World Health Organization
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Adverse childhood experiences and health-harming behaviours among students in Ukraine

Report on survey results

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By: Victoria Zakhozha, Yulia Sakhno,
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KIIS

MINISTRY OF HEALTH OF UKRAINE

ABSTRACT

The survey of adverse childhood experiences in Ukraine was conducted among a representative sample of the student population (N=1517) selected from colleges and universities at all levels of accreditation (I–IV). It aimed to determine the prevalence and risk factors of adverse childhood experiences (child abuse, neglect, household dysfunctions, peer and community violence) and investigate the interrelations between adverse childhood experiences and health-harming behaviours. Results showed high prevalence of child maltreatment (emotional neglect was experienced by 28%, physical neglect by 25%, physical abuse by 12%, emotional abuse by 10% and sexual abuse by 5%), household dysfunctions, and peer and community violence. Adverse childhood experiences were associated with increased odds of health-risk behaviours, especially suicide attempt, early smoking initiation, alcohol abuse, drug use and risky sexual behaviour. Stakeholders should take stock of the current situation, strengthen national policy and implement a coordinated intersectoral preventive and care response.

Keywords
CHILD ABUSE – PREVENTION AND CONTROL
CHILD NEGLECT
HEALTH RISK BEHAVIOR
VIOLENCE – PREVENTION AND CONTROL
HEALTH SURVEY
UKRAINE

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This survey of adverse childhood experiences and associated health-harming behaviours among students in Ukraine was successfully completed due to the efforts and involvement of numerous organizations and individuals at different stages of the process. The research team would like to thank everyone who helped to make the survey a success.

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FOREWORD BY THE MINISTRY OF HEALTH

Child maltreatment is a hidden form of violence that is one of the more serious forms of adverse childhood experiences. Adverse childhood experiences 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. These lead to poor health outcomes, including those due to increased noncommunicable diseases, psychiatric pathology, and emotional and cognitive disorders.

The issue of violence is a priority for Ukraine. The armed conflict is entering its fifth year; ongoing violence makes life difficult and dangerous not only for people living along the so-called contact line between government-controlled areas and nongovernment-controlled areas, but also affects all Ukrainians, especially children.

Regretfully, the survey results presented in this report show that the prevalence of adverse childhood experiences among young Ukrainians is high: 28% have repeatedly experienced emotional neglect, 25% physical neglect, 12% emotional abuse and 11% physical abuse. Sexual abuse has been experienced by 5%, both men and women.

One of the most important findings for public health in Ukraine is that those who have been exposed to adverse experiences are at elevated risk of health-harming behaviours like alcohol abuse, drug use, early smoking initiation, having multiple sexual partners, early sex, physical inactivity and current alcohol use.

This calls for urgent action from all national and international stakeholders to improve the situation regarding hidden forms of violence in the country and deliver early interventions to prevent noncommunicable diseases among children and young people who are at risk or are already facing different forms of violence.

There is a strong need to identify and promote strategies to reduce the burden of child maltreatment in Ukraine and increase public awareness of the problem. Preventing maltreatment and violence against children contributes to the prevention of a much broader range of health problems, including psychiatric disorders and suicide, and noncommunicable diseases and their risk factors.

Ukraine prioritized Sustainable Development Goal target 16.2, which calls for the end to all violence against children, in adapting the 17 global Sustainable Development Goals to meet the specific country context, with 86 national development targets and 172 indicators for monitoring purposes. Three indicators around target 16.2 are included in national monitoring and reporting of the Sustainable Development Goals, which is an important step in accelerating national policy.

The results of the survey that are set out in this report will contribute to Ukrainian policy processes for preventing maltreatment and violence against children.

Iryna Rudenko
Acting Head of the Department for Public Health, Ministry of Health of Ukraine

FOREWORD BY THE WHO REPRESENTATIVE TO UKRAINE

Adverse childhood experiences are potentially traumatic events that are recognized as presenting great public health and social problems globally and in Europe. The lack of safe and nurturing relationships in childhood are thought to adversely affect neurodevelopmental change and, in turn, children's emotional, cognitive and behavioural development.

Abuse of children is a hidden form of violence that is associated with a tendency for the victim to perpetrate (and be an ongoing victim of) violence in the future, and to engage in health-harming behaviours such as alcohol and drug abuse and physical inactivity, which in turn can lead to depression and self-harm.

Little was known about the situation in Ukraine in relation to adverse childhood experiences. The purpose of the study described in this report was to investigate the prevalence, risk factors and consequences of adverse childhood experiences (including child abuse, neglect, household dysfunctions, and peer and community violence) in a representative sample of college and university students in Ukraine. The survey involved 1517 respondents, of whom 46% (696) were male and 54% (821) female.

The survey results show that the prevalence of adverse childhood experiences among the studied population is very high. Twenty-eight per cent had repeatedly experienced emotional neglect, 25% physical neglect, 12% emotional abuse and 11% physical abuse. Sexual abuse was experienced by 5%, both among men and women.

They also show that the current situation at family level in Ukraine is not always positive. Thirty-four per cent of respondents were from families with divorced parents, 19% had experienced problem drinking by a household member, 15% had a mentally ill, depressed or suicidal household member, and 13% had witnessed domestic violence towards their mother. Six per cent reported criminal behaviour by a household member and 3% drug abuse.

In relation to peer and community violence, around 21% of participants had many times witnessed or heard someone being beaten up, threatened with a weapon or killed in real life. Eleven per cent often participated in physical fights and 6% were bullied many times in their childhood.

We now have a clear picture, with real statistics, of the situation in Ukraine. It shows us that urgent action is needed from all national and international stakeholders to improve the situation on hidden forms of violence in the country generally and at family level specifically. This will positively promote the health and well-being of young Ukrainians.

The survey has confirmed that Ukraine is a country in which violence, child maltreatment and other adverse childhood experiences are highly prevalent. This presents a great public health challenge to the country because of the association with health-risk behaviours in adulthood, leading to early mortality and morbidity largely as a consequence of noncommunicable diseases. The results highlight a strong and urgent need to identify and promote strategies to reduce the burden of child maltreatment in Ukraine and increase public awareness of the problem.

Marthe Everard
WHO Representative and Head of the WHO country office in Ukraine

PREFACE

A healthy start to life without maltreatment and adversity in childhood is a mainstay of the actions required to reduce inequity in Europe and achieve the goals of Health 2020. Child maltreatment is the product of social, cultural, economic and biological factors and occurs in all societies and countries in the WHO European Region. It is a leading cause of health inequality and social injustice, with the socioeconomically disadvantaged more at risk. Estimates based on combined analyses of studies suggest that tens of millions of children in the Region suffer from some form of sexual, physical and/or emotional abuse, and neglect during their childhood. Most child abuse and neglect occurs in the community and commonly is associated with other adversity in households where there is dysfunction. These other types of adverse childhood experiences include witnessing parental violence, parental separation, or where a household member has a mental illness, drug or alcohol problem or may have been incarcerated. Such adverse childhood experiences may affect child development and lead to health-harming behaviours such as smoking, alcohol and drug misuse, physical inactivity, and mental illness and self-harm, and may lead to noncommunicable diseases and early death.

Adverse childhood experiences therefore are grave public health and societal problems with far-reaching consequences for the mental and physical health of children and for societal development. The consequences of such adversity may affect people throughout the life-course, resulting in high societal costs. In response to the public health and societal burden of child maltreatment, Member States of the WHO European Region have endorsed Investing in children: the European child maltreatment prevention action plan 2015–2020*. The importance of stopping violence and adversity in children has also been prioritized in the 2030 Agenda for Sustainable Development and through the adoption of Sustainable Development Goal target 16.2, which calls for the end to all violence against children.*

WHO has worked with several Member States to demonstrate the scale of the problem of child maltreatment and other adversity in childhood through a series of surveys of adverse childhood experiences in young people. This survey report of adverse childhood experiences among students in Ukraine contributes to the growing evidence base in Europe. It confirms that the prevalence of child maltreatment and adversity in childhood is also high in Ukraine. We at the WHO Regional Office for Europe hope that this report will stimulate debate on the importance of strengthening policy and investment in programmes for the prevention of maltreatment and other adversity in childhood to assure a healthy start in life.

Gauden Galea
Director
Division of Noncommunicable Diseases and Promoting Health through the Life-course
WHO Regional Office for Europe

ACRONYMS

ACEs	adverse childhood experiences
AOR	adjusted odds ratios
CDC	(United States) Centers for Disease Control and Prevention
CI	confidence interval
HBSC	Health Behaviour in School-aged Children (study)
OR	odds ratios
SD	standard deviation

EXECUTIVE SUMMARY

Adverse childhood experiences (ACEs) are potentially traumatic events that can have negative long-lasting effects on health and well-being. They present a great public health and social problem globally and in Europe.

Little is known about the situation in relation to ACEs in Ukraine. The purpose of this study was to investigate the prevalence, risk factors and consequences of ACEs (including child abuse, neglect, household dysfunctions, and peer and community violence) in a representative sample of college and university students in Ukraine.

ES.1. Material and methods

The fieldwork was carried out by the Kiev International Institute of Sociology during October–November 2017 in accordance with the methodology suggested in *Preventing child maltreatment: a guide to taking action and generating evidence* (Butchart et al., 2006) and the sampling methodology of the Health Behaviour in School-aged Children study. A pretested local version of the Adverse Childhood Experiences Questionnaires was used. Data were collected through self-administration of the paper questionnaire.

The survey was conducted in accordance with professional and ethical standards, including approval of the questionnaire by ethical committees at the Ukrainian Scientific and Methodological Centre of Practical Psychology and Social Work and the Sociological Association of Ukraine, and assured voluntary participation, informed consent, anonymity and confidentiality of provided information. Adjusted odds ratios (AOR) were calculated to examine the relationship between ACEs and health-risk behaviours. Logistic regression analysis was employed to adjust for the potential confounding effects of age, gender and socioeconomic status.

ES.2. Results

The survey involved 1517 respondents (46% male (696) and 54% female (821)) aged over 18 years (average age 20 years). Results showed that the prevalence of ACEs among the study population was rather high: 28% repeatedly experienced emotional neglect, 25% physical neglect, 12% physical abuse and 10% emotional abuse; sexual abuse was experienced by 5% among both men and women.

The most commonly reported household dysfunctions were parents' divorce/separation (34%), problem drinking by a household member (19%), a mentally ill, depressed or suicidal household member (15%), and witnessing violence towards the mother (13%). Six per cent reported criminal behaviour by a household member and 3% drug abuse.

Prevalence of peer and community violence was also high, with about 21% of survey participants reporting that they often witnessed or heard someone being beaten up, threatened with a weapon or killed in real life. Eleven per cent often participated in physical fights and 6% were bullied many times in their childhood.

