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Report from the 2013/2014 survey

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ABSTRACT

This survey of the prevalence of adverse childhood experiences (ACEs) was undertaken on a representative sample of 2381 first-year university students (864 males and 1517 females) from all six public universities in Serbia. The aims were to investigate the prevalence of ACEs in the young population and identify possible associations between different types and health-risk behaviours. Results show that respondents were most frequently exposed to psychological abuse (36.7%, 17.3% more than a few times), physical abuse (27.8%, 10.9%) and psychological neglect (15.7%, 7.7%). Sexual abuse was reported by 4.3% and physical neglect by 8.9%. Males had higher prevalence of exposure to physical abuse and neglect, and psychological and sexual abuse, and females to psychological neglect. The results also show that the chances of taking part in health-risk behaviours increase when people are exposed to higher number of ACEs. These findings can help policy-makers to take informed actions to further prevent and reduce child maltreatment in Serbia.

Keywords
CHILD NEGLECT
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EXECUTIVE SUMMARY

Introduction

Child maltreatment is a worldwide problem that affects every type of society. Children, who are dependent on adults, are extremely vulnerable. Millions around the world are victims or witnesses of various forms of abuse and neglect every year.

Serbia listed addressing violence among its priorities during the past decade and has made noticeable progress in improving and adopting regulations and harmonizing with international standards. The system for multisectoral data collection at national level remains undeveloped, however, and there is still a need for more systematic measures to heighten awareness of preventive measures among the general public and professionals. In addition, tolerance to different forms of violence, originating from cultural and traditional beliefs, is widespread.

Quality data and strong multisectoral cooperation are essential for quantifying the magnitude of the problem of child maltreatment, identifying risk and protective factors, and creating and implementing adequate preventive programmes.

The aims of this survey were to investigate the prevalence of adverse childhood experiences (ACEs) among the young population of Serbia and identify possible associations between different types of ACEs and their impact on health risk behaviours.

Methodology and data analysis

The survey was conducted on a representative sample of 2381 first-year university students (864 males and 1517 females) from all six public universities in Serbia, using recommended methodology developed by the United States Centers for Disease Control and Prevention and WHO.

Two questionnaires were developed – one for males, with 72 items, and one for females, with 76. Each examined various types of maltreatment, household dysfunction and health-risk behaviours.

Results

Sociodemographic characteristics

Most of the 2381 students who participated in the study (63.7%) were females (36.3% males). The higher number of female respondents is correlated to greater attendance by females at most of the faculties. The average age of participants was 20.24 years (SD=0.85). Most (68.7%) came from urban settings: 47.9% came from families with average incomes and 47.4% above average. Most parents (68.1% of mothers and 75.4% of fathers) were employed and around 95% of parents of both genders had at least secondary-level education.

Exposure to abuse, neglect and household dysfunction

Results are summarized in Table ES1.

Just over half of respondents (50.8%) had experienced at least one category of ACE: 22.9% had suffered one ACE category, 11.6% two, 7.8% three and 8.5% four or more.

Physical fighting, bullying victimization and witnessing community violence during childhood

Bullying and involvement in physical fighting were common. Every fifth participant (18.4%) reported being a victim of bullying and almost a half (43.5%) had been involved in physical fighting during their childhood, with a higher prevalence among males for both. A high proportion (76.1%) reported witnessing community violence, most commonly by seeing or hearing someone being beaten up. Male respondents more frequently reported witnessing all types of community violence. The chances of a respondent being bullied, involved in physical fighting or witnessing community violence increased with exposure to a higher number of ACEs.

Health-risk behaviours

The two most prevalent health-risk behaviours were use of alcohol and smoking, followed by multiple sexual partners, early sexual activity and illicit drug use. Most respondents (73.6%) reported using alcohol in their lifetimes, 59.9% in the previous month and 10% frequently, with significantly higher prevalence in males (18% versus 5.3%). Around 27% reported smoking in

Table ES1. Expose to abuse, neglect and household dysfunction

Type of abuse, neglect or dysfunction	Results
Physical abuse	Measured by experiences of *being pushed, grabbed or having something thrown at [person]* or *being physically injured or hit in a way that left marks.* A high percentage reported being exposed to physical abuse at least once or twice (27.8%) and 10.9% more than few times in their life, with a significant difference in gender distribution and higher reported prevalence in males (13.7% versus 9.4%)
Corporal punishment	Almost two thirds of participants (64.7%) experienced corporal punishment at least once during their childhood (29.8% more than once), and almost one third (32.4%) of those who suffered corporal punishment were spanked with medium to very hard intensity.
Psychological (emotional) abuse and neglect	Psychological abuse was identified with two items: one referred to situations in which a parent or guardian with whom the respondent lived made him or her afraid that they might be hurt; and the other to situations in which respondents were sworn at or had been insulted. More than one third (36.7%) were exposed to psychological abuse at least once or twice in their life (17.3% more than a few times) and the prevalence was significantly higher in boys (20% versus 15.6%) Psychological neglect was identified with questions asking if they felt someone in the family hated them or their parents wished they had never been born, and was reported by 15.7% of participants (7.7% experienced this more than a few times), with higher prevalence in girls (16.3% versus 14.7%) and in respondents who had grown up in rural surroundings (18.2% versus 14.6%).
Physical neglect	Physical neglect while growing up, defined by not having enough to eat or wearing dirty clothes, was reported by 8.9% (3.7% experienced this more than few times), with significantly higher prevalence in males (11.6% versus 7.4%).
Sexual abuse	Sexual abuse was reported by 4.3% of respondents, claiming at least one kind of sexual abuse during their first 18 years of life. All types of identified abuse were significantly more common among males (7.5% versus 2.5%) In 25.2% of cases, the abuser was someone the respondent trusted. The most common methods of procuring involvement used by abuser were trickery (13.2% of females and 6.2% of males) and giving psychoactive substances (alcohol or drugs) (2.6% female and 12.8% male).
Household dysfunction	The most common types of household dysfunction were: violent treatment of the mother (domestic violence) (18.7% of cases); separated or divorced parents (12%); alcohol abuse by family member (9.1%); and having a person with mental illness/ depression in the family (6.6%).

their lifetimes and 17.9% declared themselves as active smokers, with smoking initiation on average at age 17. There were no significant differences between genders. Risky sexual behaviours were also common among respondents – 14.2% reported having multiple sexual partners (three and more) and 12.6% early sexual activity (age 16 and younger), males more often than females. Illicit drug use was highly prevalent (12.1%), with significantly higher prevalence in males (19.3% versus. 8%). A smaller proportion (2.5%) reported running away from home and 1.9% had attempted suicide.

Relationship of ACEs and health-risk behaviours

The study confirmed that ACEs are linked to health-risk behaviours. Respondents who had been exposed to physical violence, for example, were 1.5 times more likely to become active smokers (OR=1.49), twice as likely to drive drunk (OR=2.24) and use illicit drugs (OR=1.89), more than 1.6 times more likely to be involved in early sexual activities (OR=1.62) and 4.2 times more likely to attempt suicide (OR=4.21). Those who had experienced psychological abuse had higher potentials for becoming active smokers (OR=1.39), almost two times higher at an early age (OR=1.89), two times higher potential for using illicit drugs (OR=2.03) and to run away from home (OR=1.83), and three times higher potential for attempting suicide (OR=3.00). Sexual abuse increases chances for all types of health-risk behaviours except early smoking initiation and drunk-driving. All types of ACEs significantly increase the chances of using illicit drugs and attempting suicide.

Importantly, the results show that the odds of adopting health-risk behaviours increased with exposure to multiple ACEs. Compared to no ACEs, exposure to four or more was associated with increased odds of having started smoking early (3.3 times), frequent alcohol use (1.6 times), drink-driving (three times), underage pregnancy (11.7 times) and suicide attempt (78.2 times).

Discussion and conclusions

Results confirm the conclusions of previous research, that different forms of child maltreatment are highly prevalent in Serbia. Respondents were most frequently exposed to psychological and physical abuse and psychological neglect. The most common types of household dysfunction experienced were violent treatment of the mother and separated or divorced parents, followed by alcohol abuse by family member and mental illness/depression in the family.

About half the respondents reported having experienced at least one category of ACE. The fact that almost two thirds had experienced corporal punishment at least once during their childhood confirms that use of this type of punishment as a disciplinary method is widespread.

The study shows the frequent co-occurrence of different forms of child maltreatment and household dysfunction. The odds of adopting health-harming behaviours increased with exposure to multiple ACEs. Compared to no ACEs, exposure to four or more was associated with increased odds of having started smoking early, frequent alcohol use, drink-driving, underage pregnancy and attempted suicide. This is in line with findings of ACE surveys performed in other countries from Europe and globally. There was also an association between bullying other people and exposure to at least one type of ACE.

Implications

The study demonstrates that child maltreatment and other ACEs are important public health problems in Serbia. Detailed insight into the different types of maltreatment against children and their influence on health-harming behaviours highlights the importance of investing to prevent child maltreatment and reap the benefits that would be gained throughout the life-course. In keeping with the European and global policy agenda, there is a renewed need for action to develop comprehensive information systems, improve information-sharing and intersectoral collaboration, progress the enactment and enforcement of comprehensive legislation, implement and evaluate evidence-informed prevention programmes and invest in more research on what works in preventing child maltreatment.

1. INTRODUCTION

Child maltreatment – physical, sexual and emotional abuse or neglect and commercial or other exploitation of children younger than 18 years – is a worldwide problem that exists in every society.

Estimates of child maltreatment indicate that nearly a quarter of adults (22.6%) throughout the world suffered physical abuse as a child, 36.6% experienced emotional abuse and 16.3% physical neglect, with no significant difference between genders. Eighteen per cent of females and 7.6% of males were exposed to sexual abuse during childhood *(1).*

Severe forms may come to the attention of child protection agencies, but child maltreatment is usually hidden. It might go unrecognized and underreported by caregivers and professionals for many years, with serious and far-reaching consequences. The *European report on preventing child maltreatment (2)* states that few countries have reliable detection and surveillance systems and that even when they do, 90% of child maltreatment may still go undetected. It emphasizes that child maltreatment causes the premature deaths of 852 children under 15 years in the WHO European Region every year, but this is likely to be an underestimate due to underreporting.

Child maltreatment is a leading cause of inequality and social injustice, with higher risk in poorer and disadvantaged populations. Homicide rates in children below age 15 are more than twice as high in low- and middle-income countries than in high-income: seven out of 10 child homicides in the European Region occur in these countries *(3)*.

Deaths, however, represent only a fraction of the problem. Millions of children are victims of non-fatal abuse and neglect every year. Non-fatal consequences produce most of the social and health burden arising from violence, especially in relation to children. Physical injuries, which can be very severe, are outweighed by the wide spectrum of negative behavioural, cognitive, mental, sexual and reproductive health problems, chronic diseases and social effects that arise from violence exposure *(1).*

The main message from the United Nations *(4)* is that "no violence against children is justifiable, and all forms of violence are preventable". The international community, governments, local authorities, professional communities, civic organizations, societies and citizens need to understand this message and take necessary measures and actions to reduce and prevent all forms of violence directed towards children.

Rationale for conducting a survey of adverse childhood experiences (ACEs) in Serbia

Official Serbian data show 42 violent deaths among children and young people between 2009 and 2013, with highest prevalence between 15 and 19 years (45%) and in children under 4 years (38.2%) *(5)*.

Precise data on non-fatal child maltreatment in Serbia cannot be cited, as no comprehensive data-recording and monitoring system currently exists. Each sector involved in child protection (health care, police, social welfare, education and justice) observes and monitors violence against children, which complicates the registering process. Although collected separately, data from the ministries of interior, health, labour, employment and social policy, education, science and technological development, and justice indicate that child maltreatment already has a strong presence and will become more visible with better recording and collation *(6)*.

