolution No. 262 from 13 April 2011, in addition to the National Action Plan for the Prevention of Domestic Violence 2011–2014;

- Government Resolution No. 549 from 28 July 2010 on Task Reporting emerging from the National Action Plan for the Prevention of Injuries to Children 2007–2017 and 2007–2009;
- Czech Republic’s response to the preliminary questions of the UN Committee on the Rights of the Child in the Consultation of the Third and Fourth Periodic Report of the Czech Republic on the fulfilment of obligations under the Convention of the Rights of the Child (CRC/C/CZE/3-4) (2011);
- the National Strategy for the Protection of Children’s Rights (Kovařík J et al. (2001). *Dětská práva, právní povědomí, participace dětí a sociální služby*. [Children’s rights, legal awareness, children’s participation and social services]. 1st ed. České Budějovice: University of South Bohemia (in Czech).);
- Action Plan to fulfil the National Strategy for the Protection of Children’s Rights 2012–2015.

LEGAL DOCUMENTS

Národní strategie ochrany práv dětí a Akční plán k naplnění Národní strategie ochrany práv dětí na období 2012–2015. [National strategy of the children rights protection and the Action Plan for implementing the National strategy of the children rights protection for a period of 2012–2015.] [online] [cit. 11-06-2015] (<http://www.mpsv.cz/cs/14308>, accessed 22 December 2016).

Sdělení federálního ministerstva zahraničních věcí 104/1991 Sb., v platném znění, o Úmluvě o právech dítěte, č. 19. [online] [cit. 11-06-2015] (<http://www.psp.cz/sqw/sbirka.sqw?cz=104&r=1991>, accessed 22 December 2016).

Úmluva č. 182 o zákazu a okamžitých opatřeních k odstranění nejhorších forem dětské práce [Convention No. 182 About the ban on and immediate provisions for the elimination of most adverse forms of the child labour]. [online] [cit. 11-06-2015] (<http://www.mpsv.cz/files/clanky/1197/182.pdf>, accessed 22 December 2016).

Usnesení vlády České republiky č. 1046 ze dne 30. 10. 2002 k Dlouhodobému zlepšování zdravotního stavu obyvatelstva ČR Zdraví pro všechny v 21. století [The long-term programme of improving the health condition of the Czech Republic population “Health for everybody in the 21st century”]

[online] [cit. 11-06-2015] (<http://www.mpsv.cz/cs/2872>, accessed 22 December 2016).

Usnesení vlády České republiky č. 611 ze dne 4. 6. 2007 ke Koncepci státní politiky pro oblast dětí a mládeže na období 2007–2013. [The concept of the state politics in the field of children and youth for a period of 2007–2013] [online] [cit. 11-06-2015] (http://racek.vlada.cz/usneseni/usneseni_webtest.nsf/search.cs?SearchView&Query=usnesen%C3%AD%20%C4%8D.%20611, accessed 22 December 2016).

Usnesení vlády České republiky č. 262 ze dne 13. 4. 2011 o Národním akčním plánu prevence domácího násilí na léta 2011 až 2014. [The National Action Plan of the home violence prevention for 2011–2014] [online] [cit. 11-06-2015] (http://racek.vlada.cz/usneseni/usneseni_webtest.nsf/web/cs?Open&2011&04-13, accessed 22 December 2016).

Věstník Ministerstva zdravotnictví České republiky 3/2008. Metodické opatření k postupu lékařů primární péče při podezření ze syndromu týraného, zneužívaného a zanedbávaného dítěte. [Methodical provisions for the primary medical care procedures in suspect syndrome of maltreated, abused and neglected child (syn. CAN)]. Praha: Ministerstvo zdravotnictví ČR; 2008:35–42 (in Czech).

Věstník Ministerstva zdravotnictví České republiky 6/2008. Metodický pokyn pro postup lékařů při poskytování zdravotní péče osobám ohroženým domácím násilím. [Methodical

provisions for taking the primary medical care of persons endangered by the home violence] Praha: Ministerstvo zdravotnictví ČR; 2008:2–7 (in Czech).

Věstník vlády pro orgány krajů a orgány obcí – rok 2008. 5. prosince 2008. Usnesení vlády České republiky ze dne 3. září 2008 č. 1139 k Národní strategii prevence násilí na dětech v České republice na období 2008–2018. [The national strategy of the prevention of the violence against children for the period of 2008 to 2018]. 2008, ročník 6, částka 5. Praha: Ministerstvo vnitra; 2008:90–100.

Vyhláška č. 70/2012 Sb., o preventivních prohlídkách. [On preventive medical examinations] [online] [cit. 11-6-2015] (<http://www.zakonyprolidi.cz/cs/2012-70>, accessed 22 December 2016).

Zákon č. 40/2009 Sb., trestní zákoník. Trestné činy proti rodině a dětem. [Law No. 40/2009 Sb Crimes against the family and children] Část 2., hlava IV. In: Sbírka zákonů České republiky. 2009, částka 11, s. 201–202 (<http://business.center.cz/business/pravo/zakony/trestni-zakonik/cast2h4.aspx>, accessed 22 December 2016).

Zákon č. 372/2011 Sb., o zdravotních službách a podmínkách jejich poskytování [Law No. 372/2011 Sb On healthcare services and conditions for granting them]. [online] [cit. 11-06-2015] (<http://www.zakonyprolidi.cz/cs/2011-372>, accessed 22 December 2016).

Annex 2. Peer-reviewed publications on the service response to child maltreatment

A wide range of peer-reviewed publications address the issue of child abuse:

- Ministry of Health Bulletin No. 3/2008 published the Methodical Action to Medical Approach during Primary Care Provision and Suspected CAN syndrome. It is an updated version of an action paper from 2005.
- Ministry of Health Bulletin No. 6/2008 published the Methodical Action to Medical Approach during Medical Care Provision to People at High Risk of Domestic Violence. This is an updated version of an action paper from 2006 (MH Bulletin 3/2006) with the additional issue of domestic violence inflicted on children who are considered victims even if they only witness a particular incident.
- Notice No. 70/2012 Coll. on Preventative Assessments has been effective since 1 April 2012. The framework includes an outline of a general preventative assessment of children.
- A pilot project of injury data by the University Hospital Brno called the National Registry of Children's Injuries is currently funded by the European Union (EU). A statutory framework has been established for data collection related to injuries by Act No. 372/2011 Coll. (effective since 1 April 2012). The data focus is on intentional and unintentional injuries, their causes, mechanisms and circumstances.
- On 31 May 2011, the National Coordination Centre for Prevention of Child Abuse and Injury and Promotion of Child Safety was established in the Motol University Hospital. Its activities include networking, education of professionals working in the field, analysis of injury data, provision of information to the professional and lay public, and international liaison.

Survey of adverse childhood experiences in the Czech Republic

The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

Member States

Albania
Andorra
Armenia
Austria
Azerbaijan
Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Luxembourg
Malta
Monaco
Montenegro
Netherlands
Norway
Poland
Portugal
Republic of Moldova
Romania
Russian Federation
San Marino
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tajikistan
The former Yugoslav Republic of Macedonia
Turkey
Turkmenistan
Ukraine
United Kingdom
Uzbekistan



World Health Organization Regional Office for Europe

UN City, Marmorvej 51, DK-2100 Copenhagen Ø, Denmark
Tel.: +45 45 33 70 00 Fax: +45 45 33 70 01 Email: euwhocontact@who.int
Website: www.euro.who.int