The proportion with raised ACEs was about the same in men and women, but higher for respondents whose family had low socioeconomic status (defined by parents' education).

Findings confirm that those who were exposed to adverse experiences were at elevated risk of health-risk behaviours compared to those who experienced no ACEs, and the highest risk for negative outcomes was associated with having experienced multiple ACEs. People who had experienced four or more categories of ACE, compared to those who had experienced none, had increased risks for suicide attempt (AOR=22.0), alcohol abuse (AOR=5.0), drug use (AOR=4.6), early smoking initiation (15 years or younger, AOR=4.1), odds of smoking (AOR=2.1), having multiple sexual partners (≥3 during the past 12 months, AOR=2.2) and early sex (age 16 or younger, AOR=1.9), physical inactivity (AOR=1.8) and current alcohol use (AOR=1.4).

ES.3. Conclusions

This survey confirmed that child maltreatment and other ACEs are not rare in Ukraine and are associated with increased odds of health-risk behaviours in adulthood. These findings are similar to those published elsewhere and imply that ACEs are strongly associated with health-harming behaviours that may cause mental disorders and physical illness, such as noncommunicable diseases.

These findings imply that there is a strong need to develop a sustained policy response to implement strategies to reduce the burden of child maltreatment and other adversities in Ukraine to gain health and societal benefits throughout the life-course. This report provides an opportunity to increase

public awareness of the problem and to advocate for change to end violence against children. Stakeholders in Ukraine should take stock of the current situation, strengthen national policy and implement a coordinated intersectoral preventive and care response.

ES.4. Reference

Butchart A, Harvey AP, Mian M, Fürniss T (2006). Preventing child maltreatment: a guide to taking action and generating evidence. Geneva: World Health Organization (http://www.who.int/violence_injury_prevention/publications/violence/child_maltreatment/en/, accessed 20 March 2018).

1. INTRODUCTION

Every child needs safe and favourable conditions for living and healthy development. Despite existing legal norms intended to protect children, research findings demonstrate that every year a great number of children worldwide fall victims to, or witness, physical, sexual or emotional abuse and are exposed to other adverse experiences (Sethi et al., 2013).

Adverse childhood experiences (ACEs) are stressful or traumatic events in a person's life (including abuse, neglect, household dysfunctions, and peer and community violence) occurring before the age of 18 that the person remembers as an adult.

Due to their physical and mental immaturity, children are highly vulnerable to negative experiences. Negative consequences of child maltreatment and other ACEs are summarized in many publications (for instance, Sethi et al., 2013). Physical abuse can influence health directly as it may lead to injury, disability, impaired mental development and even death in extreme cases (Krug et al., 2002; Sethi et al., 2013; Global Burden of Disease Collaborative Network, 2017). ACEs are also a source of stress that affects people's nervous system, leading to cognitive dysfunction and mental issues (such as depression, low self-esteem, self-stigmatization and suicidal inclination), and increases the probability of antisocial/criminal and health-risk behaviours (smoking, alcohol and drug addiction, risky sexual behaviour) (Felitti et al., 1998; van der Kolk, 2003; Anda et al., 2006). Abuse and risky behaviours tend to be reproduced in successive generations, being passed from parents to their children (this is also called intergenerational transmission of violence or cycles of abuse), which causes lasting negative effects (WHO Regional Office for Europe, 2007). For the state, it means growing health-care expenditures and the costs of social security and justice (Sethi et al., 2013). All these things make preventing childhood abuse and neglect and protecting children from ACEs an extremely important and topical issue.

The first ACE study was conducted in the United States of America from 1995 to 1997 by the United States Centers for Disease Control and Prevention (CDC) in partnership with Kaiser Permanente (CDC–Kaiser ACE Study). The study demonstrated an association of ACEs with health and social problems as an adult and raised global awareness of the consequences of child maltreatment.

Organizations, including the CDC and WHO, have strongly promoted research into ACEs internationally and have developed standard ACE tools to support measurement of their prevalence and impact on population health. ACE studies have been conducted in many countries around the world, including several in eastern Europe in collaborations involving health ministries and WHO (Baban et al., 2013; Qirjako et al., 2013; Raleva et al., 2013; Bellis et al., 2014; Kachaeva et al., 2014; Ulukol et al., 2014; WHO Regional Office for Europe, 2014). This is the first study using internationally validated ACE tools in Ukraine.

1.1. National data on child abuse and other ACEs in Ukraine

Ukraine has little statistical data on child abuse and other adverse experiences that may affect children. Child maltreatment is a form of hidden violence, and official statistics often fail fully to cover the problem. In 2016, the national police registered 127 478 reports of domestic violence, including 982 (0.8% of the total number) made by children; those figures are very likely to be underreported, since not all victims report incidents to the police.

The Childhood Abuse in Ukraine survey requested by the Council of Europe project Strengthening and Protecting the Rights of Children in Ukraine and conducted by the Kiev International Institute of Sociology in 2015 revealed that 65% of children aged 12–17 had been exposed to some form of violence. Forty-five per cent had been exposed to emotional abuse (they were insulted, humiliated, ignored, unfairly reproached or accused by parents, or witnessed serious conflicts in the household between their parents or other family members), 27% were exposed to physical abuse (they were beaten, tethered, locked in, injured or involved in alcohol/drug use or smoking), 25% suffered economic abuse (they were forced to beg or steal money, work for someone, denied satisfaction of basic needs, or had their things taken away or spoiled), and 21% experienced sexual abuse (they had their nude private parts photographed or filmed, received carnal offers from adults, had their genitals touched against their will, were forced into sexual intercourse, or other schoolchildren touched their genitals by force, made them touch their genitals or made indecent suggestions) (Pavlysh & Zhuravel, 2015). The same survey showed that the majority of abused children did not turn to anyone for help; among those who sought help, most turned to their parents, carers or

friends and less frequently to other people (teachers, relatives or a school psychologist), police or social services.

1.2. Ukrainian legislation on protecting children from exposure to violence and other adverse experiences

Ukraine ratified the United Nations Convention on the Rights of the Child in 1991, assuming the responsibility to observe, guarantee and protect children's rights (United Nations, 1989). Ensuring the rights and legal interests of children in Ukraine is recognized as a priority for state policies.

National legislation on the rights of the child is based on the Constitution of Ukraine, the Convention on the Rights of the Child and other international treaties ratified by Verkhovna Rada, the Ukrainian parliament. Ukrainian legislation on protecting children from exposure to violence and other adverse experiences is summarized in Annex 1.

The main law for ensuring and realizing the rights of the child in various fields is the Law of Ukraine on Protection of Childhood. Article 10 of the law guarantees every child the right to liberty, personal security and protection of dignity. The state is obliged to protect children from: all forms of physical and emotional violence, abuse, neglect and maltreatment; exploitation; engagement in criminal activity; involvement in the use of alcohol, drugs or psychotropic substances; extreme religious/cult groups and movements; being used in pornography production and dissemination; being forced into prostitution, begging or vagrancy; and getting lured into potentially harmful activities such as gambling. The state provides the child and carers with all necessary assistance to prevent and detect child maltreatment cases.

Actions to protect children's rights are regulated through laws such as those on: health improvement and recreation of children; prevention of household abuse; social work with families, children and youth; basic social security for homeless adults and children; providing organizational and legal conditions for social protection of orphans and children deprived of parental care; and agencies and services for children and special institutions for children.

Parents' obligations related to children's upbringing and development are defined in Article 150 of the Family Code of Ukraine, through which parents are bound to raise their children, taking care of their health, physical, spiritual and moral development, and education. In response to the Parliamentary Assembly of the European Council call to ban corporal punishment across Europe, Ukraine amended its national legislation to disbar parents (or stepparents), guardians, carers and educators from punishing children physically or in any other humiliating way harming the child's human dignity (Article 289 of the Civil Code of Ukraine, Article 150 of the Family Code of Ukraine).

The Code of Ukraine on Administrative Offences sets administrative responsibility for household abuse (Article 173-2), bringing a minor to a state of alcohol intoxication by their parents, persons acting as parents or other people (Article 180), and failure to fulfil child upbringing obligations by their parents or persons acting as parents (Article 184).

The Criminal Code of Ukraine sets general norms protecting all citizens from abuse and specific norms intended to protect minors' lives, health and security. The Criminal Code in particular defines criminal responsibility for causing suicide (Article 120), intentional injuries of various degrees (articles 121, 122 and 125), beating and torture (Article 126), unintentional serious or moderate bodily injuries (Article 128), murder threats (Article 129), failing properly to fulfil the obligation to protect the child's life and health (Article 137), rape (Article 152), abuse for unnatural sexual satisfaction (Article 153), forcing someone into sexual intercourse (Article 154), sexual intercourse with a person who has not attained puberty (Article 155), defilement of minors (Article 156), serious neglect of a guardian's or trustee's obligation to take care of a child or another person in their care (Article 166), involving minors in criminal activity (Article 304), enticing a minor to use drugs, psychotropic substances or their equivalents (Article 315), prompting a minor to use doping (Article 323) and motivating minors to use intoxicating substances (Article 324).

To improve state policies on providing and protecting children's rights, the Cabinet of Ministers of Ukraine approved the state social programme, the national action plan to realize the United Nations Convention on the Rights of the Child, on 5 April 2017. This programme, which is planned to be in place until 2021, regulates the fields of health care, education, security, and spiritual and cultural development of children, and their participation in community life and decision-making concerning their life. The aims are to continue step-by-step implementation of provisions from the Convention on the Rights of the Child, build an efficient system to protect children's rights and interests at community level in a decentralized environment, and create child-friendly environments that meet the international standards and priorities of the European Council strategy on the rights of the child for 2016–2021. The programme prioritizes: creating favourable conditions

for children to live and develop; providing equal opportunities for all children; strengthening the family institution and fostering responsible parenting; protecting children from violence; creating a child-friendly legal system; considering the child's interests and opinions in decision-making; guaranteeing children's rights in wartime or military conflict conditions; and creating a safe information environment for children.

Clearly, there have been considerable policy developments in the area of protecting children from violence and abuse, and there has also been a considerable emphasis on developing a national multisectoral strategy on the prevention of noncommunicable diseases. The last survey to assess the prevalence of child maltreatment (which showed high prevalence), however, was published in 2015 (Pavlysh & Zhuravel, 2015). The survey of adverse childhood experiences was undertaken to reassess the prevalence of maltreatment and other adversity in childhood and to determine the association with health-harming behaviours. Survey results would be used to advocate for preventing violence in children in Ukraine. This would be in keeping with national, European and global policy on preventing violence against children to stop harm from occurring and obtain benefits throughout the life-course (WHO Regional Office for Europe, 2014, 2015; WHO, 2016a).