Police and judicial authority data show around 1200 cases of criminal offences against minors annually, representing 4–5% of the total reported criminal complaints in Serbia *(7).*

Most children injured due to violence or neglect access tertiary health care institutions for diagnosis and medical treatment. The Dr Vukan Cupic Institute for Health Care of Mothers and Children formed an expert team on the protection of children from neglect and harassment. According to the team's data, 204 children were treated for suspected battering between 2000 and 2008 *(7).* The Unit for the Protection of Children against Abuse and Neglect at the Institute of Mental Health registered 546 severe forms of child abuse and neglect between 2000 and 2010 *(6).*

Social work centres in Serbia report 2000 more children registering in 2005 than in 2001, which was a ten-fold increase: 2275 child victims of maltreatment were registered in 2005, rising to 2771 in 2006 (an increase of 22%) *(7).*

The emergency National Children's Line was established in 2005,[1] initially running on a trial basis but now established as a national service funded by the Ministry of Labour and Social Policy. It is the only facility of its kind in the country. The line received 430 757 calls between 2006 and 2014, of which 16 935 were professional counselling conversations aimed at providing support in resolving problem situations. Twelve per cent of calls referred to abuse and neglect. The service received 116 007 calls in 2014, almost 15 times the number in 2006. Most calls were received as texts: this means it has not been possible to have advisory conversations in some situations, but assistance was provided in 1226 protocolled cases *(8).*

Serbian social welfare data indicate significant increases in abuse and neglect of children over the past decade. The upward trend does not necessarily suggest greater numbers of child victims, however, but rather increases in reporting of cases consequent to rising awareness of the issue *(6).*

Serbia has made noticeable progress in the past decade in improving and adopting regulations on child protection and harmonizing legal norms with international standards. The legal framework for protection against child abuse and neglect consists of:

- the Constitution of the Republic of Serbia (2006), which defined child rights for the first time;
- the Law on the Foundations of the Education System (2003), which prohibits physical violence and insults and guarantees pupils the right to protection from discrimination and violence;
- the Family Law (2005), establishing the state's obligation to take all necessary measures to protect children from neglect and physical, sexual and emotional abuse;
- the Law on Juvenile Perpetrators of Criminal Offences and Legal Protection of Juveniles (2006);
- the Law on Police (2005), which mandates specialist preparation for police officers who act in cases of criminal offenses against minors;
- The Criminal Code (2005);
- The Labour Law (2005), with special regulations for employment of minors (under 18 years);
- the Law on Health Care (2005), through which for the first time a child patient is guaranteed the right to physical and psychological integrity and security and respect for his or her moral, cultural, religious and philosophical convictions; and
- the Law on Social Protection (2011), which recognizes children at risk and those who are victims of abuse, neglect, exploitation or human trafficking (including foreign-national child victims of trafficking) as being entitled to social care.

Other relevant legal acts and regulations are also in place.

National policy on children is set out in:

- the *Plan of action for children* (2004), which defines general policy and sets the goal of establishing an effective and operational multisectoral network for the protection of children from abuse and neglect;
- the *General protocol for the protection of children against abuse and neglect* (2005), defining basic principles and directions on protection of children against abuse and neglect;
- national Millennium Development Goals (MDGs) (2007), describing goals of improving the availability of elementary education (MDG 2) and reducing child mortality (MDG 4); and
- the *National strategy for the prevention and protection of children from violence (2008–2015)*, setting out the general goals of all children growing up in safe communities and being protected from all forms of violence.

Special protocols on child protection that determine procedures for multisectoral collaboration, internal procedures for sectors (social welfare, police, education, health care and justice) and procedures for individual institutions in these sectors have been developed. Five special protocols are currently in place in relation to:

- protection of children and pupils from violence, abuse and neglect in educational and custodial institutions (Ministry of Education, Science and Technical Development, 2005);
- protection of children against abuse and neglect in social care institutions (Ministry of Labour, Employment and Social Policy, 2006);
- protection of children from abuse and neglect in the health care system (Ministry of Health, 2009);
- the procedure for judicial authorities to protect minors from abuse and neglect (Ministry of Justice, 2009); and
- police officers' performance in protecting juveniles from abuse and neglect (Ministry of the Interior, 2012).

[1]The line was established by the ministries of labour, employment and social policy, health, and education and sport, the National Office of the President of the Republic of Serbia, the Princess Katarina Karadjordjevic Foundation and Telekom Serbia.

National policy on child protection is significantly strengthened through these important laws, policies and special protocols. Community-based programmes supported by the Government and stakeholders such as the United Nations Children's Fund (UNICEF) (such as the *School without violence* initiative *(9)*) are also in place. Other programmes that have been shown to be effective in developed countries, such as parental education or educating children to recognize and avoid situations of possible sexual abuse, have been introduced only to a limited extent *(1)*.

Despite all these initiatives, challenges still exist. The extent of public awareness about the presence of violence in communities, for example, remains questionable, and education on how to deal with it is still lacking. The biggest problem, however, is cultural and traditional beliefs that breed tolerance of different forms of violence.

The special protocols have not yet been introduced to all the professional groups on which they are targeted, and training, supervision and support on interventions for working with abused and neglected children is still required. An example of good practice, however, is provided by the Institute of Mental Health, which developed a handbook on applying a special health service protocol for protecting children from abuse and neglect. Published in 2012, the handbook supports health care professionals to recognize violence and guides them on how to act with affected children.

The Ministry of Health launched a two-year pilot project in 2013 that aimed to establish a sustainable system for reporting on the protection of children from abuse and neglect in the health care system, consequently creating more reliable data. The Dr Milan Jovanovic Batut Institute of Public Health created a special database on abuse and neglect as part of the pilot which shows that in 2013, 10 institutions at all levels of health care reported 244 cases of violence. The database expanded during 2014 to include 84 health care institutions at different levels, which regularly send reports. National-level data are still not collected routinely from all hospitals and emergency departments, but progress is nevertheless striking.

The adoption of a new law on health care documentation and records in the health sector in 2015 marks another important step in improving data collection in the health care system. This law, which will be implemented from January 2016, will make evidencing and reporting maltreatment of women and children obligatory for all health care institutions.

The need for more systematic ways of heightening awareness of preventive measures among the general public and professionals nevertheless remains. Strategies have not yet been operationalized sufficiently and the national information system for multisectoral data collection fails to objectively reflect the actual situation *(6)*.

The provision of quality data is essential for quantifying the magnitude of child maltreatment and creating and implementing adequate preventive programmes. This must be supported by strong multisectoral collaboration in data collection and programme implementation.

2. CONCEPTUAL DEFINITIONS OF CHILD MALTREATMENT

Child maltreatment

Child maltreatment is the abuse and neglect of children under 18 years. The general definition adopted by WHO *(10,11)* states that child maltreatment represents:

> … all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power.

The *World report on violence and health (10)* and WHO consultation on child abuse prevention distinguish four types: physical, sexual and emotional and psychological abuse, and physical and emotional neglect. Physical fighting and bullying behaviours can also be included in violent behaviours, as they are common during childhood (especially among schoolchildren) and can have severe negative consequences for children's physical and mental health *(10,11)*.

Physical abuse

Physical abuse is defined as the intentional use of physical force against a child that results in, or has a high likelihood of resulting in, harm for the child's health, survival, development or dignity. It includes hitting, beating, kicking, shaking, biting, strangling, scalding, burning, poisoning and suffocating *(10)*. Evidence suggests that a high proportion of physical violence against children in the home is inflicted with the objective of punishment *(2,4,10,12,13)*.

Physical abuse is usually perpetrated by a parent or caregiver and produces injuries known in contemporary literature as non-accidental injuries. They are the main cause of death in children under 5 years. An example is shaken baby syndrome, which produces a triad of retinal bleeding, subdural and/or subarachnoid bleeding, and minor or nonexistent external signs of injury. The number of diagnosed cases of physical abuse is considerably smaller than the actual number of physically abused children *(6)*.

Sexual abuse

Sexual abuse is defined as the involvement of a child in sexual activity that he or she does not fully comprehend, is unable to give informed consent to, for which the child is not developmentally prepared, or that violates the laws or social taboos of society. Children can be sexually abused by adults and other children who, by virtue of their age or stage of development, are in a position of responsibility, trust or power over the victim *(10)*.

It can be:

- without physical contact (showing of unclothed body by the perpetrator, watching the unclothed child or compulsion to watch pornography);
- without penetration (touching or fondling the body and external genitalia, oral–genital, genital–genital or genital–anal stimulation); or
- penetrative (anal or vaginal penetration with finger, sexual organ or other object).

Girls are more often abused by family members and boys by strangers *(6)*.

Sexual abuse is most often recognized by health practitioners who treat children for other health complaints (usually they have an infectious transmitted disease, lesions in their genital area, abdominal pain, constipation or chronic urinary infections) or behavioural problems *(4,11)*.

Psychological (emotional) abuse

Emotional or psychological abuse includes isolated incidents but also a pattern of failure over time on the part of a parent or caregiver to provide a developmentally appropriate and supportive environment. Acts in this category may have a high probability of damaging the child's physical or mental health or his or her physical, mental, spiritual, moral or social development. Abuse of this type includes rejecting, degrading, blaming, threatening, frightening, terrorizing, isolating, corrupting, discriminating against or ridiculing, exploiting and other

non-physical forms of rejection or hostile treatment. It also includes denying emotional responsiveness *(10)*.

Witnessing domestic violence is considered to be a type of psychological abuse. The long-term consequences of psychological abuse and neglect can sometimes be more negative than exposure to physical or sexual abuse. Emotionally abused children are not always physically abused, but physically abused children are usually also abused emotionally *(6)*.

Physical and emotional neglect

Neglect includes isolated incidents and a pattern of failure over time on the part of a parent (where the parent is in a position to do so) or other family member to provide for the development and well-being of the child in one or more of the following areas: health, education, emotional development, nutrition, shelter and safe living conditions *(10)*.

Physical neglect is the most common type and refers to situations in which parents and caregivers do not provide basic life requirements for a child, such as food, clothes or shelter, when the financial means are not lacking. It can lead to growth and development disorders and numerous acute and chronic diseases *(6,10)*.

Educational neglect implies that a parent or caregiver is preventing the child from accessing the right to compulsory education prescribed by law by, for example, not taking the child regularly to school and not enabling a child with disabilities to attend special school. Such children are prone to violent behaviour and other behavioural disorders *(6,10)*.

Emotional neglect includes situations in which a parent or caregiver takes adequate care of the child's physical needs but does not recognize his or her feelings and needs and does not speak with, show tenderness towards or support him or her. It can be unintentional or intentional and is usually a consequence of parents' deviant behaviour *(6,10)*.

Health neglect occurs when a parent or caregiver denies medical care prescribed by law to a child by, for example, not taking him or her for regular checks of growth and development, to receive mandatory vaccinations or to see a doctor when acutely ill. It can have very serious consequences *(6)*.

The parents of neglected children are not necessarily poor; they may even be financially well off. Caregivers' poverty and ignorance about the developmental needs of children should be very carefully assessed when investigating potential neglect *(12,13)*.

Involvement in physical fighting and bullying behaviours

Physical fighting is the most common form of interpersonal violence among preschool and school-age children and adolescents. Children engaged in fighting are usually of the same or similar age and physical strength. Fighting can have a negative impact on a child's mental and somatic health and can also be associated with bullying or medically attended injuries *(14)*.

Bullying can be defined as a situation in which a person is exposed repeatedly and over time to negative actions on the part of one or more other persons and has difficulty defending him or herself *(15)*.

ACEs

ACEs include experiencing one or more forms of child maltreatment (physical, emotional or sexual abuse or physical or emotional neglect) but can also include different types of household dysfunction, such as parental separation or divorce, misuse of psychoactive substances, mental illness of family members, violent treatment of family members (especially the mother) and family-member imprisonment *(2,10,11)*.

A toxic stress response can occur when a child experiences strong, frequent and/or prolonged adversity. Prolonged activation of stress response systems can disrupt the development of brain architecture and other organ systems and increases the risk of stress-related disease and cognitive impairment well into the adult years. When it occurs continually or is triggered by multiple sources, toxic stress response can have a cumulative effect on an individual's physical and mental health over the course of a lifetime. The more ACEs, the greater the likelihood of developmental delays and health-risk behaviours resulting in later health problems, including heart disease, diabetes, substance abuse and depression. Supportive and responsive relationships with caring adults from as early as possible in life can prevent or reverse the damaging effects of toxic stress response *(2,16)*.

3. THE CONSEQUENCES OF CHILD MALTREATMENT

Child abuse and neglect can lead to serious consequences for children's physical and mental health and social functioning (Table 3.1). The consequences of living in abusive environments can be visible in the child's immediate development and behaviour, but very often the impact of child abuse and neglect leaves long-term sequelae that track into adulthood, affecting individual health and social functioning *(13,17,18).*

The most dangerous consequences of physical abuse are death or permanent physical disability, but somatic disorders (injuries, fractures, damage to internal organs), sexually transmitted diseases, juvenile pregnancy and many other disorders can also occur *(19,20).* Mental health problems are diverse and can vary from cognitive (intellectual inhibition, developmental disharmonies, problems with concentration) through psychological (depression, fear, anxiety, self-destructiveness, suicidal tendencies) to problems in functioning in adulthood as delayed consequences of child abuse and neglect (borderline personality disorder, depression, addictions). Problems of social functioning are reflected in the frequent occurrence of criminal behaviour and transgenerational transmission of violent behaviour patterns *(6).*

Research shows that caring and stimulating childhood environments, especially during the first three years of life, play an important role in children's brain development *(21).* Children who suffered some form of abuse at an

Table 3.1. Acute and long-term physical, emotional and social consequences of child maltreatment

Physical health consequences	Psychological and behavioural consequences
• Abdominal/thoracic injuries • Brain injuries • Bruises and welts • Burns and scalds • Central nervous system injuries • Disability • Fractures • Lacerations and abrasions • Ocular damage	• Alcohol and drug abuse • Cognitive impairment • Delinquent, violent and other risk-taking behaviours • Depression and anxiety • Developmental delays • Eating and sleeping disorders • Feelings of shame and guilt • Hyperactivity • Poor relationships • Poor school performance • Poor self-esteem • Post-traumatic stress disorder • Psychosomatic disorders • Suicidal behaviour and self-harm
Sexual and reproductive consequences	**Other long-term health consequences**
• Reproductive health problems • Sexual dysfunction • Sexually transmitted diseases, including HIV/AIDS • Unwanted pregnancy	• Cancer • Chronic lung disease • Fibromyalgia • Irritable bowel syndrome • Ischaemic heart disease • Liver disease • Reproductive health problems, such as infertility

Source: Pinheiro *(4).*

early age may have inadequate brain development and associated effects *(22–24).*

Traumatic experiences resulting from abuse lead to cognitive impairment and negative psychological and health outcomes, but other forms of ACEs, such as different examples of household dysfunction, can also have a strong impact on these outcomes *(25).*

Child maltreatment also has considerable economic effects and evokes high direct and indirect financial costs (Table 3.2).

Table 3.2. Financial consequences of child maltreatment

Costs	Consequences
Direct costs	Medical expenses: • visits to hospitals and other health services • treatment
Indirect costs	• Lost productivity • Disability • Decreased quality of life • Premature death
Costs borne by criminal justice system and other institutions	• Expenditures related to apprehending and prosecuting offenders • Cost to social welfare organizations • Costs associated with foster care • Educational system costs arising from low academic achievement, high school dropout rates, school absenteeism and need for special education • Cost to employment sector arising from absenteeism and low productivity • Investments in prevention and intervention programmes

Source: Pinheiro *(4).*

4. ECOLOGICAL MODEL OF RISK AND PROTECTIVE FACTORS FOR CHILD MALTREATMENT

The ecological model explaining interpersonal violence is based on understanding and analysing the complex interactions of several factors at four levels: individual, relational, community and society. Fig. 4.1 presents the ecological model (proposed by Bronfenbrenner in 1979), which outlines the interplay between these factors. Understanding of risk and protective factors is essential to ensuring appropriate interventions and activities are undertaken to deal effectively with child maltreatment *(10,26,27).*

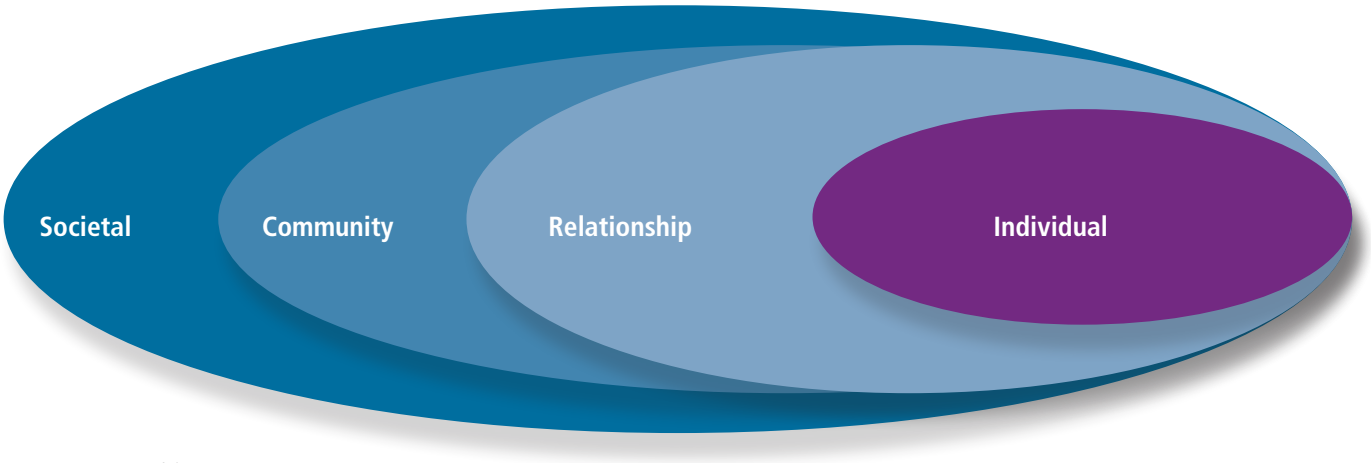
Risk factors

The first level of the model (individual) deals with biological variables (such as age, gender, individual characteristics and personal history) that can influence susceptibility to child maltreatment. It includes risk factors in parents and caregivers that can make them abusive and risk factors in children that make them more prone to being victims of violence.

Studies have shown that younger children are more vulnerable and are liable to experience more serious outcomes of physical abuse and neglect – 75% of physically abused children were aged 3 and younger, and 95% of those who died because of consequences of neglect were under the age of 4. Abuse is more prevalent in premature and first-born children and in boys *(6).* Those with chronic diseases and disabilities (such as developmental problems, Down syndrome, cerebral paralysis, autism, muscular dystrophy and seeing and hearing difficulties) are more exposed to intentional injuries. Some psychological or behavioural characteristics, such as hyperactivity and impulsivity, can be risk factors for being either a victim or perpetrator of maltreatment *(4).*

Poor family socioeconomic status and having parents with lower education status and who are unemployed are highly correlated with child maltreatment. Perpetrators are more often found among mothers who were victims of abuse or neglect during their own childhoods and those who have experienced domestic (partner) violence. Young mothers (particularly under 17 years) and those who are lonely, depressed or of lower intelligence may be more neglectful *(6).* Abusive parents tend to have low impulse control, low self-esteem, mental health problems and/or antisocial behaviour manifestations *(13).* The presence of deviant behaviour (alcohol abuse, use of illicit drugs and criminal behaviour) in the family also increases the probability.

Fig. 4.1. Ecological model describing risk factors for child maltreatment



Source: Pinheiro *(4).*

The second (relational) level of the ecological model examines the individual's close social relationship with parents, other family members, relatives and friends, each of which can have an influence on his or her risk of violent victimization and perpetration of violence. In the case of partner violence and child maltreatment, for instance, interacting on an almost daily basis or sharing a common domicile with an abuser may increase the opportunity for violent encounters. Research on interpersonal violence among young people shows they are much more likely to engage in negative activities when the behaviours are encouraged and approved by their friends *(10)*. The most frequently encountered risk factors for child abuse at relational level are parental conflict, use of harsh discipline, unrealistic expectations, poor parenting skills, parental stress and lack of parent–child attachment *(2)*.

Community factors are related to the settings in which social relations take place – neighbourhoods, education institutions (kindergarten, school), social institutions and working environments. They are of high relevance because they can increase the risk of child maltreatment. The most important risk factors specific to this level are poverty, a high rate of unemployment, social isolation and inequality, high criminality, easy access to psychoactive substances (alcohol and drugs) and high levels of toxins in the environment *(2,10)*.

Societal factors represent conditions that can influence child maltreatment, such as national policies, economic factors (recession, income inequalities) and cultural and traditional norms that support maltreatment (such as recognizing physical discipline as a necessary part of raising a child, forced marriages and female genital mutilation). A typical example of societal risk factors in Serbia is corporal punishment, a traditional disciplinary method used by parents.

The risk factors mentioned above are not necessarily diagnostic of child maltreatment, but in countries and societies with limited resources (such as Serbia), children and families identified as having several should have priority for receiving preventive support services.

Protective factors

Protective factors can be defined as those that buffer children from maltreatment *(2)*. They include *(11–13)*:

- secure attachment of the infant to an adult family member
- high levels of paternal care during early childhood
- lack of associations with delinquent or substance-abusing peers
- a warm and supportive relationship with a non-offending parent
- lack of abuse-related stress
- living in communities with strong social cohesion
- stable family units
- positive disciplinary techniques
- social support networks.

A range of other factors can promote resilience in children who have already experienced maltreatment and protect them from the adverse effects of abuse. Factors at individual level include social and emotional competences such as self-control, problem-solving skills and self-esteem. At relational level, they include strong relationships with caregivers and other supportive adults during childhood, and with family, peers and intimate partners through adolescence and adulthood. A structured and supportive educational environment, social cohesion, community support and safe neighbourhoods also enhance resilience *(2)*.

Research has shown that social support, increased spirituality, emotional intelligence and support from friends can enhance resilience in those who have experienced maltreatment during childhood as they transition into adulthood *(28)*.

Other aetiological models of violence

Recent examinations of the aetiology of violence have used a probabilistic model of maltreatment that calculates the mathematical probability of child maltreatment depending on several factors, including unimpeded access to a child, the number of caregivers, age of the child, motivation for abuse (the strength of social support networks, child difficulties and the parent's mental health, ability to empathize and parenting skills) and tendency to commit crimes *(6)*.

5. METHODOLOGY

The study used the methodology recommended by the United States Centers for Disease Control and Prevention (CDC) and WHO *(11).*

Aims and objectives

The aims of the study were to: investigate the prevalence of ACEs among Serbian university students; establish their connection with demographic and socioeconomic characteristics; and determine their impact on health risk behaviours.

Specific study objectives were to:

- investigate the prevalence of ACEs during the first 18 years of life;
- explore the prevalence of exposure to different types of abuse and neglect (physical abuse and neglect, psychological (emotional) abuse and neglect, sexual abuse);
- determine the prevalence of exposure to different kinds of household dysfunction (alcohol and drug abuse in family, parental separation or divorce, domestic violence, etc.);
- determine the prevalence of different health-risk behaviours (alcohol and drug abuse, suicidal behaviour, etc.);
- investigate the possible impact of ACEs on health-risk behaviours;
- identify the interrelationship between different types of ACEs; and
- establish the cumulative influence of multiple categories of ACEs on health-harming behaviours.

Purpose

The study used a retrospective approach to establish an epidemiological view of different forms of child maltreatment and their effects on the current lifestyles and health-risk behaviours of Serbian university students. It offers very important data with which to promote further implementation of evidence-based interventions to tackle the problem of child maltreatment in Serbia.