1.3. Aims

The aims of the survey were to study the situation in Ukraine and create a basis for developing strategies against abuse and other adverse experiences. The study set out to determine the prevalence and risk factors of ACEs (child abuse, neglect, household dysfunctions, peer and community violence) and investigate the interrelations between ACEs and health-harming behaviours in a representative sample of college and university students in Ukraine.

2. METHODS

This survey was conducted by the Kiev International Institute of Sociology in accordance with the methodology suggested in *Preventing child maltreatment: a guide to taking action and generating evidence* (Butchart et al., 2006) and the sampling methodology of the Health Behaviour in School-aged Children (HBSC) study (Currie et al., 2010).

2.1. Sample

The survey involved adult students (aged 18 and older) of colleges and universities located in cities with populations of over 100 000 in Ukraine. The temporarily occupied territories of the Autonomous Republic of Crimea, city of Sevastopol, and certain areas of Donetsk and Luhansk oblasts were excluded from the ACE survey. Geographical coverage for the ACE survey might not be complete.

Stratified two-stage sampling was used in the survey. Sample size was distributed between strata (cities of 100 000 population or over) proportionally to the number of students in education institutions of accreditation levels I–IV. In the first stage, in every stratum the education specialty (junior specialist, bachelor, specialist or master) and year of schooling were selected randomly based on data from the public official database of education institutions. In the second stage, the group of students for interviewing was selected randomly from the list of all groups at the selected specialty and grade. Information about number of students and groups was received from education institutions' administration departments. Depending on faculty size, either one or two groups of students at the pre-defined specialty and year of schooling were selected to collect 15–20 questionnaires.

A total of 1517 students (male and female) from 69 higher education institutions of accreditation level I–IV participated in the survey. The geography of the survey covers all the 24 oblasts of Ukraine and the city of Kyiv, but is limited to oblast centres and cities populated by over 100 000 (universities typically are located in big cities). Thirty-two cities were included in the survey. The list of colleges and universities in which the survey was conducted is given in Annex 2.

2.2. Questionnaire

The survey questionnaire was based on the ACE questionnaires developed by the CDC for the ACE survey conducted worldwide. Both male and female questionnaires were adapted for Ukraine, translated into Ukrainian and Russian and pretested through 57 online self-administered interviews (32 men and 25 women) in June–July 2017.

2.3. Data collection

The fieldwork was carried out during October–November 2017 by 35 professionally trained interviewers from the Kiev International Institute of Sociology. The fieldwork started with obtaining permission from the institution administration (rector or faculty secretariat) to conduct a research study. After permission was received, an interviewer came to the institution and carried out the fieldwork.

Participants were informed about the study objectives and its topic and signed consent forms prior to questionnaire completion. Data were collected through a self-completion questionnaire administered in classrooms. Paper-based questionnaires were used for data collection. Where possible, male and female respondents filled questionnaires in separate rooms. Participants were able to choose in which language (Ukrainian or Russian) they wished to fill in the questionnaire. When completed, each respondent put their questionnaire in a clean envelope and sealed it. All data in the survey are anonymous.

2.4. Ethics approval

The instrument was reviewed by ethical commissions at the Ukrainian Scientific and Methodological Centre of Practical Psychology and Social Work and the Sociological Association of Ukraine. Respective approval certificates were obtained and provided to institution administrations upon request. Each survey respondent received an information pamphlet containing the number of the helpline providing psychological counselling for issues such as violence (kindly provided by the public organization "La Strada – Ukraine").

2.5. Data analysis

The study considered 14 forms of ACEs for analysis: child abuse (emotional abuse, physical abuse, sexual abuse, physical neglect and emotional neglect), household dysfunctions (domestic violence towards mother, problem drinking or drug abuse by a household member, mental illness of a household member, criminal behaviour/ incarcerated household member, parents separated or

divorced), and peer and community violence (bullying, physical fighting and community violence).

The prevalence of ACEs and health-risk behaviours were established from the collected data. All calculations were based on the replies. Questions on most forms of ACEs were answered by 96–98% of survey respondents, with the exception of questions about sexual abuse (answered by 90% of interviewees – 86% of men and 93% of women).

Adjusted odds ratios (AOR) were estimated to see to what extent health-risk behaviours related to ACEs. Logistic regression analysis was employed to adjust for the potential confounding effects of age, gender and socioeconomic status on the relations between ACEs and health-risk behaviours. Statistical analysis was performed with the statistical software PASW Statistics 18 (Chicago (IL): SPSS Inc.).

3. RESULTS

3.1. Sociodemographic characteristics of study participants

The survey involved 1517 respondents, 46% male (696) and 54% female (821). An absolute majority of study participants (98%) were aged 18–23, with the remaining 2% over 24. The mean age of respondents was 19.9 years (standard deviation (SD) = 2.0). Eighty-nine per cent had never been married, 11% were officially married or living with their partner, and fewer than 1% were divorced or widowed.

The level of education of the respondents' parents was used as an indirect indicator of respondents' childhood socioeconomic status. For respondents who had both parents, the socioeconomic status was determined by the father's education; if not, the mother's was taken into account. Socioeconomic status was considered high if the parent had higher education (college graduate or higher), viewed as middle if they had secondary or vocational education (high-school graduate, some college or technical school), and regarded as low if the parent had not completed secondary education or had no formal education at all (some high school or did not go to high school). According to parents' education, 38% of survey respondents had high socioeconomic status, 57% middle and 5% low.

Respondents were still in education, so their current economic status was based on the employment status of their parents. Parents of 44% of respondents worked full-time, 38% had at least one parent working full-time, and 17% had parents who either worked part-time or were not employed outside the home.

Sociodemographic characteristics of study participants are summarized in Table 1.

Table 1. Sociodemographic characteristics of study participants, Ukraine, 2017

Characteristic	N	%
Age (in years); mean = 19.9, SD = 2.0		
18–19	727	47.9
20–21	521	34.3
22–23	236	15.6
24–25	12	0.8
26–41	21	1.4
Gender		
Male	696	45.9
Female	821	54.1
Current marital status		
Married	35	2.4
Not married but living together with a partner	125	8.5
Separated/divorced/widowed	7	0.5
Never married	1 298	88.6
Mother's level of education		
Didn't go to high school	13	0.9
Some high school	36	2.4

Table 1 contd

Characteristic	N	%
High-school graduate	129	8.5
Some college or technical school	598	39.6
College graduate or higher	681	45.1
Don't know	54	3.6
Father's level of education		
Didn't go to high school	17	1.1
Some high school	42	2.8
High-school graduate	142	9.4
Some college or technical school	621	41.2
College graduate or higher	526	34.9
Don't know	159	10.6
Family's socioeconomic status (based on parents' education)		
Low	73	4.9
Middle	836	56.7
High	566	38.4
Mother's current employment status		
Full-time	1 003	66.3
Part-time	239	15.8
Not employed outside the home	234	15.5
Have no mother	36	2.4
Father's current employment status		
Full-time	916	61.0
Part-time	267	17.8
Not employed outside the home	93	6.2
Have no father	225	15.0

3.2. History of childhood exposure to adverse experiences

The most widespread forms of childhood maltreatment reported were emotional and physical neglect, with women feeling emotional neglect somewhat more frequently and men experiencing physical neglect more often. Emotional neglect in their childhood was felt by 28% of respondents (25% male and 30% female, significant at 0.05 level), and physical neglect was experienced by 25% (32% male and 19% female, significant at 0.05 level).

In relation to emotional neglect, 18% (13% male and 22% female, significant at 0.05 level) have thought that their parents wished they had never been born, 18% (17% male and 19% female, not significant at 0.05 level) stated that as children they had felt that someone in their family hated them, and 4% (5% male and 4% female, not significant at 0.05 level) had never felt loved.

Physical neglect was seen in situations where children had to wear dirty clothes (experienced by 18%; 25% of men and 12% of women, significant at 0.05 level), sometimes or often

did not have enough to eat (6% for men and women), and rarely or never had someone to take them to the doctor when they needed it (6%: 8% of men and 5% of women, not statistically significant).

Physical abuse was experienced by 12% of people in their first 18 years of life (11% male and 12% female, difference not significant at 0.05 level): 9% of respondents, both male and female, said that in their childhood they had been hit so hard that they had marks or were injured, and 7% that they had sometimes/often been pushed or slapped in the face. Equally widespread were experiences of emotional abuse: 10% of respondents (10% male and 11% female, not statistically significant) were exposed to some form of emotional abuse in their childhood; 8% mentioned that a parent or an adult living in their home sometimes or often acted in a way that made them afraid they might be physically hurt, and 6% that parents or other adults in their family had often sworn at them, insulted them, or put them down.

Five per cent of respondents reported exposure to sexual abuse in childhood (4% male and 6% female, not statistically significant); 4% of men and 5% of women reported that in the first 18 years of their lives at least one adult or someone five or more years older than them had touched or fondled their bodies in a sexual way. One per cent of men and 2% of women said they were made to touch or fondle an adult's body, 2% of men and 3% of women that an adult attempted sexual intercourse with them, and 2% of men and 3% of women that an adult actually had sexual intercourse with them.

Serious household dysfunctions can also cause stress and expose the child to adverse experiences. Overall, 34% of respondents said that in the first 18 years of their lives they experienced the divorce/separation of their parents, 19% lived with someone who was a problem drinker/alcoholic, 15% lived with a person who was mentally ill, depressed or suicidal, 13% witnessed domestic violence towards their mother, 6% stated that a household member committed a serious crime or went to prison, and 3% lived with someone who used drugs. A significant proportion of survey participants said they experienced peer abuse or witnessed community violence in real life. Six per cent, both male and female, stated that they were bullied many times in their childhood. About 11% (20% of men and 3% of women, significant at 0.05 level) had been in a physical fight with their peers many times. One fifth (21% of respondents, 24% male and 18% female) had seen someone being beaten up many times, threatened with a weapon or stabbed/shot in real life.

The survey findings show that overall, 75% of students had been exposed to some adverse experiences in their childhood: 56% had from one to three forms of adverse experiences and 19% four or even more. The number of adverse experiences in childhood did not depend on gender: 77% of men (19% with four or more forms, the average being 2.1) and 74% of women (19% with four or more forms, the average being 2.0) were exposed to some ACE (the difference was not statistically significant).

Exposure to abuse and other ACEs may take place in any household, but it is somewhat more frequent for children from families with low socioeconomic status: of respondents whose parent had incomplete secondary education, 86% were exposed to ACEs, including the 29% who experienced them in four or more forms. Such respondents more often said that as children they were exposed to emotional neglect (39%), more frequently experienced their parents' divorce (45%), witnessed domestic violence towards their mother (22%), and lived with someone who committed a serious crime or was imprisoned (13%).

Table 2 shows information on the indicators used to determine childhood exposure to adverse experiences and the prevalence of such experiences among interviewed men and women.