The results of the study will be relevant to:

- policy-makers at national and subnational levels
- programme planners at national and local levels
- service providers at local level
- health care specialists
- the general public.

Study

A descriptive cross-sectional study was conducted between October 2013 and May 2014. Data were collected at national level on a representative sample of 2381 first-year students from all six public universities in Serbia (Belgrade, Novi Sad, Nis, Kragujevac, Novi Pazar and Pristina (Kosovska Mitrovica)).

Instruments

The following ACE questionnaires, developed by the CDC, were used:

- Family Health History (men's and women's) questionnaires;
- ACE International Questionnaire; and
- questionnaires from the WHO *Guidelines for conducting community surveys on injuries and violence (29).*

The Physical Health Appraisal Questionnaire was not used, as the target population consisted mostly of healthy young adults.

The questionnaires were translated into Serbian, with certain items adapted to age and country context (including questions 10, 11 and 16 in the Serbian questionnaire) and some (those about race, origin, etc.) were omitted. New questions from the questionnaire for the national health survey in Serbia in 2013 were added (questions 8, 12, 55–58h and 64b in the Serbian questionnaire), including 14 questions on unintentional injuries (P1–P14, Serbian questionnaire).

Cognitive testing was carried out with a group of health care professionals from the Belgrade Institute of Public Health and Institute of Mental Health. Further testing was done during a pilot study.

Pilot study

A pilot study was performed at the National Library and Belgrade University Library to verify content and establish if questions were easy to understand and phrased in

acceptable way. A sample of 158 (78 males and 80 females) took part.

The questionnaire was revised for a second time after the pilot study, with some additional questions being added (questions 37 and 69a–71b, Serbian questionnaire). Two forms of the final questionnaire were developed – a male option with 72 items and a female with 76. Each examined various types of maltreatment, household dysfunction and health-risk behaviours and included 14 questions about unintentional injuries.

All modifications and revisions were completed in consultation with, and with the approval of, WHO. The questionnaires are shown at Annexes 1 and 2.

Procedure

Field research was conducted in all six public universities, which cover the whole territory of Serbia, with work being coordinated by experts from the Belgrade Institute of Public Health. Data were collected by 12 field researchers selected from the Institute's staff and universities included in the study. The researchers received training on the scope and methodology of the study and ethical constraints. The study description, methodology and ethical aspects had been submitted to the Ministry of Health and Ministry of Education, Science and Technological Development prior to the study commencing, and the selected universities had also been contacted.

Ethical aspects

Legal approval was obtained from the Ministry of Health and Ministry of Education, Science and Technological Development prior to the study commencing. Ethical approval was granted by the Ethical Board of the Belgrade Institute of Public Health. Written approval for conducting the survey was also received from all the universities, with consent from involved faculties.

Field researchers were thoroughly trained in ethical aspects of the study protocol through all phases of the study. All participants were informed about the details of the study prior to taking part, with the option of omitting to answer any question that made them feel uncomfortable and withdrawing from the study at any time emphasized. Participants signed informed consent forms signalling their willingness to take part. Anonymity and data confidentiality were guaranteed, with participants sealing the completed questionnaires in provided envelopes by themselves.

Sampling

Two phased stratified samples were used to increase representativeness. The first stratum was the universities (six public universities across Serbia) and the second faculties (of which there were 28) in the universities.

The required minimum statistical sample was 1400 participants, but an optimum sample of 1687–2530 (30% of faculties on each university and 20–30% of first-year students in each faculty) was calculated to secure better representativeness.

Faculties of all six universities were randomly selected to cover the complete territory of Serbia, but the final sample consisted of those that provided written consent (the number was in accordance with the methodology). Student diversity was reflected through including faculties for a range of vocations.

The number of students was estimated by taking into account the number of university students and the number of students registered on their first year of studies. Questionnaires were completed by students attending lectures on the day of data collection.

The first-year student population was targeted because of their age: at 18 years and more, they did not require parental approval to participate and were considered sufficiently mature to answer the question honestly, yet still young enough to have clear recollections of childhood events.

The final sample consisted of 2467 students from 28 Serbian faculties: nine faculties from Belgrade University (N=964 students), three from the University of Novi Sad (N=475), four from the University of Nis (N=266), four from the University of Kragujevac (N=392), five from Novi Pazar University (N=122) and three from the University of Pristina (Kosovska Mitrovica) (N=248).

Response

Two faculties from Belgrade University and one from the University of Novi Sad declined to participate (so were replaced). Of the faculties that gave written consent, two at the University of Pristina were excluded because of travelling distances and the small number of students.

Of the 2467 participants, 2381 completed the questionnaire and 86 (71 males and 15 females) declined, giving an overall response rate of 96.5%. Declining

participants either returned their uncompleted questionnaires immediately after the study explanation or agreed to participate but returned blank questionnaires. The most common reason given for not participating was that the questionnaire was too long. The lowest response rate was at Belgrade University (91.8%). All response rates by university are shown in Table 5.1.

Data analysis

Data input was done in EXCEL and SPSS–17 (Statistical Package for Social Sciences, version 17.0) programmes, and data analysis was performed in SPSS–17 using the following methods:

- descriptive statistical indicators (mean values, standard deviation (SD), percentages, difference test for average and proportion);
- non-parametric correlation coefficient (rho);
- chi-square analysis or Fisher's exact test (for comparing distributions);
- the Mann Whitney test (for comparison of the median values of numerical variables, since they are not normally distributed); and
- conditional logistic regression analysis, to adjust for age, gender, parental educational level and employment status.

Statistical significance was set at $p<0.05$ for all analyses. The prevalence of ACEs and health-risk behaviours was calculated by using relative frequencies, and the association between ACEs and health-risk behaviours was estimated by using odds ratio calculated from contingency tables (2x2). The confidence interval was set at 95% for all analyses.

Table 5.1. Student response rates by university

University	Elected	Competed	Rejected	Response rate (%)
Belgrade	964	885	79	91.8
Novi Sad	475	468	7	98.5
Nis	392	392	0	100
Kragujevac	266	266	0	100
Novi Pazar	122	122	0	100
Pristina (Kosovska Mitrovica)	248	248	0	100
Total	2 467	2 381	86	96.5

6. RESULTS

Sociodemographic characteristics of respondents

In total, 2381 students participated in the study and filled out the questionnaire (864 males (36.3%) and 1517 females (63.7%)). The higher number of female respondents is correlated to greater attendance by females at most of the faculties. The average age of participants was 20.24 years (SD=0.85), with a range of 19–25. There was no significant statistical difference between genders.

Before high school, 68.7% of respondents had lived in urban and 30.7% in rural areas (0.6% did not state where they had lived). Females constituted a higher portion of those who had grown up in urban (1017 versus 616 males) and rural (487 versus 244) areas, with the gender difference being statistically significant ($p<0.05$) in both situations.

Information on maternal age at birth was provided by 2317 (97.3%) respondents. Median maternal age was 26.32 years (SD=4.96), varying from 13 to 46. The average age of mothers in rural areas was lower (24.89) than in urban (26.97), with the difference statistically significant ($p<0.05$).

Parental educational background (Table 6.1) and employment status at the time of the survey (Table 6.2) were also examined. Around 95% of parents of both genders had at least secondary education and most (more than two thirds of mothers and three quarters of fathers) were employed.

Information on the socioeconomic status of respondents' families was also collected. Only 4.2% of respondents evaluated their socioeconomic status as poor, 47.9% as average and 47.4% above average (0.5% did not respond).

Table 6.1 Educational status of respondents' parents

Parent		Respondents' gender				Total	
		Male		Female			
		N	%	N	%	N	%
Mother	No education	6	0.7	7	0.5	13	0.6
	Primary education	46	5.3	85	5.6	131	5.5
	Secondary/high school education	479	55.5	924	60.9	1 403	58.9
	College/university degree	256	29.7	409	26.8	665	27.9
	Postgraduate	76	8.8	87	5.8	163	6.8
	Unknown	1	0.1	5	0.4	6	0.3
Father	No education	4	0.5	4	0.3	8	0.3
	Primary education	33	3.8	57	3.7	90	3.8
	Secondary/high school education	470	54.4	907	59.8	1 377	57.8
	College/university degree	262	30.3	440	29.0	702	29.5
	Postgraduate	91	10.5	94	6.2	185	7.8
	Unknown	4	0.5	15	1.0	19	0.8

Table 6.2. Parental employment status

Parent		Respondents' gender				Total	
		Male		Female			
		N	%	N	%	N	%
Mother	Employed	582	67.4	1 039	68.5	1 621	68.1
	Unemployed	268	31.0	455	30.0	723	30.4
	Other	14	1.6	23	1.5	37	1.5
Father	Employed	657	76.0	1 139	75.1	1 796	75.4
	Unemployed	179	20.8	314	20.7	493	20.7
	Other	28	3.2	64	4.2	92	3.9

Exposure to ACEs

Physical abuse

Children rely on adults, especially their parents, to provide protection during the very sensitive childhood years, but evidence shows that physical abuse of children is widespread across the world. Children are exposed to a wide range of abusive practices, including spanking, kicking, shaking, poisoning and choking.

Of the participating students, 27.8% reported that they had suffered physical violence (being pushed, grabbed or having something thrown at him or her, or being physically injured or hit in a way that left marks) at least once in their life (34.6% of males and 23.9% of females).

Values in Table 6.3 refer to respondents who answered sometimes, often or very often to questions on each type of physical abuse, by gender. Males reported higher prevalence for situations in which they were pushed, grabbed or hit by something that had been thrown at them, and females slightly higher frequency of being hit hard. Overall, males more often reported situations of physical abuse, with the gender difference being statistically significant.

Physical (corporal) punishment

Corporal punishment is defined by the United Nations Committee on the Rights of the Child as "any punishment in which physical force is used to cause some degree of pain and discomfort, however light" *(30).* It is very dangerous for children, not only as an important contributing factor to morbidity and mortality, but also as an inducement to violent behaviour and other behaviour disorders later in life *(6)*. Corporal punishment is nevertheless often used by parents in Serbia as a disciplinary method.

A total of 2340 respondents (98.3%) provided information on being spanked in childhood. Almost two thirds reported experiencing corporal punishment at least once, with around a third (29.8%) more than once (Table 6.4). Almost one third (32.4%) of those who suffered corporal punishment were spanked with medium to very hard intensity (medium 25.3%, quite hard 5.7%, very hard 1.4%).

When divided into two groups (those who have never been spanked or had been spanked once or twice in one group and those more frequently spanked in the other), significant differences in gender distribution could be seen ($p<0.05$): 59% of boys versus 70.2% of girls were either never spanked or once or twice, with 41% and 29.8% respectively spanked more frequently. There was also a significant statistical difference by gender ($p<0.05$) between those who rated spanking intensity as not hard or not very hard (58.2% males versus 67.6% females) and those who rated it medium, hard or very hard (41.8% and 32.4%).

The age range for when spanking was last applied as a method of punishment was wide, stretching from 2 to 18 years with a mean age of 11.71 (SD= 3.66). The highest prevalence of last corporal punishment was reported during early adolescence (11–15 years) in both genders (Table 6.5).

Table 6.3. Gender distribution of exposure to physical abus (sometimes, often, very often)

Physical abuse	Male		Female		Total	
	N	%	N	%	N	%
Pushed, grabbed or having something thrown at them	116	13.4	132	8.7	248	10.4
Hit hard in a way that left marks or injuries	32	3.7	61	4.0	93	3.9
Exposure to physical violence – at least one type[a]	118	13.7	142	9.4	260	10.9

[a] $p<0.05$.