Table 2. Definition and prevalence of ACEs during the first 18 years of life by gender: Ukraine, 2017

Categories[a]	Male % (n)	Female % (n)	Both % (n)	p value (2-tailed)
CHILDHOOD ABUSE				
Emotional abuse *(How often did a parent/adult living in your home …)*	**9.8 (66)**	**10.7 (86)**	**10.3 (152)**	**0.58**
(1) swear at you, insult you, or put you down – often or very often	5.0 (34)	6.3 (51)	5.7 (85)	0.29
(2) act in a way that made you afraid that you might be physically hurt – sometimes, often or very often	7.2 (49)	8.2 (66)	7.8 (115)	0.51

Table 2 contd

Categories[a]	Male % (n)	Female % (n)	Both % (n)	p value (2-tailed)
Physical abuse	**11.0 (74)**	**12.0 (97)**	**11.6 (171)**	**0.56**
(How often did a parent/adult living in your home …)				
(1) push, grab, shove or throw something at you – sometimes, often or very often	5.6 (38)	7.4 (60)	6.6 (98)	0.17
(2) hit you so hard you had marks or were injured – ever	9.2 (62)	9.3 (75)	9.2 (137)	0.97
Sexual abuse	**4.3 (26)**	**5.8 (44)**	**5.1 (70)**	**0.24**
(During the first 18 years of life, did an adult ever …)				
(1) touch or fondle your body in a sexual way – yes	3.7 (22)	5.2 (40)	4.5 (62)	0.17
(2) have you touch their body in a sexual way – yes	1.3 (8)	1.6 (12)	1.5 (20)	0.71
(3) attempt to have any type of sexual intercourse (oral, anal or vaginal) with you – yes	2.0 (12)	2.5 (19)	2.3 (31)	0.54
(4) actually have any type of sexual intercourse (oral, anal or vaginal) with you – yes	2.2 (13)	2.5 (19)	2.4 (32)	0.68
Physical neglect	**31.9 (218)**	**18.7 (151)**	**24.7 (369)**	**<0.001**
(1) Did not have enough to eat – sometimes, often or very often	6.4 (44)	5.7 (46)	6.0 (90)	0.55
(2) Ever had to wear dirty clothes – yes	24.5 (168)	11.8 (96)	17.6 (264)	<0.001
(3) Was there someone to take you to the doctor if you needed it – never or rarely	8.0 (55)	4.8 (39)	6.3 (94)	<0.05
Emotional neglect	**25.3 (169)**	**30.3 (245)**	**28 (414)**	**<0.05**
(1) Felt loved – never	5.4 (37)	3.5 (28)	4.4 (65)	0.060
(2) Thought your parents wished you had never been born – ever	12.9 (88)	22.0 (178)	17.8 (266)	<0.001
(3) Felt that someone in your family hated you – ever	16.6 (112)	19.0 (154)	17.9 (266)	0.24
HOUSEHOLD DYSFUNCTIONS				
Problematic use of alcohol by household member	**17.9 (120)**	**19.0 (153)**	**18.5 (273)**	**0.59**
(1) During your first 18 years of life, did you live with anyone who was a problem drinker or alcoholic? – Yes				
Drug abuse by household member	**3.1 (21)**	**2.3 (19)**	**2.7 (40)**	**0.38**
(1) During your first 18 years of life, did you live with anyone who used street drugs? – Yes				
Mental illness/depressed or suicidal household member	**12.5 (85)**	**16.3 (132)**	**14.5 (217)**	**<0.05**
(1) Was anyone in your household depressed or mentally ill? – Yes	10.3 (70)	13.3 (108)	11.9 (178)	0.07
(2) Did anyone in your household attempt to commit suicide? – Yes	3.5 (24)	4.9 (40)	4.3 (64)	0.18
Domestic violence towards mother	**10.0 (66)**	**15.6 (124)**	**13.1 (190)**	**<0.01**
(How often did your father (or stepfather) do this to your mother:)				

Table 2 contd

Categories[a]	Male % (n)	Female % (n)	Both % (n)	p value (2-tailed)
(1) push, grab, slap or throw something at her – often or very often	7.5 (50)	12.6 (101)	10.3 (151)	<0.001
(2) kick, bite, hit her with a fist, or hit her with something hard – sometimes, often or very often	2.4 (16)	5.6 (44)	4.2 (60)	<0.01
(3) repeatedly hit her over at least a few minutes – ever	3.2 (21)	6.5 (51)	5.0 (72)	<0.01
(4) threaten her with a knife or gun, or use a knife or gun to hurt her – ever	3.2 (21)	4.3 (34)	3.8 (55)	0.27
Criminal behaviour/incarcerated household member	**4.8 (33)**	**6.2 (50)**	**5.6 (83)**	**0.27**
(1) Did anyone in your household ever go to prison? – Yes	4.8 (33)	5.4 (44)	5.2 (77)	0.61
(2) Did anyone in your household ever commit a serious crime? – Yes	0.7 (5)	2.1 (17)	1.5 (22)	<0.05
Parents separated or divorced	**30.9 (212)**	**36.3 (294)**	**33.8 (506)**	**<0.05**
(1) Were your parents ever separated or divorced? – Yes				
PEER AND COMMUNITY VIOLENCE				
Bullying	**6.4 (42)**	**5.9 (47)**	**6.1 (89)**	**0.71**
(1) How often were you bullied? – Many times				
Physical fight	**20.2 (133)**	**3.0 (24)**	**10.8 (157)**	**<0.001**
(1) How often were you in a physical fight? – Many times				
Community violence	**24.0 (160)**	**17.6 (141)**	**20.5 (301)**	**<0.01**
(Did you see or hear someone …)				
(1) being beaten up in real life – many times	18.8 (126)	13.1 (105)	15.7 (231)	<0.01
(2) being killed in real life – many times	7.7 (51)	7.9 (63)	7.8 (114)	0.90
(3) being threatened with a weapon in real life – many times	9.6 (64)	7.0 (56)	8.2 (120)	0.07
Categories of ACEs, number (0–14)				
0	23.3 (162)	26.4 (217)	25.0 (379)	0.16
1	24.6 (171)	25.7 (211)	25.2 (382)	0.61
2	18.7 (130)	18.9 (155)	18.8 (285)	0.92
3	14.5 (101)	10.0 (82)	12.1 (183)	<0.01
4 or more	19.0 (132)	19.0 (156)	19.0 (288)	0.99

[a] Respondents were defined as exposed to a category if they were exposed to one or more items listed in that category.

3.3. Interrelationships among categories of ACEs

Child maltreatment and other ACEs often co-occur (Table 3).

Physical abuse often occurs with emotional abuse, and physical and emotional neglect: among those who were exposed to physical abuse in their childhood, more than half (54%) also experienced emotional abuse, 67% were emotionally neglected and 40% were neglected physically.

Sexual abuse was more often experienced by those who had a drug user in their household (19% of such respondents were exposed to sexual abuse) or in whose household someone committed a serious crime or was incarcerated (22% were sexually abused).

Table 3. Relationship between categories of ACEs, Ukraine, 2017

First category of childhood exposure	Sample size[a]	Percentage (%) exposed to another category															
		Psychological abuse	Physical abuse	Sexual abuse	Physical neglect	Emotional neglect	Alcohol abuse	Drug abuse	Mental illness	Domestic violence towards mother	Criminal behaviour	Parents separated or divorced	Bullying	Physical fighting	Community violence	Any 1 additional category	Any 2 additional categories
Childhood abuse																	
Psychological abuse	152	–	60.9	7.1	42.7	72.0	40.0	6.0	36.7	40.5	13.3	46.7	22.6	15.5	29.5	97.4	91.4
Physical abuse	171	53.8	–	9.0	39.1	66.5	35.5	5.3	30.8	39.1	8.9	45.0	19.9	17.3	25.3	97.7	86.5
Sexual abuse	70	14.9	20.9	–	34.8	50.7	23.5	8.6	26.9	16.9	23.5	44.3	3.1	12.3	25.0	92.9	75.7
Physical neglect	369	17.6	18.1	7.5	–	47.9	25.6	4.4	23.0	18.7	9.2	34.1	12.1	14.4	26.1	82.1	59.6
Emotional neglect	414	26.3	27.3	9.2	42.0	–	30.3	3.7	26.7	26.8	10.4	44.4	14.0	13.7	24.3	89.6	71.0
Household dysfunction																	
Problematic use of alcohol by household member	273	22.1	22.3	6.4	33.7	45.2	–	5.6	27.5	34.2	11.5	47.0	12.1	11.3	29.1	92.7	71.1
Drug abuse by household member	40	23.7	24.3	19.4	41.0	40.5	37.5	–	42.5	33.3	30.0	55.0	18.4	12.8	43.6	97.5	80.0
Mental illness/ depressed or suicidal household member	217	25.9	24.8	9.4	38.8	50.9	34.7	7.9	–	30.3	17.6	49.1	14.3	11.5	25.7	92.6	74.2
Domestic violence towards mother	190	32.1	33.9	6.5	34.9	57.0	47.6	7.0	34.4	–	16.2	51.9	12.5	11.4	25.9	95.3	78.9
Criminal behaviour/ incarcerated household member	83	24.1	18.1	22.2	39.8	51.9	38.3	14.6	45.8	36.6	–	57.3	5.1	17.7	26.8	95.2	81.9
Parents separated or divorced	506	14.1	15.4	6.8	24.9	36.6	25.6	4.4	21.2	20.0	9.4	–	8.0	13.8	22.0	75.7	53.6
Peer, community and collective violence																	
Bullying	89	37.5	37.5	2.5	47.7	63.6	36.4	8.0	34.9	27.1	4.7	44.3	–	13.5	33.3	91.0	82.0
Physical fighting	157	14.9	19.0	5.8	32.1	35.5	19.9	3.2	15.6	14.1	9.1	43.2	7.8	–	49.0	84.7	64.3
Community violence	301	14.7	14.2	6.3	30.4	32.4	25.8	5.8	18.1	16.4	7.4	36.4	9.9	25.9	–	81.7	58.5

[a] Number exposed to first category. For example, among people who were physically abused, 53.8% also experienced psychological (emotional) abuse.

Children who experienced emotional and physical abuse or neglect in their households were also more often exposed to bullying or peer violence: 20% of those who reported physical abuse and 22% of those who experienced emotional abuse in their family were also bullied many times. Physical fights with peers often co-occurred with witnessing community violence: 25% of respondents who witnessed violence in real life outside their homes participated in physical fights many times.

Parents' divorce was relatively less interrelated with other forms of ACEs: for one quarter (24%) of those whose parents got divorced, this was the only form of ACE. These respondents, however, also mentioned problem drinking, domestic violence towards their mother, or someone being mentally ill or suicidal in their families quite often.