Table 6. 4. Frequency and gender distribution of corporal punishment during the first 18 years

Spanking frequency (in first 18 years of life)	Male		Female		Total	
	N	%	N	%	N	%
Never	242	28.5	594	39.8	836	35.7
One or two times	259	30.5	548	36.8	807	34.5
Few times a year	259	30.5	270	18.1	529	22.6
Many times a year	66	7.8	59	4.0	125	5.4
Once a week or more frequently	23	2.7	20	1.3	43	1.8
Total	849	100.0	1 491	100.0	2 340	100.0

Table 6. 5. When students were last spanked, by gender and age

Age when last spanked (years)	Male		Female	
	N	%	N	%
1–5	26	4.5	47	3.9
6–10	196	34.2	303	25.8
11–15	256	44.7	584	49.7
Over 16	95	16.6	242	20.6
Total	573	100.0	1 176	100.0

Psychological (emotional) abuse and neglect

All forms of abuse involve psychological harm. Psychological harm can be divided into two categories: psychological (emotional) abuse, which involves insults, threats and derision, and physical neglect, which is more passive and includes ignoring, isolation and rejection.

Psychological abuse was investigated through two questionnaire items. One concerned the frequency with which a parent or guardian (with whom the respondent lived) made him or her afraid of being hurt and the other situations in which respondents were sworn at or had been insulted. The data show that 36.7% of respondents had suffered some kind of psychological abuse at least once (39% of males and 35.3% of females) and 17.3% more than a few times. Psychological abuse had a statistically significant higher prevalence in males (Table 6.6).

In addition, 20.8% had received threats that they would be hit (26.3% of males and 17.5% of females), 17.5% indicated they had been called names like "ugly" or "lazy" (20.3% and 15.9%) and 7.2% reported that people in their family had said harmful or insulting things to them (7% and 7.3%). Frequent or very frequent insults were significantly targeted more towards female respondents ($p<0.05$), but there was no statistically significant difference in gender distribution in relation to threats of physical violence.

A high proportion of respondents reported psychological abuse, but only 5.3% (5% of males and 5.4% of females) considered that they had been emotionally abused.

The psychological environment in which respondents grew up was further investigated by items focusing on perceptions of family members' feelings towards them: 89.7% of respondents rated the statement *"You felt that someone in your family hated you"* as *"Never true"*, 5.2% as *"Rarely true"*, 3% *"Sometimes"*, 0.9% *"Often"* and 1.2% *"Very often true"*. Hatred from family members was felt more commonly by female respondents, but the difference was not significant ($p>0.05$).

A similar item asked respondents to rate if they had felt loved. In contrast to the previous item, males never or only occasionally felt loved more commonly, and the gender difference was significant ($p<0.05$): 4.2% of males and 4.7% of females reported they sometimes, frequently or very frequently felt their parents wished they had never been born, which was a statistically significant difference ($p<0.05$).

Summarized data show that every sixth respondent suffered some kind of psychological neglect at least once in their life (Table 6.7) and that 7.7% (7.3% of males and 7.9% of females) had been exposed more than a few times in their childhood. Exposure was more frequently

Table 6.6. Exposure to psychological abuse, by type and gender (sometimes, often and very often)

Psychological abuse	Male		Female		Total	
	N	%	N	%	N	%
Swore at you, insulted you or put you down[a]	157	18.2	209	13.8	366	15.4
Acted in a way that made you afraid you might be physically hurt	50	5.8	90	5.9	130	5.5
Exposure to psychological abuse – at least one type[a]	173	20.0	237	15.6	411	17.3

[a] $p<0.05$.

Table 6.7. Psychological neglect by type and gender (rarely, sometimes, often and very often)

Psychological neglect	Male		Female		Total	
	N	%	N	%	N	%
Someone in your family hated you	90	10.4	153	10.1	243	10.2
Parents wished you have never been born[a]	68	7.9	165	10.9	233	9.8
Exposure to psychological neglect – at least one type	127	14.7	247	16.3	374	15.7

[a] $p<0.05$.

reported by girls, but the gender difference was not statistically significant (p>0.05).

Results also show that psychological neglect was more prevalent among respondents who had grown up in rural rather than urban surroundings (18.2% versus 14.6%, which was a statistically significant difference (p<0.05)), but there was no significant difference in prevalence in dependence of surrounding for other types of abuse and neglect.

Physical neglect

Physical neglect is an ACE in which a person who is supposed to take care of the child (parent or other guardian) intentionally or unintentionally fails to meet his or her basic needs. Several items in the study questionnaire assessed signs of physical neglect, including failure to provide food, clothes or medical help when necessary in situations when parents had the means, knowledge and access to services to do so.

Reports of situations in which they did not have enough food during their first 18 years were made by 6.7% of respondents, while 3.6% reported having to wear filthy clothes (although rarely) (Table 6.8). Gender analysis shows no difference in food availability (p>0.05), but males indicated more commonly that they had to wear filthy clothes (p<0.05). Overall, the prevalence of male exposure to these experiences was higher, with the gender difference being statistically significant (p<0.05).

Having no one to provide necessary medical care on at least a few occasions was reported by 19.7%, with female respondents feeling more commonly that there was no one to provide necessary medical help when needed (p<0.05). In addition, 3.7% of respondents (4.3% of males and 3.3% of females) stated that they were physically neglected more than a couple of times.

Sexual abuse

Among respondents, 4.3% reported experiencing at least one kind of sexual abuse during their lifetime (Table 6.9). The most frequent type was touching or fondling their body in a sexual way, cited by 3.8%, but 1.9% reported all types of abuse screened by the questionnaire. Reporting all types was more frequent among males (p<0.05).

Table 6.8. Physical neglect by type and gender (rarely, sometimes, often and very often)

Physical neglect	Male		Female		Total	
	N	%	N	%	N	%
Did not have enough food	62	7.2	96	6.3	158	6.7
Had to wear dirty clothesa	57	6.6	28	1.9	85	3.6
Exposure to physical neglect – at least one type[a]	100	11.6	112	7.4	212	8.9

[a] p<0.05.

Table 6.9. Exposure to different types of sexual abuse by gender

Type of sexual abuse	Male		Female		Total	
	N	%	N	%	N	%
Touching/fondling in a sexual way[a]	56	6.5	35	2.3	91	3.8
Having to touch another person's body in a sexual way[a]	50	5.8	14	0.9	64	2.7
Attempt at any type of sexual intercourse[a]	45	5.2	21	1.4	66	2.8
Sexual intercourse[a]	46	5.3	14	0.9	60	2.5
Sexual abuse – at least one type[a]	65	7.5	38	2.5	103	4.3

[a] p<0.05.

Statistical analysis shows that females were touched or fondled at a younger age (15.0, against males at 15.2 on average, $p<0.05$), but there were no statistically significant gender differences for other forms of sexual abuse; nor was respondents' place of growing up (urban or rural) statistically significant.

For all types of sexual abuse, most respondents reported that it was not contrary to their wishes. Only 22.2% indicated that touching and fondling was unwanted, 8.2% touching another person's body in a sexual way, 21.3% attempts at sexual intercourse, and 10.5% sexual intercourse. Fondling/touching was a single event in only 24.3% of cases, meaning it was an ongoing occurrence in the lives of 75.7%. Having to touch another person's body in a sexual way happened multiple times in 83.7% of cases and serial attempts at sexual intercourse in 80.8%. Sexual intercourse occurred more than once for 21.2%.

Statistical analysis shows that women were more commonly identified as abusers ($p<0.05$) in all listed forms of sexual abuse. The abuser was someone the respondent trusted in most cases (25.2%), but for a high percentage (22.3%), it was a stranger (Table 6.10). The lowest percentage reported that it was a relative or non-relative who lived in the same house (both 2.9%).

The most common methods of procuring involvement in sexual behaviours used by the abuser were trickery and giving psychoactive substances (alcohol or drugs) (Table 6.11).

Table 6.10. Relationship with the abuser

Type of relationship	Males		Females		Total	
	N	%	N	%	N	%
A relative who lived in the house	2	3.1	1	2.6	3	2.9
A non-relative who lived in the house	2	3.1	1	2.6	3	2.9
A relative who did not live in the house	0	0.0	5	13.2	5	4.9
A family friend or familiar person who did not live in the house	12	18.5	10	26.3	22	21.4
A stranger	17	26.2	6	15.8	23	22.3
Someone who was taking care of the respondent	1	1.5	3	7.9	4	3.9
Someone the respondent trusted	14	21.5	12	31.6	26	25.2

Table 6.11. Methods of procuring involvement in sexual behaviours used by the abuser

Methods of procuring involvement in sexual behaviours	Males		Females		Total	
	N	%	N	%	N	%
Trickery/verbal persuasion	4	6.2	5	13.2	9	8.7
Given alcohol and/or drugs	8	12.3	1	2.6	9	8.7
Threats to harm	2	3.1	0	0.0	2	1.9
Physically forced or overpowered	1	1.5	1	2.6	2	1.9

Sexual abuse by peers

Male respondents who had experienced sexual abuse by peers were more frequently threatened with harm as a means of coercion into sexual activity (1.1% against 0.2% females) (Table 6.12): this is a statistically significant difference ($p<0.05$).

The remaining two items in the questionnaire, about touching sexual parts and sexual intercourse, were not fully completed, so no statistical analysis could be performed (only *"Yes"* answers were given, so the data were insufficient to enable conclusions to be drawn).

Household dysfunction

Several important variables under the category of household dysfunction were analysed: divorce rates for respondents' parents, alcoholism or drug abuse in the family, history of mental illness and suicide attempts in the family, criminal behaviour in the family, and witnessing mothers being maltreated.

The parents of 12% were either separated or divorced prior to respondents'18th birthday, with a statistically significant gender difference (9.8% of males and 13.3% of females). In addition, 9.1% of respondents indicated that they have lived during their first 18 years with one or more people who consumed alcohol to excess. The father was a problem drinker in most cases (63%), with only 2.3% indicating that it was the mother. Brothers or sisters were indicated in 3.8% of cases, 21.8% highlighted another relative and 15.7% named a person to whom they were not related. Gender distribution was not statistically significant, though slightly more female respondents grew up with a parent who abused alcohol ($p>0.05$).

Criminal behaviour was measured using two items: one referred to living with someone who was incarcerated for a period of time (reported by 3.6% of respondents) and the second to living with someone who had committed a serious crime (0.9%). Both situations were more frequent for males (a statistically significant difference, $p<0.05$).

History of mental health problems in the family was also assessed using two items. One referred to depression or other mental illnesses (with positive responses from 6.6%) and the other assessed suicide in the family (2.6%). No statistically significant gender difference was found for either item.

The least represented household dysfunction was living with someone addicted to psychoactive substances (only 2.1% of participants gave a positive answer), with a statistically significant difference in gender distribution ($p<0.05$).

Table 6.12. Exposure to sexual abuse by peers

Sexual abuse by peers	Males		Females		Total	
	N	%	N	%	N	%
Forced/ threatened with harm[a]	9	1.1	3	0.2	12	0.5
Touching their sexual parts	7	–	0	–	7	–
Sexual intercourse	3	–	0	–	3	–

[a] $p<0.05$.

As Table 6.13 shows, the most commonly encountered household dysfunction was the mother being treated violently (18.7% of respondents, 19.8% males and 18.1% females). Four items related to children witnessing violence against their mother perpetrated by the child's father or mother's partner. The first was witnessing situations in which the mother was pushed, grabbed or slapped (18.7% witnessed this at least once or twice, but only six (0.3%) experienced it on a weekly basis); 95.3% stated they had never witnessed their mother being attacked (either by being kicked, slapped, struck with an object or bitten) and 97.1% had never experienced a serious beating that lasted at least a few minutes. Table 6.14 shows exposure of mothers to different types of domestic violence.

Number of ACEs (ACE score) and relationships between ACE categories

ACEs relate to different types of abuse and family dysfunction. The number of ACEs per respondent was 0–9 (2.3 on average, SD=1.27). Respondents were most frequently exposed to psychological abuse (36.7%), physical abuse (27.8%) and witnessing their mother being treated violently (18.7%), followed by psychological neglect (15.7%) and having separated or divorced parents (12%). Males were more exposed to physical abuse and neglect and psychological and sexual abuse, and females to psychological neglect (Table 6.15.)

The ACE score, formed by grouping categories of ACEs, reflects the level of exposure to these types of events. Results show that slightly more than half of the respondents (50.8%) experienced at least one category of ACE, almost every fou rth experienced one and every ninth experienced two. One in 13 experienced three and one in 12 four or more, with no statistically significant difference between genders (Table 6.16). Table 6.17 shows relationships between exposure to different abuse categories and household dysfunction, emphasizing how many

Table 6.13. Exposure to household dysfunction

Household dysfunction	Males		Females		Total	
	N	%	N	%	N	%
Illicit drug use by a family member[a]	31	3.6	19	1.3	50	2.1
Alcohol misuse by a family member	83	9.6	133	8.8	216	9.1
Family member in prison[a]	43	5.0	43	2.8	86	3.6
Mother treated violently (at least once)	171	19.8	274	18.1	445	18.7
Separated or divorced parents[a]	85	9.8	201	13.3	286	12.0
Suicide attempt(s) by a family member	23	2.7	38	2.5	61	2.6
Depression/mental illness in a family member	51	5.9	107	7.1	158	6.6

[a] $p<0.05$.

Table 6.14. Exposure to domestic violence by type and gender (sometimes, often and very often)

Type of physical abuse experienced by the mother	Males		Females		Total	
	N	%	N	%	N	%
Push, grab, slap or throw something at her	53	6.1	102	6.7	155	6.5
Kick, bite, hit her with a fist or with something hard	18	2.1	32	2.1	50	2.1
Repeatedly hit her over at least a few minutes	12	1.4	20	1.3	32	1.3
Threaten her with a knife or gun, or use a weapon to cause harm	11	1.3	5	0.3	16	0.7

Table 6.15. Exposure to abuse, neglect and household dysfunction by gender

	Male		Female		Total	
	N	%	N	%	N	%
Type of abuse						
Physical abuse[a] (from once to very often)	299	34.6	362	23.9	661	27.8
Physical abuse (sometimes, often, very often)	118	13.7	142	9.4	260	10.9
Psychological abuse[a] (from once to very often)	337	39.0	536	35.3	873	36.7
Psychological abusea (sometimes, often, very often)	173	20.0	237	15.6	411	17.3
Sexual abuse[a]	65	7.5	38	2.5	103	4.3
Physical neglect[a] (from rarely to very often)	100	11.6	112	7.4	212	8.9
Physical neglect[a] (sometimes, often, very often)	37	4.3	50	3.3	87	3.7
Psychological neglect (from rarely to very often)	127	14.7	247	16.3	374	15.7
Psychological neglect (sometimes, often, very often)	63	7.3	120	7.9	183	7.7
Household dysfunction						
Illicit drug use by a family member[a]	31	3.6	19	1.3	50	2.1
Alcohol misuse by a family member	83	9.6	133	8.8	216	9.1
Family member in prison[a]	43	5.0	43	2.8	86	3.6
Mother treated violently (at least once)	171	19.8	274	18.1	445	18.7
Separated or divorced parents[a]	85	9.8	201	13.3	286	12.0
Suicide attempt(s) by a family member	23	2.7	38	2.5	61	2.6
Depression/mental illness by a family member	51	5.9	107	7.1	158	6.6

[a] $p<0.05$.

Table 6.16. Number of ACEs by gender

Number of ACEs	Male		Female		Total	
	N	%	N	%	N	%
0	390	45.1	782	51.6	1 172	49.2
1	205	23.7	340	22.4	545	22.9
2	116	13.4	161	10.6	277	11.6
3	77	8.9	108	7.1	185	7.8
4 or more	76	8.8	126	8.3	202	8.5

Table 6.17. Relationship between different ACE categories

Second ACE category	First ACE category											
	Sexual abuse	Family member imprisonment	Mental illness	Physical abuse	Physical neglect[b]	Psychological abuse	Psychological neglect[b]	Family member suicide	Mother treated violently[c]	Parental divorce	Alcohol abuse by family member	Drug abuse by family member
	N[a] (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
N	**103**	**86**	**158**	**260**	**212**	**411**	**374**	**61**	**445**	**286**	**216**	**50**
Sexual abuse		8 (9.3%)	14 (8.9%)	21 (8.1%)	17 (8%)	32 (7.8%)	25 (6.7%)	5 (8.2%)	30 (6.7%)	17 (5.9%)	18 (8.3%)	9 (18%)
Family member imprisonment	8 (7.8%)		12 (7.6%)	15 (5.8%)	19 (9%)	22 (5.4%)	27 (7.2%)	8 (13.1%)	30 (6.7%)	33 (11.5%)	15 (6.9%)	12 (24%)
Mental illness	14 (13.6%)	12 (14%)		39 (15%)	41 (19.3%)	65 (15.8%)	52 (13.9%)	29 (47.5%)	59 (13.3%)	48 (16.8%)	40 (18.5%)	12 (24%)
Physical abuse	21 (20.4%)	15 (17.4%)	39 (24.7%)		61 (28.8%)	193 (47%)	105 (28.1%)	16 (26.2%)	121 (27.2%)	60 (21%)	59 (27.3%)	12 (24 %)
Physical neglect	17 (16.5%)	19 (22.1%)	41 (25.9%)	61 (23.5%)		98 (23.8%)	88 (23.5%)	16 (26.2%)	90 (20.2%)	39 (13.6%)	49 (22.7%)	12 (24%)
Psychological abuse	32 (31.1%)	22 (25.6%)	65 (41.1%)	193 (74.2%)	98 (46.2%)		171 (45.7%)	26 (42.6%)	166 (37.3%)	77 (26.9%)	84 (38.9%)	15 (30%)
Psychological neglect	25 (24.3%)	27 (31.4%)	52 (32.9%)	105 (40.4%)	88 (41.5%)	171 (41.6%)		18 (29.5%)	149 (33.5%)	65 (22.7%)	68 (31.5%)	9 (18%)
Family member suicide	5 (4.8%)	8 (9.3%)	29 (18.4%)	16 (6.2%)	16 (7.6%)	26 (6.3%)	18 (4.8%)		26 (5.8%)	17 (5.9%)	13 (6%)	7 (14%)
Mother treated violently	30 (29.1%)	30 (34.9%)	59 (37.3%)	121 (46.5%)	90 (42.5%)	166 (40.4%)	149 (39.8%)	26 (42.6%)		103 (36%)	98 (45.4%)	15 (30%)
Parental divorce	17 (16.5%)	33 (38.4%)	48 (30.4%)	60 (23.1%)	39 (18.4%)	77 (18.7%)	65 (17.4%)	17 (27.9%)	103 (23.2%)		49 (22.7%)	7 (14%)
Alcohol abuse by family member	18 (17.5%)	15 (17.4%)	40 (25.3%)	59 (22.7%)	49 (23.1%)	84 (20.4%)	68 (18.2%)	13 (21.3%)	98 (22%)	49 (17.1%)		11 (22%)
Drug abuse by family member	9 (8.7%)	12 (14%)	12 (7.6%)	12 (4.6%)	12 (5.7%)	15 (3.7%)	9 (2.4%)	7 (11.5%)	15 (3.4%)	7 (2.5%)	11 (5.1%)	

[a] Number exposed to other category of ACE – for example, among 103 respondents who were sexually abused, eight (7.8%) also experienced imprisonment of a family member.
[b] From rarely to very often.
[c] At least once.

participants who have been exposed to one ACE category had also been exposed to others.

Witnessing violence in the community during childhood

Being a victim of violence is a traumatic event, but witnessing violence can also traumatize. Children can be exposed to violence in the family and the community in which they live. More than three quarters of participants reported witnessing violence in their communities at least once in their lives, and 52.3% more than once. Male respondents reported witnessing all types of community violence more frequently (Table 6.18).

Questions relating to refugee status and violence perpetrated by military, police or paramilitary groups were included to reflect recent historical events in the region. Answers showed that 12.8% of respondents had had to move due to war, genocide, terrorism or ethnic conflicts, 4.9% had witnessed the destruction of their homes and 3.9% had been victims of police, military, gang or paramilitary force violence, with an additional 1.7% reporting that they had witnessed this form of violence.

Physical fighting and bullying victimization

Every fifth respondent reported being a victim of bullying, while 43.5% had been involved in fighting. In both cases,

Table 6.18. Witnessing community violence by gender and type (from once to many times)

Witnessing community violence	Male		Female		Total	
	N	%	N	%	N	%
See or hear someone being beaten up in real life[a]	690	79.9	696	45.9	1 302	54.7
See or hear someone being stabbed or shot in real life[a]	383	44.3	465	30.7	1 155	48.5
See or hear someone being threatened with a knife or gun in real life[a]	448	51.9	450	29.7	898	37.7
Witnessing community violence – at least one type	724	83.8	1 087	71.7	1 811	76.1

[a] $p<0.05$.

males were statistically significantly more involved (Table 6.19).

Additionally, 24.5% reported that they had psychologically abused other people and 16.3% had physically abused others. There were no significant statistical correlations between being bullied and bullying other people, but a weak but statistically significant positive correlation (rho=0.15) was found between physical arguments and frequency of reported bullying, suggesting that those who had been bullied more frequently had reacted aggressively.

Table 6.20 shows the connection between the number of experienced ACEs and the odds for being bullied, participating in physical fights and witnessing community violence. It can be seen that the probabilities for all three items increased with the number of experienced ACEs.

Most respondents who reported bullying other people also experienced multiple ACEs. Only 8.2% of the so-called psychological bullies had not experienced any ACEs, 15.1% one ACE, 33.4% two, 21.8% three and 21.4% four or more. The data suggest that experiencing ACEs has a quantity-dependent effect on bullying others: those who experience some ACEs may attempt to bully others psychologically, while those with severe trauma (more than four ACEs) are not likely to do so. Respondents who reported that they had physically bullied others were also exposed to ACEs: 15% to one ACE, 36.2% to two, 16.3% to three and 21.2% to four or more.

Health-risk behaviours

The study analysed the following behaviours that pose significant health risks: smoking, use of alcohol, illicit drug use, sexual behaviours, suicide attempts and running away from home.

Cigarette smoking

At the time of the survey, 17.9% were active smokers and an additional 8.9% had been smokers in the past. Detailed gender distribution is shown in Table 6.21.

Those who smoked consume up to 45 cigarettes per day (average 11.59, SD=7.39), with males smoking 13.71 (SD=8.18) and females 10.12 (SD=6.41), on average. This is a statistically significant gender difference ($p<0.05$). The father was a smoker during the childhood of 61.6% of respondents and the mother of 48.3%. Parental smoking poses a slight risk factor for respondents' smoking habits: the odds of respondents smoking is 1.67 if their mothers were smokers and 1.1 for fathers.

Alcohol consumption

Most respondents (almost three quarters) reported consuming alcohol in their lifetime and 59.9% during the month prior to the survey (one fifth of them frequently). Only 4.2% stated they ever had problems because of the use of alcohol. The mean age at which they first tried alcoholic beverages was 15.55 years (SD=2.00), with a minimum reported age of 5 and maximum of 20.

Males reported trying alcohol for the first time at the mean age of 14.80 (SD=2.22) and females at 16.09 (SD=1.64), with a statistically significant gender difference ($p<0.05$).

Respondents' answers to questions about the prevalence of frequent drinking (five or more drinks on three or more different occasions during the month prior to the survey) showed a significantly higher percentage of males (18.3% versus 5.3%) had indulged in frequent drinking (Table 6.22).

Table 6.19. Involvement in physical fighting and bullying victimization

Fighting and bullying	Male		Female		Total	
	N	%	N	%	N	%
Being bullied[a]	185	21.4	254	16.7	439	18.4
Involved in physical fighting[a]	619	71.6	416	27.4	1 035	43.5

[a] p<0.05.