3.4. Prevalence and odds of health-harming behaviours

Various forms of health-harming behaviour were widespread among the students (Table 4), the most prevalent being use of alcohol. Two thirds of survey participants (62%) said they had used alcohol in the past 30 days, slightly more among women (65%) than men (58%). About 8% of respondents (10% of men and 7% of women, not significant) ever had a problem with their use of alcohol or ever considered themselves to be an alcoholic. About 1% reported driving drunk during the past 30 days, more among men (3%) than women (0.3%).

About 23% of respondents were smokers, with the proportion of current smokers larger among men (31%) than women (16%). Men also started smoking early more often than their female counterparts: 12% of male respondents and 7% of female started smoking before the age of 16. Around 14% had ever used drugs. The proportion of men with such experience (19%) was somewhat bigger than that of women (10%). Around 1% of the interviewees reported that they ever had a problem with their use of street drugs or ever considered themselves to be addicted, more among men (2%) than women (0.5%). Only one respondent reported injected drug use.

About a quarter (27% overall, 37% male and 18% female) had sexual intercourse under the age of 17. Men were more likely to have multiple sex partners than women: 11% of male respondents and 2% of female had had three or more sex partners in the past 12 months. Early or unintended pregnancies were rare among the interviewed students: seven respondents (four men and three women) reported early pregnancy (they became or got someone pregnant when

Table 4. Prevalence[a] of health-harming behaviours by gender, Ukraine, 2017

	Male % (n)	Female % (n)	Both % (n)	p value (2-tailed)
Current smoker	30.6 (212)	16.3 (134)	22.9 (346)	<0.001
Early smoking initiation (15 years or younger)	11.9 (79)	7.3 (53)	9.5 (132)	<0.01
Current alcohol use	58.4 (383)	65.2 (519)	62.1 (902)	<0.01
Problem drinker or alcoholic	9.9 (68)	7.1 (58)	8.4 (126)	0.06
Driving drunk during the past 30 days	2.6 (15)	0.3 (2)	1.3 (17)	<0.001
Ever used street drugs	18.8 (126)	9.7 (78)	13.8 (204)	<0.001
Early sex (age 16 or younger)	36.5 (217)	18.3 (125)	26.8 (342)	<0.001
Multiple partners (≥3 during the past 12 months)	10.8 (63)	2.4 (16)	6.3 (79)	<0.001
Early pregnancy (became/got someone pregnant at age ≤ 18 years)	0.9 (4)	0.4 (3)	0.6 (7)	(.)
Unintended pregnancy (women only)	– (–)	1.0 (8)	1.0 (8)	(.)
Suicide attempt	3.0 (20)	5.5 (44)	4.3 (64)	<0.05
Physical inactivity	15.3 (100)	23.8 (179)	19.9 (279)	<0.001

[a] Level of prevalence was estimated among those who provided answers to the corresponding questions.
(.) = p values not calculated because the number of cases was too low.

under 18), and eight women reported unintended pregnancy (only female interviewees were asked this question). Suicide was attempted by 4% of respondents, more among females (5%) than males (3%). About 20% (15% of men and 24% of women, $p<0.05$) reported that they had not exercised for recreation or to keep in shape during the past 30 days.

Odds ratios[1] (OR) were calculated to find the interrelation between health-harming behaviours and sociodemographic characteristics (gender, age and socioeconomic status of the child's family). Results are presented in Table 5, which clearly shows that being prone to health-harming behaviours largely depended on gender.

Compared to women, men had higher odds to be smokers (OR=2.3, 95% confidence interval (CI) 1.8–2.9) and start smoking at an early age (OR=1.7, 95% CI 1.2–2.5), were more likely to use drugs (OR=2.1, 95% CI 1.6–2.9), have early sexual intercourse (OR=2.6, 95% CI 2.0–3.3) and have multiple sex partners (OR=5.0, 95% CI 2.8–8.7). At the same time, men were at lower risk of suicide attempt (OR=0.5, 95% CI 0.3–0.9) and use of alcohol (OR=0.7, 95% CI 0.6–0.9), and were less inclined towards physical inactivity (OR=0.6, 95% CI 0.4–0.8).

As respondents' age differences were very small (nearly all of them were aged 18–23), in most cases susceptibility to health-harming behaviours did not differ with age. Older students nevertheless had higher odds of smoking (aged 24 and older, OR=2.1) compared to the youngest group (aged 18–19). Odds of a suicide attempt lowered with age.

Respondents' family socioeconomic status (based on parents' education) also had some influence on health-harming behaviour susceptibility. The survey findings show that respondents whose father/mother had incomplete secondary education (the so-called low status) were more likely to start smoking at an early age (OR=2.8, 95% CI 1.4–5.5) and have early sex (OR=1.9, 95% CI 1.1–3.4). The influence of socioeconomic status was not significant for other forms of health-harming behaviours.

Table 6 shows odds ratios for ACEs and health-harming behaviours reported by students (adjusted by gender, age group and socioeconomic status). The results demonstrate that regardless of sociodemographic characteristics, ACEs have a significant influence on the risks of developing health-harming behaviours.

Respondents who were exposed to emotional or physical abuse or neglect in their childhood were more likely to report having started smoking early, problem drinking, use of drugs and suicide attempts. In particular, exposure to emotional abuse doubled the risk of early smoking initiation (AOR=2.0, 95% CI 1.2–3.3), made use of drugs 2.5 times more probable (AOR=2.6, 95% CI 1.7–3.9), tripled the chances of adult alcohol abuse (AOR=3.2, 95% CI 2.0–5.0) and increased the risk of suicide attempts more than fivefold (AOR=5.8, 95% CI 3.3–10.2). Those exposed to physical abuse became smokers 1.5 times more often (AOR=1.4, 95% CI 1.0–2.0) with early smoking initiation (AOR=2.3, 95% CI 1.4–3.7), and were more prone to use alcohol (AOR=1.7, 95% CI 1.0–2.7) or drugs (AOR=2.3, 95% CI 1.6–3.5) and suicide attempts (AOR=3.1, 95% CI 1.7–5.6).

Sexual abuse in childhood increased the probability of risky sexual behaviour (early sexual activity at age 16 or younger, or having three or more sexual partners in the past 12 months), smoking and use of drugs in adult life. Those exposed to sexual abuse or harassment in childhood were more likely to have had early sex (AOR=4.0, 95% CI 2.4–6.8) and multiple partners in the past year (AOR=5.0, 95% CI 2.4–10.6), and had tripled probability of use-of-drugs experiences (AOR=3.6, 95% CI 2.1–6.4) and early smoking initiation (AOR=3.3, 95% CI 1.7–6.1).

Family dysfunctions also led to higher risks of developing health-harming behaviours. The larger impacts reported were due to drug abuse by a household member, where respondents reported a much greater risk of alcohol abuse (AOR=6.4, 95% CI 3.1–12.9), use of street drugs (AOR=4.0, 95% CI 2.0–8.1), unstable sexual relations (AOR=4.2, 95% CI 1.6–11.1), higher probability of early sex (AOR=2.1, 95% CI 1.0–4.5) and early smoking initiation (AOR=2.6, 95% CI 1.1–6.2). The influence of other family dysfunctions was smaller but still significant. In particular, children who had a person with alcoholism in their household often grew into problem drinkers or adults who felt alcohol dependent (AOR=1.6, 95% CI 1.1–2.5), used street drugs (AOR=2.2, 95% CI 1.6–3.1) or attempted suicide (AOR=2.1, CI 1.2–3.6).

A mentally ill/depressed or suicidal household member increased the risk of suicide attempts (AOR=2.9, 95% CI 1.6–5.1), problem drinking (AOR=2.5, 95% CI 1.6–3.8) and early smoking initiation (AOR=2.1, 95% CI 1.3–3.4).

[1] An OR is a measure of association between an exposure and an outcome. OR=1 means that exposure does not affect odds of outcome; OR>1 means exposure is associated with higher odds of outcome; and OR<1 means exposure is associated with lower odds of outcome.

Table 5. Odds of health-harming behaviours by gender, age and socioeconomic status (parents' education), Ukraine, 2017

	OR (95% CI)								
	Current smoker	Early smoking initiation (15 years or younger)	Current alcohol use	Problem drinker or alcoholic	Ever used street drugs	Early sex (age 16 or younger)	Multiple partners (≥3 during the past 12 months)	Suicide attempt	Physical inactivity
Gender									
Male	2.3 (1.8–2.9)	1.7 (1.2–2.5)	0.7 (0.6–0.9)	1.4 (1.0–2.1)	2.1 (1.6–2.9)	2.6 (2.0–3.3)	5.0 (2.8–8.7)	0.5 (0.3–0.9)	0.6 (0.4–0.8)
Female	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)
Age									
18–19	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)
20–21	1.2 (0.9–1.6)	1.0 (0.7–1.4)	1.3 (1.0–1.7)	1.1 (0.8–1.7)	1.2 (0.9–1.6)	0.9 (0.7–1.2)	1.3 (0.8–2.1)	0.5 (0.3–0.9)	1.5 (1.1–2.0)
22–23	1.0 (0.7–1.4)	0.7 (0.4–1.3)	1.3 (0.9–1.7)	1.1 (0.6–1.8)	1.2 (0.8–1.9)	0.7 (0.4–1.0)	1.4 (0.7–2.7)	0.3 (0.1–0.9)	1.5 (1.1–2.2)
24+	2.1 (1.0–4.4)	1.0 (0.3–3.3)	0.6 (0.3–1.2)	1.2 (0.3–3.9)	1.2 (0.5–3.3)	0.9 (0.4–2.1)	1.3 (0.3–5.6)	(.)	1.5 (0.6–3.5)
Family's socioeconomic status									
Low	1.3 (0.7–2.2)	2.8 (1.4–5.5)	0.9 (0.6–1.5)	1.5 (0.6–3.4)	1.6 (0.9–3.0)	1.9 (1.1–3.4)	1.0 (0.4–3.0)	1.2 (0.3–4.1)	0.7 (0.4–1.4)
Middle	0.9 (0.7–1.2)	1.1 (0.7–1.6)	1.1 (0.9–1.4)	1.5 (1.0–2.2)	1.1 (0.8–1.5)	1.2 (0.9–1.6)	0.9 (0.5–1.5)	1.5 (0.9–2.6)	1.1 (0.8–1.5)
High	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)
Mother's education									
Didn't go to high school	2.1 (0.7–6.5)	1.1 (0.1–8.4)	0.5 (0.2–1.6)	(.)	0.5 (0.1–4.1)	1.5 (0.4–6.2)	(.)	(.)	0.6 (0.1–4.5)
Some high school	1.0 (0.4–2.1)	2.9 (1.2–7)	1.0 (0.5–2.0)	1.5 (0.5–4.5)	1.3 (0.5–3.3)	1.1 (0.5–2.4)	0.4 (0.1–2.9)	0.7 (0.1–5.0)	0.8 (0.3–2.2)
High-school graduate	0.8 (0.5–1.3)	1.1 (0.5–2.2)	1.1 (0.7–1.6)	1.2 (0.6–2.4)	0.9 (0.5–1.7)	1.5 (1.0–2.4)	0.3 (0.1–1.1)	0.9 (0.3–2.4)	1.2 (0.7–1.9)
Some college or technical school	1.0 (0.8–1.4)	1.3 (0.9–2)	1.1 (0.9–1.4)	1.3 (0.8–1.9)	1.0 (0.8–1.4)	1.1 (0.9–1.5)	0.6 (0.4–1.0)	1.2 (0.7–1.9)	1.6 (1.2–2.1)
College graduate or higher	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)
Father's education									
Didn't go to high school	1.8 (0.6–4.9)	2.0 (0.4–9.3)	1.4 (0.5–4.1)	1.8 (0.4–8.4)	2.8 (1.0–8.2)	2.3 (0.8–6.9)	1.0 (0.1–7.9)	1.6 (0.2–12.8)	0.9 (0.3–3.3)
Some high school	1.3 (0.6–2.6)	4.1 (1.8–9.0)	0.8 (0.4–1.6)	1.9 (0.7–5.2)	1.6 (0.7–3.6)	2.3 (1.2–4.7)	1.4 (0.4–4.9)	1.3 (0.3–5.7)	0.5 (0.2–1.4)
High-school graduate	0.8 (0.5–1.3)	1.0 (0.5–2.1)	1.0 (0.7–1.5)	1.9 (1.0–3.5)	0.7 (0.4–1.3)	1.2 (0.8–1.9)	0.5 (0.2–1.5)	1.8 (0.8–4.1)	0.9 (0.5–1.5)
Some college or technical school	0.9 (0.7–1.2)	1.1 (0.7–1.6)	1.1 (0.8–1.4)	1.3 (0.8–2.0)	1.2 (0.8–1.7)	1.2 (0.9–1.6)	1.0 (0.6–1.7)	1.3 (0.7–2.3)	1.2 (0.9–1.6)
College graduate or higher	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)