Table 6.20. Odds ratios for bullying, fighting, witnessing community violence and ACEs

Behaviour		Number of ACEs				
		0	1	2	3	≥4
	N	1 172	545	277	185	202
Being bullied	n	1 127	516	273	178	195
	%	10.3	16.5	28.6	35.4	49.7
	OR[a] (95% CI[b])		*1.72[c] (1.13–2.21)*	*3.48[d] (2.49–4.98)*	*4.77[d] (2.02–7.46)*	*8.62[d] (3.41–12.06)*
Fighting	n	1 141	523	276	176	199
	%	35.7	46.3	56.5	58.0	64.3
	OR (95% CI)		*1.55[c] (1.18–1.89)*	*2.34[d] (1.60–2.94)*	*2.48[d] (1.44–3.02)*	*3.25[d] (2.07–4.26)*
Witnessed community violence	n	1 155	530	276	177	201
	%	72.0	80.8	85.1	85.3	83.6
	OR (95% CI)		*1.63[c] (1.20–1.96)*	*2.22[d] (1.66–2.86)*	*2.25[d] (1.60–2.95)*	*1.97[c] (1.40–2.28)*

[a] OR=odds ratio.
[b] CI = confidence interval.
[c] p<0.05.
[d] p<0.01.

Table 6.21. Cigarette smoking

Smoking	Male		Female		Total	
	N	%	N	%	N	%
Currently smoking	174	20.1	252	16.6	426	17.9
Smoked more than 100 cigarettes in their entire life	247	28.6	323	21.3	570	23.9
Early smoking (≤ 15 years)	57	6.6	37	2.4	94	4.0
Average age when they started to smoke (years)	17		17		17	
Father smoking	533	61.7	935	61.6	1 468	61.6
Mother smoking	416	48.1	735	48.5	1 151	48.3

Illicit drug use

Respondents who had used drugs in their lifetime totalled 12.1%. Among them, 70.4% had used drugs 1–10 times prior to the survey and 7.7% claimed they have done so more than 100 times; 2.1% considered themselves drug addicts and 1.1% claimed to have been in drug rehabilitation programmes in the past. In addition, 2.1% reported living with someone who used drugs, which is significantly correlated with drug use by respondents (rho=0.09, p<0.05) (Table 6.23).

Sexual behaviours

Almost half of the respondents reported that they had had sex, with a statistically significant prevalence in males (Table 6.24). The average age of first sexual intercourse was 17.25 years (SD=1.39). Males tended to have first sexual encounters at a younger age (16.68, SD=1.46), as opposed to 17.66 (SD=1.18) for females, which is a statistically significant difference (p<0.05).

A total of 14.2% respondents had had three or more sexual partners in their life (statistically significant

Table 6.22. Alcohol consumption

Alcohol consumption	Male		Female		Total	
	N	%	N	%	N	%
Consumed alcohol	735	85.1	1 018	67.1	1 753	73.6
Consumed alcohol during past moth	609	70.5	817	53.9	1 426	59.9
Frequent use of alcohol[a]	158	18.3	81	5.3	239	10.0
Drink alcohol and drive	40	4.6	13	0.9	53	2.2
Living with someone who was an alcoholic	83	9.6	133	8.8	216	9.1
Average age when started drinking[a] (years)	15		16		15.5	
Problems because of alcohol use	67	7.8	32	2.1	99	4.2
Consider themselves alcoholic	44	5.1	34	2.2	78	3.3

[a] p<0.05.

Table 6.23. Use of illicit drugs

Drug use	Male		Female		Total	
	N	%	N	%	N	%
Illicit drug use:[a]	165	19.3	122	8.0	287	12.1
average age of first drug consumption	17		18		18	
used 1–2 times	45	5.2	63	4.2	108	4.5
used 3–10 times	58	6.7	36	2.4	94	4.0
used more than 10 times	59	6.8	19	1.3	78	3.3
used injectable drugs	2	0.2	0	0.0	2	0.1
problems with drug use	11	1.3	5	0.3	16	0.7
consider themselves addicts	5	0.6	1	0.1	6	0.3
Living with a drug user[a]	31	3.6	19	1.3	50	2.1

[a] p<0.05.

Table 6.24. Sexual behaviours

Type of sexual behaviour	Male		Female		Total	
	N	%	N	%	N	%
Having sexual intercoursea	492	56.9	676	44.6	1 167	49.0
Early sex (≤16 years)	199	23.0	100	6.6	299	12.6
Average age at first sexual intercourse[a]	16.7		17.7		17.2	
≥3 sexual partners in life[a]	240	27.8	97	6.4	337	14.2
Average number of sexual partners[a]	4.1		1.7			
≥3 sexual partners in previous year[a]	105	12.1	20	1.3	125	5.2
Average number of sexual partners in previous year[a]	2.0		1.1			
Pregnancy	–	–	15	1.0	–	–
Average age of first pregnancy	–		19		–	
Unwanted pregnancy	–	–	11	0.7	–	–
Have made someone pregnant	12	1.4	–	–	–	–

[a] p<0.05.

prevalence in males, p<0.05) and 5.2% during the last year. Males had significantly more sexual partners (4.06, SD=4.09) than females (1.66, SD=1.34) during their life and during the previous year (2, SD=2.28 for males and 1.10, SD=0.69 for females).

One per cent of surveyed females had been pregnant, 20% more than once, 6.7% twice, 6.7% three times and 6.7% four times. Most of the pregnancies (73.3%) were unwanted and more than half ended in abortion.

Suicide attempts

In total, 1.9% of respondents reported a history of suicide attempts, of which every fourth (more commonly among females) required serious medical interventions. Males had attempted suicide twice on average (SD=1.61) and women 1.8 times (SD=1.33). Males were younger at the time of their first suicide attempt (14.77, SD=4.71; females were 16.15, SD=2.82). None of the gender differences was statistically significant.

Running away from home

Running away from home (for more than one day) was reported by 2.5% of respondents, with equal gender distribution.

The interrelatedness of ACEs (child abuse and neglect, household dysfunction) and health-risk behaviours

Use of alcohol (73.6% during lifetime, 59.9% in past month and 10% frequently) and smoking (17.9%) were the two most prevalent health-risk behaviours among respondents, followed by multiple sexual partners (14.2%), early sexual activity (12.6%) and illicit drug use (12.1%).

If a respondent was exposed to an ACE category, the probability of exposure to health-risk behaviour increased.

Those who were exposed to physical abuse were 1.5 times more likely to become active smokers (OR=1.49), twice as likely to drive while drunk (OR=2.24) and use illicit drugs (OR=1.89), more than 1.6 times more likely to be involved in early sexual activity (OR=1.62), and 4.2 times more likely to attempt suicide (OR=4.21) (all are of high statistical significance).

Respondents who experienced psychological abuse had higher potential for becoming active smokers (OR=1.39) and were almost two times more likely to initiate smoking

at an early age (OR=1.89), had a two-times higher possibility of using illicit drugs (OR=2.03) and to run away from home (OR=1.83), and were three times more likely to attempt suicide (OR=3.00) (all highly statistically significant).

Sexual abuse increased the chances for almost all types of ACEs (except early smoking and drunk-driving): almost two times the chance of active smoking (OR=1.95), alcohol abuse (OR=1.95) and use of illicit drugs (OR=1.87), more than three times of running away from home (OR=3.39), more than four times of having multiple sexual partners (OR=4.41), and five times of early sexual activity and suicide attempt (both OR=5.18), each with high statistical significance.

Those who were physically neglected had a slightly increased potential for early sexual activity (OR=1.48), almost two times for early smoking (OR=1.85) and using illicit drugs (OR=1.94), more than two times for running away from home (OR=2.39) and four times for suicide attempt (OR=4.02) (all statistically significant, the last three highly).

Psychological neglect slightly increased the chances of smoking (OR=1.30) and almost doubled the potential for illicit drug use (OR=1.73), but raised the possibility of drunk-driving and running away from home (OR=2.26) by more than double (OR=2.38) and attempting suicide by more than 3.5 times (OR=3.66). Each was of high statistical significance except smoking, which was significant but not highly.

Respondents with a family member who had been using illicit drugs were more than three times more likely to become drug abusers themselves (OR=3.39). Drug abuse by a family member significantly increased the possibility of smoking (OR=1.98), especially at an early age (OR=2.80), raised the chances of running away from home by more than five times (OR=5.43) and heightened the potential for attempting suicide by more than seven times (OR=7.14), all with high statistical significance.

Alcohol abuse in the family increased the potential for participants to frequently use alcohol (OR=1.55) and illicit drugs (OR=1.50), but had more of an influence on early smoking (OR=1.81), running away from home (OR=2.26) and attempting suicide (OR=3.66) (the highest influence), all with high statistical significance.

Mental illness in the family had the highest impact on the chances of attempting suicide (OR=5.53) and running away from home (OR=4.18), but also increased the possibility of other risky behaviours such as smoking (OR=1.55), frequent alcohol use (OR=1.61), drunk-driving (OR=2.30) and use of illicit drugs (OR=2.20), all of which were statistically significant.

Violent treatment of the mother increased the potential for drug abuse (OR=1.52), running away from home (OR=1.68) and, especially, attempting suicide (OR=2.36), all with statistical significance. Imprisonment of a family member significantly increased the potential for all health risk behaviours, especially drunk-driving (OR=4.57).

Respondents who experienced parental separation or divorce had a 1.5 times higher possibility of smoking (OR=1.62), consuming alcohol frequently (OR=1.51) and using illicit drugs (OR=1.43), an almost two-times higher potential for suicide attempt (OR=1.92) and more than 2.5 times the chance of running away from home (OR=2.68).

Those with a family member who had attempted suicide had 24 times higher potential for attempting suicide themselves (OR=24.26). Suicide attempt by a family member also increased the chances of running away from home (OR=6.89), using harmful substances (alcohol (OR=2.02) and illicit drugs (OR=1.99)) and the possibility of early sexual activity (OR=1.94), and smoking (OR=1.61), all with statistical significance.

These data show that all types of ACEs significantly increase the potential for using illicit drugs and attempting suicide. In summary, Table 6.25 shows the relationship between different categories of ACEs and later manifestation of different types of health-risk behaviours, as well as adjusted relative odds of health-risk behaviours by type of ACE.

The following results also demonstrate that the chances of health-risk behaviours increase if a person is exposed to a higher number of ACEs.

Potential for smoking almost doubled for people exposed to two or more ACEs. In relation to age of smoking initiation, respondents with experience of 1–3 ACEs had about a two-times higher possibility of starting smoking at age 15 or earlier and those with four or more ACEs three times, both of which were statically significant. They also had a two-times higher chance of excessive consumption of alcohol with three ACEs and an almost three-times higher risk of driving while drinking if four or more ACEs had been experienced (both statistically significant).