(.) = not used because frequency is equal to zero or one.

Notes: some forms of health-harming behaviours (early pregnancy, unintended pregnancy, driving drunk) were excluded due to the low number of cases. Values in parentheses indicate 95% CI. Numbers are rounded to the nearest decimal point.

Table 6. Adjusted odds of health-risk behaviours by type of ACEs, Ukraine, 2017

	Adjusted OR (95% CI)								
	Current smoker	Early smoking initiation (15 years or younger)	Current alcohol use	Problem drinker or alcoholic	Ever used street drugs	Early sex (age 16 or younger)	Multiple partners (≥3 during the past 12 months)	Suicide attempt	Physical inactivity
Childhood abuse									
Psychological abuse	1.3 (0.9–2.0)	2.0 (1.2–3.3)	1.2 (0.8–1.7)	3.2 (2.0–5.0)	2.6 (1.7–3.9)	1.1 (0.7–1.7)	1.9 (1.0–3.8)	5.8 (3.3–10.2)	1.3 (0.8–2.0)
Physical abuse	1.4 (1.0–2.0)	2.3 (1.4–3.7)	1.3 (0.9–1.8)	1.7 (1.0–2.7)	2.3 (1.6–3.5)	1.3 (0.9–1.9)	1.5 (0.8–3.0)	3.1 (1.7–5.6)	1.2 (0.8–1.9)
Sexual abuse	3.1 (1.8–5.1)	3.3 (1.7–6.1)	1.9 (1.1–3.5)	1.9 (0.9–3.9)	3.6 (2.1–6.4)	4.0 (2.4–6.8)	5.0 (2.4–10.6)	1.8 (0.7–4.8)	0.9 (0.5–1.8)
Physical neglect	1.1 (0.8–1.5)	1.5 (1.0–2.2)	1.3 (1.0–1.6)	1.9 (1.3–2.9)	1.5 (1.1–2.1)	1.3 (0.9–1.7)	1.7 (1.1–2.8)	2.3 (1.4–4.0)	1.3 (0.9–1.7)
Emotional neglect	1.2 (0.9–1.6)	1.9 (1.3–2.8)	1.2 (1.0–1.6)	2.6 (1.8–3.9)	1.9 (1.4–2.6)	1.1 (0.8–1.5)	1.1 (0.6–1.9)	5.0 (2.9–8.6)	1.4 (1.0–1.9)
Household dysfunction									
Problematic use of alcohol by household member	1.1 (0.8–1.6)	1.2 (0.8–1.9)	1.0 (0.8–1.4)	1.6 (1.1–2.5)	2.2 (1.6–3.1)	0.7 (0.5–1.0)	0.6 (0.3–1.3)	2.1 (1.2–3.6)	1.6 (1.2–2.2)
Drug abuse by household member	2.0 (1.0–4.1)	2.6 (1.1–6.2)	1.7 (0.8–3.8)	6.4 (3.1–12.9)	4.0 (2.0–8.1)	2.1 (1.0–4.5)	4.2 (1.6–11.1)	2.1 (0.6–7.3)	0.8 (0.3–1.9)
Mental illness/depressed or suicidal household member	1.3 (0.9–1.8)	2.1 (1.3–3.4)	1.3 (1.0–1.8)	2.5 (1.6–3.8)	1.9 (1.3–2.8)	1.0 (0.7–1.5)	1.1 (0.6–2.2)	2.9 (1.6–5.1)	0.8 (0.5–1.2)
Domestic violence towards mother	1.3 (0.9–1.9)	1.8 (1.1–2.9)	1.2 (0.9–1.7)	2.0 (1.3–3.3)	1.9 (1.2–2.8)	1.5 (1.0–2.2)	1.1 (0.5–2.4)	2.5 (1.4–4.6)	1.7 (1.2–2.5)
Criminal behaviour/ incarcerated household member	1.3 (0.7–2.1)	3.0 (1.7–5.6)	1.2 (0.7–1.9)	2.5 (1.3–4.6)	2.1 (1.2–3.7)	1.3 (0.7–2.2)	2.0 (0.9–4.8)	1.8 (0.7–4.4)	1.4 (0.8–2.5)
Parents separated or divorced	1.6 (1.2–2.0)	1.4 (0.9–2.0)	1.0 (0.8–1.3)	1.5 (1.0–2.2)	1.4 (1.0–1.9)	1.1 (0.9–1.5)	1.0 (0.6–1.6)	2.0 (1.2–3.3)	1.2 (0.9–1.6)
Peer and community violence									
Bullying	0.9 (0.5–1.6)	1.4 (0.7–2.8)	1.0 (0.6–1.6)	3.2 (1.8–5.7)	2.1 (1.2–3.5)	1.2 (0.7–2.0)	0.7 (0.2–2.4)	5.7 (2.9–11.1)	1.1 (0.6–1.9)
Physical fighting	1.9 (1.3–2.7)	1.8 (1.1–3.0)	0.9 (0.6–1.4)	1.8 (1.0–3.0)	1.7 (1.1–2.6)	2.1 (1.4–3.0)	2.2 (1.2–3.9)	3.1 (1.5–6.6)	1.4 (0.9–2.2)
Community violence	1.8 (1.4–2.4)	2.7 (1.8–4.0)	1.0 (0.7–1.3)	1.8 (1.2–2.7)	1.7 (1.2–2.4)	1.8 (1.3–2.4)	1.7 (1.0–2.9)	2.2 (1.2–3.9)	1.0 (0.7–1.4)

Notes: values in parentheses indicate 95% CIs. Numbers are rounded to the nearest decimal point. ORs are adjusted for age, gender and family's socioeconomic status.

Domestic violence was also related to higher risks of suicide attempts (AOR=2.5, 95% CI 1.4–4.6), alcohol abuse (AOR=2.0, 95% CI 1.3–3.3), use of drugs (AOR=1.9, 95% CI 1.2–2.8), early smoking initiation (AOR=1.8, 95% CI 1.1–2.9) and early sex (AOR=1.5, 95% CI 1.0–2.2).

Criminal behaviour or incarceration of a household member led to higher risks of early smoking initiation (AOR=3.0, 95% CI 1.7–5.6), alcohol abuse (AOR=2.5, 95% CI 1.3–4.6) and use of drugs (AOR=2.1, 95% CI 1.2–3.7). Parents' divorce had relatively little influence on respondents' behaviour but increased the risk of suicide attempt (AOR=2.0, 95% CI 1.2–3.3), smoking (AOR=1.6, 95% CI 1.2–2.0), alcohol abuse (AOR=1.5, 95% CI 1.0–2.2) and use of street drugs (AOR=1.4, 95% CI 1.0–1.9). Bullying, as well as emotional abuse in the family, significantly increased the risk of suicide attempt (AOR=5.7, 95% CI 2.9–11.1), the probability of alcohol addiction (AOR=3.2, 95% CI 1.8–5.7) and use of drugs (AOR=2.1, 95% CI 1.2–3.5).

The survey findings generally confirm therefore that exposure to negative childhood experiences leads to the development of numerous risky or health-harming habits in adolescence and adulthood.

3.5. Prevalence and odds of health-risk behaviours by number of ACEs

Table 7 shows ORs and prevalence of various health-harming behaviours by the number of ACEs to which respondents were exposed. Overall, the survey findings confirm that exposure to multiple ACEs increases susceptibility to health-harming behaviours or unhealthy lifestyles in adulthood. These adjusted odds of selected

Table 7. Prevalence and adjusted odds of health-risk behaviours by number of ACEs, Ukraine, 2017

		Number of ACEs				
		0 (n=379)	1 (n=382)	2 (n=285)	3 (n=183)	4 or more (n=288)
Current smoker	Prevalence, valid %	17.2	20.2	24.7	26.2	29.9
	OR (95% CI)	1.0 (referent)	1.2 (0.8–1.8)	1.5 (1–2.3)*	1.6 (1.1–2.5)*	2.1 (1.4–3.0)***
Early smoking initiation (15 years or younger)	Prevalence, valid %	4.7	6.4	11.5	9.3	17.6
	OR (95% CI)	1.0 (referent)	1.3 (0.6–2.5)	2.3 (1.2–4.4)*	1.8 (0.8–3.7)	4.1 (2.2–7.5)***
Current alcohol use	Prevalence, valid %	56.6	62.3	63.9	66.5	64.5
	OR (95% CI)	1.0 (referent)	1.3 (1–1.8)	1.4 (1–1.9)	1.7 (1.1–2.5)*	1.4 (1.0–2.0)*
Problem drinker or alcoholic	Prevalence, valid %	4.0	3.7	8.8	12.6	17.0
	OR (95% CI)	1.0 (referent)	0.9 (0.4–1.9)	2.2 (1.1–4.2)*	3.3 (1.7–6.5)***	5.0 (2.7–9.2)***
Ever used street drugs	Prevalence, valid %	6.8	8.6	16.7	15.6	25.8
	OR (95% CI)	1.0 (referent)	1.2 (0.7–2.2)	2.7 (1.6–4.5)***	2.4 (1.3–4.2)**	4.6 (2.8–7.5)***
Early sex (age 16 or younger)	Prevalence, valid %	19.4	25.6	29.5	28.2	33.6
	OR (95% CI)	1.0 (referent)	1.4 (0.9–2)	1.7 (1.1–2.5)*	1.5 (0.9–2.4)	1.9 (1.3–2.9)**
Multiple partners (≥3 during the past 12 months)	Prevalence, valid %	4.6	5.7	5.9	4.8	10.2
	OR (95% CI)	1.0 (referent)	1.2 (0.6–2.4)	1.2 (0.5–2.6)	0.9 (0.4–2.4)	2.2 (1.1–4.5)*
Suicide attempt	Prevalence, valid %	0.5	1.9	3.6	8.4	10.6
	OR (95% CI)	1.0 (referent)	3.5 (0.7–16.8)	6.7 (1.5–30.9)*	18.7 (4.2–83.3)***	22.0 (5.2–93.4)***
Physical inactivity	Prevalence, valid %	16.2	19.3	23.3	18.5	22.8
	OR (95% CI)	1.0 (referent)	1.4 (0.9–2.1)	1.8 (1.2–2.7)**	1.3 (0.8–2.1)	1.8 (1.2–2.8)**

*p<0.05

**p<0.01

***p<0.001

Note: ORs adjusted for age, gender and family's socioeconomic status.

health-harming behaviours seem to increase incrementally with the number of ACEs. Compared to zero exposure to ACEs, exposure to four or more made it twice as likely for the person to take up smoking (AOR=2.1, 95% CI 1.4–3.0) and made early smoking initiation four times more likely (AOR=4.1, 95% CI 2.2–7.5). Probability of use of drugs increased (AOR=4.6, 95% CI 2.8–7.5), the risk of alcohol abuse or addiction grew by five times (AOR=5.0, 95% CI 2.7–9.2) and there was a 20-times greater proneness to suicide (AOR=22.0, 95% CI 5.2–93.4).

At the same time, behaviours such as use of alcohol, early sex, multiple sex partners and physical inactivity had little or nearly no relation to the number of ACEs.

4. DISCUSSION

This survey shows that a large proportion of children in Ukraine have been exposed to some ACE, with 75% of respondents reporting at least one form of ACE and 19% reporting having experienced four or more multiple categories of ACE during the first 18 years of life.

The different forms of adversity, whether child maltreatment, household dysfunctions, or peer and community violence, are widespread. The most frequently reported forms of ACEs were parents' separation (34%), emotional neglect (28%) and physical neglect (25%). The prevalence of physical abuse was 12%, emotional abuse 10% and sexual abuse 5%. Household dysfunction was also common, with nearly 1 in 5 respondents (19%) reporting problem drinking by a household member, 15% living with a mentally ill, depressed or suicidal household member, and 13% witnessing domestic violence towards the mother. About 21% reported having witnessed community violence and 6% were bullied many times in their childhood.

These findings present a prevalence of maltreatment which is similar to, albeit lower than, that reported in a previous survey undertaken in a population of Ukrainian children for the Council of Europe (Pavlysh & Zhuravel, 2015). The differences may be due to a variety of reasons, including the older age of respondents in this study and their probable higher social class and educational achievement, and differences in study methodology, such as sampling, and questionnaire administration, content and format. Nevertheless, both surveys show that child maltreatment is an area of societal and policy concern in Ukraine.

Despite some differences in prevalence, the general picture of adverse experiences to which Ukrainian study participants were exposed is similar to that of other studies carried out in the WHO European Region and globally. Several countries in the European Region have conducted ACE surveys (Velicka et al., 2012; Baban et al., 2013; Qirjako et al., 2013; Raleva et al., 2013; Bellis et al., 2014; Kachaeva et al., 2014; Ulukol et al., 2014; WHO Regional Office for Europe, 2014; Makaruk et al., 2017; Velemínský et al., 2017). This report adds to the evidence base, reaffirming that the problem is widespread in every society.

According to data in the WHO *European report on preventing child maltreatment* (Sethi et al., 2013), surveys from Europe and around the world show a prevalence rate of 9.6% for sexual, 22.9% for physical and 29.1% for mental abuse, and 16.3% for physical and 18.4% for emotional neglect. The Ukrainian study is similar to others in that it shows various forms of child maltreatment often go with household dysfunctions: respondents with several adverse experiences are more typical than those with only one.

The proportion of people with ACEs is the same in men and women, but the experiences differ somewhat: physical neglect was mentioned more often by men, while emotional neglect was more frequently cited by women. Men and women tend to experience emotional, physical and sexual abuse in equal measure.

Survey findings also show a connection between a family's socioeconomic status and their adverse experiences. Respondents whose parents had not completed secondary education (which means low socioeconomic status) more often experienced emotional neglect, witnessed domestic violence towards the mother or experienced parental divorce, or had a household member who had committed a crime or went to prison. Families with middle or high socioeconomic status also demonstrated high prevalence of adverse experiences. Eighty-six per cent of children in families with low socioeconomic status were exposed to adverse experiences, against 76% with middle status and 72% with high: low family socioeconomic status is therefore a risk factor for, but not the only cause of, ACEs.

Risky behaviours and health-harming habits, such as use of alcohol, smoking and early sex, were widespread among survey respondents. Men generally are more prone to health-risk behaviours than women, but family socioeconomic status has nearly no influence on health-risk behaviour patterns. The high prevalence of health-harming behaviours has implications for health damage through the life-course, with a high propensity for developing noncommunicable diseases and mental illness in large sections of the population; this is a matter of considerable public health concern in Ukraine.

The Ukrainian student survey findings generally support the conclusions drawn from preceding studies in other countries which state that ACEs increase the probability of developing health-risk behaviours in adulthood. Overall, the more forms of ACEs a person has had, the higher the risk of developing health-harming habits or risky behaviours. All adverse experiences increase the probability of developing risky

behaviours, but the gravest effect is caused by sexual abuse, emotional abuse and neglect, physical abuse and use of drugs in the household. Increases in exposure to multiple ACEs were significantly associated with increased likelihood of early smoking initiation, alcohol abuse, use of drugs, risky sexual behaviour and suicide attempts.

4.1. Limitations

This study has certain limitations. First, the survey involved only post-school students, so the collected data on prevalence of ACEs and health-risk behaviours cannot directly be extrapolated to the whole population. Though an overwhelming majority of Ukrainian school graduates go on to post-school education (the tertiary education enrolment rate is 82%, according to the World Economic Forum global competitiveness report for 2016/2017 (Schwab, 2017)), students represent a relatively well-off population group, both financially and in relation to their parents' level of education. Low socioeconomic status increases the probability of child maltreatment and other ACEs, so it can be assumed that the wider population will show higher prevalence of adverse experiences than the survey respondents.

The survey aimed to study the consequences of adverse experiences, so the research considered long-lasting or intense abuse or adverse experiences: repeated emotional abuse (humiliating, insulting and threatening behaviour), physical abuse (such as repeated beating leaving marks or wounds, and slapping/hitting the face), parents' intense emotional neglect and neglect of basic physical needs, and all aspects of sexual abuse, including single cases of sexual harassment or sexual intercourse with an adult or someone at least five years older. It was assumed that minor experiences (such as a child being spanked on the buttocks) would not have such a sustained influence on people's personality and lifestyle development, so such cases were disregarded. Emergencies such as conflict and displacement were also not taken into account.

Some questions about ACEs and health-risk behaviours were not answered by all respondents. Self-administration of questionnaires allows respondents to feel more freedom in responding to sensitive questions, but also makes it impossible to control item nonresponse rates. The highest nonresponse rate was seen in the questions regarding sexual experience (the question asking at what age the respondent had his or her first sex was not answered by 16% of survey interviewees) and sexual abuse (with a 10% nonresponse rate). Incomplete questionnaires were not excluded from the general data file, but each indicator was calculated within the array of answers to the particular question. There is no certainty about the experiences of those who skipped questions (whether they were hiding information on their abuse experiences or gave no answer for a different reason), so data on certain aspects – especially sexual abuse experiences – may be incomplete.

The retrospective character of the survey may lead to memory errors, with respondents unintentionally giving incomplete or incorrect information on their childhood experiences.

Despite these limitations, the survey findings demonstrate that there is a high level of prevalence of ACEs, and that ACEs are strongly connected with inclination to risky behaviours and health-harming habits in adulthood. These results are not dissimilar to those from elsewhere. The survey involved respondents from families with a range of socioeconomic backgrounds; to eliminate side-effects, ratios were adjusted by gender, age and socioeconomic status when forming the model of interrelations between ACEs and risky or health-harming behaviours. It is therefore assumed that the model of interrelations can be viewed as characteristic of the whole society and not only the researched category.

4.2. Next steps

These findings are similar to those published elsewhere and suggest that ACEs are strongly associated with health-harming behaviours that may cause mental illness and physical ill health (such as noncommunicable diseases). They imply that there is a strong need to develop a sustained policy response to implement strategies to reduce the burden of child maltreatment and other adversities in Ukraine. This report provides an opportunity to increase public awareness of the problem to advocate for change to end violence against children.

The study indicates that ACEs particularly increase individuals' risks of problems associated with health-harming behaviours, such as smoking, alcohol and drug misuse, underage sex and self-harm, including attempted suicide. Preventing ACEs can therefore reduce mental and physical ill health and the costs connected with them. Preventing child maltreatment and other ACEs cannot be approached in isolation but requires a whole-of-society and multisectoral approach, with the participation of multiple partners to ensure the greatest effects (Krug et al., 2002; Sethi et al., 2013; Hardcastle et al., 2015; WHO, 2016b). The best results can be obtained through comprehensive whole-of-society approaches on violence prevention that take a life-course approach and cut across the four levels of the ecological model (societal, community,

family and individual), as proposed in the *World report on violence and health* (Krug et al., 2002). Comprehensive approaches to violence prevention require that legislative frameworks and social and cultural norms that inadvertently support the use of violence in disciplinary action and as a means of resolving conflict be tackled (Sethi et al., 2013; Gray et al., 2016).

The study suggests the need for investment in children to prevent violence and ensure they fulfil their developmental potential. The costs of not taking action are too high and run into billions of dollars, consuming about 1–2% of gross domestic product (Fang et al., 2012). The evidence base that prevention and protecting children from violence is far more beneficial than dealing with the consequences is strong (Sethi et al., 2013; Hardcastle et al., 2015; WHO, 2016b). Evidence-based prevention programmes targeting children and families at risk, such as those living in households with dysfunction, would ensure that warm, nurturing and safe environments for children are provided to enable them to reach their full developmental potential. These include positive parenting programmes, safe environments and schools for children, preschool education, and home visitation by nurses and midwives to provide parenting support (Hardcastle et al., 2015; WHO, 2016b). Effective parenting programmes, adapted to the country context, should be introduced and implemented, specifically targeting dysfunction in families at risk of violence to build intrafamilial capacity to resolve conflict in nonviolent ways. Legislation that bans corporal punishment is in place, but there is also a need for societal debate and social marketing to change parental attitudes towards corporal punishment to ease compliance with existing laws.

These programmes need to be implemented more widely by different actors from across sectors, using a coordinated approach. The best way of ensuring coordinated action would be through the development of an intersectoral national action plan or policy (Gray et al., 2016). This would be in keeping with the *European child maltreatment prevention action plan, 2015–2020* (WHO Regional Office for Europe, 2014). There is an opportunity to develop such a plan in Ukraine to harness and coordinate the energies of various actors from different sectors.

Health systems are at the forefront of preventive action but at present lack the resources to mount a coordinated response. Capacity-building should be undertaken to support frontline professionals to detect, access and provide support to families at risk. There is a particular need to increase health-care sector engagement in universal prevention services, such as home visitation and parenting support. The forthcoming WHO guidelines on responding to child abuse and neglect will provide the evidence base for how services can best respond to maltreatment and would be valuable in the country context. Such capacity-building support would also need to be considered for the social, education and justice sectors.

Comprehensive policies need to be supported with high-quality information from child protection, health and police services, but routine information like this represents only a fraction of the true scale of the problem. It needs to be supplemented by intermittent community surveys, which should be conducted to monitor trends in child maltreatment and evaluate prevention policies and programmes.

This survey in Ukraine contributes to fulfilling one of the objectives of the European action plan, which is to make the problem of child maltreatment more visible. The policy priority to stop violence against children has been emphasized in the Sustainable Development Goals target 16.2, adopted by world leaders in September 2015 (United Nations, 2015). The survey highlights the relationship between the occurrence of ACEs, health-harming behaviours and ill health. Its findings argue strongly for investment in prevention and early and effective responses once maltreatment is discovered. Stakeholders in Ukraine should take stock of the current situation, strengthen national policy and implement a coordinated intersectoral preventive and care response.

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ANNEX 1. UKRAINIAN LEGISLATION ON PROTECTING CHILDREN FROM EXPOSURE TO VIOLENCE AND OTHER ADVERSE EXPERIENCES

- Закон України “Про охорону дитинства”
  The Law of Ukraine on Protection of Childhood
- Закон України “Про запобігання та протидію домашньому насильству”
  The Law of Ukraine on Preventing and Combating Domestic Violence
- Закон України “Про соціальну роботу з сім’ями, дітьми та молоддю”
  The Law of Ukraine on Social Work with Children and Youth
- Закон України “Про основи соціального захисту бездомних осіб і безпритульних дітей”
  The Law of Ukraine on the Fundamentals of Social Protection of Homeless Citizens and Gutter Children
- Закон України “Про забезпечення організаційно-правових умов соціального захисту дітей-сиріт та дітей, позбавлених батьківського піклування”.
  The Law of Ukraine on Ensuring Organizational and Legal Conditions for Social Protection of Orphans and Children Deprived of Parental Care
- Закон України “Про органи і служби у справах дітей та спеціальні установи для дітей”.
  The Law of Ukraine on Bodies and Services on Affairs of Minors and Special Establishments for Minors
- Сімейний Кодекс України
  The Family Code of Ukraine
- Кодекс України про адміністративні правопорушення
  The Code of Ukraine on Administrative Offenses
- Кримінальний кодекс України
  The Criminal Code of Ukraine

ANNEX 2. EDUCATION INSTITUTIONS FROM WHICH DATA WERE COLLECTED

Oblast	City	Education institution	Number of interviews		
			Male	Female	Total
I–II levels of accreditation					
Kyiv city	Kyiv	Business College of private higher education institution European University	15	5	20
Vinnytska	Vinnytsia	Vinnytsia College of National University of Food Technologies	28	1	29
Dnipropetrovska	Dnipro	Dniprovsky State Technical College of Energy and Information Technologies	18	8	26
	Kamyanske	Prydniprovsky State Metallurgical College	19	0	19
	Kryvyi Rih	Inguletsky College of the state higher education institution Kryvyi Rih National University	2	16	18
	Nikopol	Communal higher education institution Nikopol Medical College of Dnipropetrovsk Oblast Council	1	20	21
Zhytomyrska	Zhytomyr	Zhytomyr Cooperative College of Business and Law	9	6	15
Kyivska	Bila Tserkva	Bila Tserkva College of Service and Design	0	18	18
Odeska	Odesa	State higher education institution Odesa College of Transport Technologies	9	7	16
Kharkivska	Kharkiv	Kharkiv Hydrometeorological College of Odesa State Ecological University	14	6	20
Khmelnytska	Khmelnytskyi	Separate structural unit – Khmelnytskyi Polytechnic College of Lviv Polytechnic National University	21	0	21
	Kamyanets-Podilskyi	Kamianets-Podilskyi College of Culture and Arts	0	20	20
III–IV levels of accreditation					
Kyiv city	Kyiv	National University of Kyiv-Mohyla Academy	24	17	41
	Kyiv	Kyiv Cooperative Institute of Business and Law	8	11	19
	Kyiv	National University of Bioresources and Natural Resources of Ukraine	8	12	20
	Kyiv	Kyiv National University named after T. Shevchenko	4	17	21

Oblast	City	Education institution	Number of interviews		
			Male	Female	Total
Kyiv city	Kyiv	National Transport University	9	13	22
	Kyiv	Taurida National University named after V. Vernadskyi	12	29	41
	Kyiv	State University of Banking	14	20	34
	Kyiv	National Aviation University	3	17	20
	Kyiv	Kyiv Borys Grinchenko University	3	17	20
	Kyiv	National Pedagogical University named after M. Drahomanov	0	20	20
	Kyiv	Private higher education institution International Scientific and Technical University named after academician Yurii Bugai	21	0	21
Vinnytska	Vinnytsia	Donetsk National University named after Vasyl Stus	11	1	12
	Vinnytsia	Vinnytsia National Technical University	8	12	20
Volynska	Lutsk	Eastern European National University named after Lesia Ukrainka	11	11	22
Dnipropetrovska	Dnipro	University of Customs and Finance	3	17	20
	Dnipro	State higher education institution Ukrainian State Chemical Technology University	22	14	36
	Kryvyi Rih	Kryvyi Rih branch of private higher education institution European University	13	9	22
Donetska	Mariupol	State higher education institution Pryazovskyi State Technical University	6	10	16
	Mariupol	Mariupol State University	5	15	20
Zhytomyrska	Zhytomyr	Zhytomyr State University named after Ivan Franko	4	11	15
Zakarpatska	Uzhhorod	State higher education institution Uzhhorod National University	10	10	20
Zaporizka	Zaporizhzhia	Zaporizhzhia National University	10	20	30
	Melitopol	Tavriia State Agrotechnological University	3	17	20
	Melitopol	Melitopol State Pedagogical University named after Bogdan Khmelnytskyi	5	15	20
Ivano-Frankivska	Ivano-Frankivsk	State higher education institution Precarpathian National University named after Vasyl Stefanyk	5	11	16
	Ivano-Frankivsk	Ivano-Frankivsk National Technical University of Oil and Gas	15	0	15
Kirovogradska	Kropyvnytskyi	Central Ukrainian National Technical University	23	0	23

Oblast	City	Education institution	Number of interviews		
			Male	Female	Total
Luhanska	Sieverodonetsk	East-Ukrainian National University named after Volodymyr Dahl	14	6	20
	Lysychansk	Donbas State Technical University	4	16	20
Lvivska	Lviv	Lviv Ivan Franko National University	5	15	20
	Lviv	National University of Lviv Polytechnic	27	13	40
	Lviv	State higher education institution National Forestry University of Ukraine	19	0	19
	Lviv	Lviv National University of Veterinary Medicine and Biotechnology named after S. Gzhytsky	10	10	20
Mykolaiivska	Mykolaiiv	Mykolaiiv National University named after V. Sukhomlynskyi	10	10	20
	Mykolaiiv	National University of Shipbuilding named after Admiral Makarov	11	9	20
Odeska	Odesa	Odesa National Polytechnic University	12	8	20
	Odesa	National University Odesa Law Academy	18	24	42
	Odesa	Odesa State Academy of Civil Engineering and Architecture	6	21	27
Poltavska	Poltava	Higher education institution of Ukoopspilks Poltava University of Economics and Trade	9	22	31
	Kremenchuk	Kremenchuk National University named after M. Ostrogradsky	9	11	20
Rivnenska	Rivne	Private higher education institution International Academic University of Economics and Humanities named after Stepan Demianchuk	7	8	15
	Rivne	Rivne State Humanitarian University	0	15	15
Sumska	Sumy	Sumy State University	1	20	21
	Sumy	Sumy State Pedagogical University named after A.S. Makarenko	3	12	15
Ternopilska	Ternopil	Ternopil National Technical University named after Ivan Pului	26	4	30
Kharkivska	Kharkiv	Kharkiv National Medical University	4	16	20
	Kharkiv	Kharkiv National University of Radio Electronics	6	14	20
	Kharkiv	National Aerospace University named after M. Zhukovsky Kharkiv Aviation Institute	9	11	20
	Kharkiv	Kharkiv National University named after V. Karazin	19	1	20
	Kharkiv	Ukrainian State University of Railway Transport	8	32	40
	Kharkiv	National Pharmaceutical University	6	14	20

Oblast	City	Education institution	Number of interviews		
			Male	Female	Total
Khersonska	Kherson	Kherson State University	17	15	32
Cherkaska	Cherkasy	Faculty of Market, Information and Innovation Technologies of Kyiv National University of Technology and Design	6	3	9
	Cherkasy	Cherkasy National University named after Bogdan Khmelnytskyi	4	17	21
Chernivetska	Chernivtsi	Chernivtsi National University named after Yuri Fedkovich	0	15	15
	Chernivtsi	Chernivtsi Faculty of the National Technical University Kharkiv Polytechnic Institute	14	3	17
Chernihivska	Chernihiv	Chernihiv National Technological University	16	3	19
Total			**696**	**821**	**1 517**

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.

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