Table 6.25. Prevalence and adjusted relative odds of health-risk behaviours by type of ACE

ACE category	Smoker		Early smoking (≤15 years)		Frequent alcohol use		Drunk-driving		Illicit drug use		Early sexual activity (≤16 years)		Multiple sexual partners (≥3)		Running away from home		Suicide attempt	
Prevalence	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
	426	17.9	94	4.0	239	10.0	53	2.2	287	12.1	299	12.6	338	14.2	58	2.5	44	1.9
Adjusted relative odds	OR[a]	CI[b]	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Physical abuse	1.49[c]	1.11 1.93	0.72	0.44 1.19	0.92	0.63 1.36	2.24[d]	1.02 4.48	1.89[d]	1.44 2.48	1.62[c]	1.16 2.26	0.77	0.57 1.04	1.26	0.66 2.43	4.21[d]	2.94 6.04
Psychological abuse	1.39[c]	1.14 1.71	1.89[d]	1.19 3.01	0.82	0.62 1.09	0.93	0.45 1.93	2.03[d]	1.66 2.47	0.86	0.67 1.10	0.84	0.66 1.05	1.83[c]	1.23 2.71	3.00[d]	2.20 4.09
Sexual abuse	1.95[d]	1.29 2.92	0.56	0.27 1.18	1.95[d]	1.13 3.38	0.64	0.24 1.68	1.87[d]	1.17 2.97	5.18[d]	3.42 7.84	4.41[d]	2.92 6.67	3.39[d]	1.73 6.64	5.18[d]	2.79 9.59
Physical neglect	1.16	0.85 1.60	1.85[c]	1.03 3.32	0.83	0.55 1.24	0.69	0.34 1.41	1.94[d]	1.43 2.63	1.48[c]	1.01 2.17	0.78	0.56 1.09	2.39[d]	1.42 4.02	4.02[d]	2.60 6.17
Psychological neglect	1.30[c]	1.04 1.62	0.77	0.51 1.16	0.83	0.61 1.14	2.38[d]	1.28 4.41	1.73[d]	1.38 2.17	1.25	0.91 1.71	0.92	0.71 1.190	2.26[d]	1.56 3.26	3.66[d]	2.73 4.85
Illicit drug use by family member	1.98[d]	1.08 3.59	2.80[c]	1.09 7.22	0.70	0.32 1.52	0.42	0.13 1.34	3.39[d]	1.90 6.06	0.75	0.36 1.59	2.41[d]	1.29 4.52	5.43[d]	2.41 12.23	7.14[d]	3.21 15.87
Alcohol use by family member	1.25	0.91 1.70	1.81[c]	1.01 3.25	1.55[c]	1.00 2.40	0.59	0.31 1.15	1.50[c]	1.07 2.09	0.86	0.60 1.23	0.89	0.63 1.25	2.77[d]	1.72 4.46	3.66[d]	2.33 5.76
Mental illness in the family	1.58[c]	1.13 2.22	0.61	0.33 1.12	1.61[c]	0.99 2.61	2.13[c]	0.93 4.85	2.20[d]	1.56 3.12	0.80	0.53 1.22	0.88	0.58 1.33	4.18[d]	2.63 6.64	5.53[d]	3.56 8.59
Mother treated violently	1.16	0.94 1.42	0.92	0.61 1.39	0.84	0.64 1.12	1.06	0.58 1.95	1.52[d]	1.23 1.88	0.92	0.72 1.18	1.04	0.78 1.40	1.68[c]	1.13 2.49	2.36[d]	1.67 3.35
Family member in prison	2.11[d]	1.33 3.30	3.91[d]	2.00 7.64	2.15[d]	1.15 4.00	4.57[d]	1.95 10.70	2.04[d]	1.25 3.35	2.50[d]	1.52 4.13	2.60[d]	1.61 4.20	4.14[d]	2.10 8.16	3.98[d]	1.83 8.63
Parental divorce/ separation	1.62[c]	1.24 2.18	0.65	0.42 1.02	1.51[c]	1.02 2.25	1.16	0.51 2.61	1.43[c]	1.07 1.90	1.23	0.87 1.75	1.15	0.82 1.62	2.68[d]	1.80 4.00	1.92[c]	1.10 3.36
Family member suicide	1.61[c]	0.92 2.86	1.21	0.30 4.89	2.02[c]	0.92 4.44	0.87	0.12 6.48	1.99[d]	1.01 3.68	1.94[d]	1.03 3.60	1.50	0.79 2.85	6.89[d]	3.57 13.30	24.26[d]	15.39 38.22

[a] OR = odds ratio adjusted for parental employment and education.
[b] CI = 95% confidence interval.
[c] $p<0.05$.
[d] $p<0.01$.
Note: due to the low percentage of early pregnancy, which is insufficient to allow reliable statistical analysis, this item does not appear in the table.

The probability of using illicit drugs increased as the number of ACEs grew. Respondents with one ACE had a slightly higher chance (1.2 times) of using illicit drugs, but those with two (OR=2.11) or three (OR=2.39) doubled their potential, with four or more increasing the potential by three times (OR=3.35) (all highly statistically significant).

The risks of early sexual activity (age 16 and lower) and multiple sexual partners (three or more) were three times higher in respondents with four or more ACEs, but were not increased by much in those who had experienced 1–3 ACEs. Conversely, the risk of early pregnancy (before the 18th birthday) was two times higher in those with one ACE, more than four times higher with two, six times with three and almost 12 times with four or more (all highly statistically significant).

Chances of attempting suicide increased dramatically with the number of ACEs experienced – more than six times for those with one, almost 11 times for two, 23 times for three and 78 times for four or more (all highly statistically significant).

The risk of running away from home also increased with a higher number of experienced ACEs. Respondents with two ACEs had a three-times higher risk of running away from home, those with three had a more than four-times higher risk, and four or more meant a greater than eight-times higher risk (all highly statistically significant).

Table 6.26 shows the prevalence and relative odds of health-risk behaviours by numbers of ACEs, adjusted for age, gender, parental employment and education.

Table 6.26. Prevalence and odds of health-risk behaviours by number of ACEs

ACE categories	ACE total (n)					
	N[a]	0 (1173)	1 (545)	2 (277)	3 (185)	≥4 (202)
Smoker	n[b]	1144	531	270	175	202
	Prevalence (%)	14.9	18.1	23.7	24.6	26.2
	OR[c] (95% CI)[d]	–	*1.22 (1.12–1.44)[e]*	*1.76 (1.26–2.11)[e]*	*1.85 (1.22–2.37)[e]*	*2.04(1.22–2.96)[f]*
Early smoker (≤15 years)	n	1172	545	277	185	202
	Prevalence (%)	2.6	4.8	5.1	4.3	7.9
	OR (95% CI)	–	*1.96 (1.25–2.66)[f]*	*2.03 (1.69–2.49)[f]*	*1.72 (1.28–2.15)[e]*	*3.27 (2.57–3.98)[f]*
Frequent alcohol use	n	677	327	169	110	113
	Prevalence (%)	15.7	15.3	16.0	27.3	23.0
	OR (95% CI)	–	*0.97 (0.77–1.08)*	*1.02 (0.86–1.24)*	*1.98 (1.62–2.87)[e]*	*1.61 (1.38–1.92)[e]*
Drunk-driving	n	673	323	169	109	113
	Prevalence (%)	2.8	4.3	4.7	2.8	8.0
	OR (95% CI)	–	*1.56 (1.19–1.88)[e]*	*1.71 (1.24–1.94)[e]*	*0.99 (0.66–1.19)*	*2.98 (2.02–3.65)[f]*
Illicit drug use	n	1153	539	276	184	202
	Prevalence (%)	8.7	10.2	16.7	18.5	25.7
	OR (95% CI)	–	*1.20 (0.88–1.74)*	*2.11 (1.85–2.49)[f]*	*2.39 (1.73–2.95)[f]*	*3.35 (2.58–4.22)[f]*
Early sexual activity (≤16 years)	n	1172	545	277	185	202
	Prevalence (%)	11.1	12.1	13.7	13.0	20.3
	OR (95% CI)	–	*1.10 (0.86–1.57)*	*1.27 (1.12–1.68)[e]*	*1.20 (0.98–1.84)*	*2.04 (1.70–2.26)[f]*
Multiple sex partners (≥3)	n	1172	545	277	185	202
	Prevalence (%)	11.9	15.4	17.3	15.1	18.8
	OR (95% CI)	–	*1.36 (0.98–1.94)*	*1.55 (1.07–1.99)[e]*	*1.32 (1.09–1.84)[e]*	*1.71 (1.20–2.37)[e]*
Early pregnancy (≤18 years)	n	1172	545	277	185	202
	Prevalence (%)	0.1	0.2	0.4	0.5	1.0
	OR (95% CI)	–	*2.15 (1.24–3.47)[f]*	*4.24 (2.12–7.44)[f]*	*6.36 (2.18–11.92)[f]*	*11.72 (3.26–22.41)[f]*
Suicide attempt	n	1156	536	273	181	201
	Prevalence (%)	0.2	1.1	1.8	3.9	11.9
	OR (95% CI)	–	*6.64 (2.15–12.04)[f]*	*10.76 (3.27–18.93)[f]*	*23.21 (8.20–33.15)[f]*	*78.24 (11.16–112.28)[f]*
Running away from home	n	1163	541	276	185	202
	Prevalence (%)	1.2	1.3	3.6	4.9	8.9
	OR (95% CI)	–	*1.12(0.88–1.68)*	*3.14 (2.10–4.80)[f]*	*4.20 (2.80–6.11)[f]*	*8.24 (4.92–12.95)[f]*

[a] N = total number of respondents with ACEs. [b] n = number of respondents with ACEs for each category. [c] OR = odds ratio adjusted for parental employment and education. [d] CI = confidence interval. [e] $p<0.05$. [f] $p<0.01$.

7. DISCUSSION

Forms of maltreatment

The survey aimed to investigate and identify the prevalence of different forms of ACEs and their mutual connection with, and correlation to, health-risk behaviours among Serbian university students. The results indicate that the two most common types of ACE in the sample were psychological (emotional) abuse (in first place), followed by physical abuse.

ACE surveys conducted in Romania *(13)* and the former Yugoslav Republic of Macedonia *(12)* placed physical abuse as the most common form of maltreatment. While it takes second place in Serbia, a high percentage of respondents reported experiencing physical abuse (27.8%, with 10.9% experiencing it more than a few times): the results in Serbia are therefore similar to those in the other surveys.

Physical abuse

The most common form of physical abuse for respondents was being pushed, grabbed or having something thrown at them. The gender distribution showed variance, with higher prevalence in males (13.7% versus 9.4%), which reflects the findings of many studies that suggest boys are more commonly victims of physical violence *(31–33)*. The absence of a significant difference in physical violence between boys and girls in Serbia was demonstrated in the Balkan Epidemiological Study on Child Abuse and Neglect (BECAN) in Serbia *(34)*, which also showed a worryingly high prevalence of physical abuse towards children (69.2%). Its results may differ from the ACE survey because the cut-off for the BECAN study was milder forms of abuse, so rates are higher. The BECAN study involved a more representative sample than the ACE, which surveyed only privileged university students, and the studies had different age samples, with potential implications for differences in perceptions of physical abuse and the potential for recall bias. The most frequent forms of physical violence in the BECAN study (categorized as physical punishment) experienced by children in Serbia were slapping (23.4% at least once during the previous year), spanking their bottom with a bare hand (22.4%) and pulling hair (13.6%).

Although teaching children about self-control and acceptable behaviour (through positive parenting encouragement and guidance) is an integral part of child discipline in all countries and is considered an essential element in preserving children's self-esteem, physical and psychological integrity and dignity, children in Serbia are too frequently disciplined through the use of physical force or verbal intimidation. The fact that almost two thirds of respondents to this survey (64.7%) experienced corporal punishment at least once during their childhood (29.8% more than once) confirms that the use of this type of punishment as a disciplinary measure is widespread among parents, although the reported prevalence is lower than other eastern European countries (such as Romania and the former Yugoslav Republic of Macedonia).

The highest prevalence of corporal punishment was reported among 11–15-year-olds in both genders, which indicates an escalation of violence towards children in adolescence. The UNICEF Serbian multiple indicator cluster survey from 2014 *(35)* indicated that 43% of children aged 1–14 years had experienced some form of violent discipline (39% psychological aggression and 17% corporal punishment, with 1% experiencing the most severe forms (hitting the child on the head, ears or face or hitting him or her hard and repeatedly)). The decrease in prevalence of abusive punishment methods in 2014 compared to the previous survey (2010), which identified that 63% of children had been subjected to corporal punishment, can be explained by better public awareness, increased media attention on the harms of corporal punishment and the launch of an initiative to ban corporal punishment.

Psychological (emotional) abuse

Psychological (emotional) abuse was the most frequent type experienced by respondents during childhood, which replicates the findings of ACE surveys in Albania *(36)* and Montenegro *(37)*. More than one third of respondents (36.7%) experienced it at least once (17.3% more than a few times), which represents a higher prevalence than in most comparable ACE studies *(12,13,37)* with the exception of Albania, where more than half (51%) of respondents reported being emotionally abused *(36)*. In Serbia, 15.7% of respondents reported experiencing emotional neglect at least once (7.7% more than a few times) and it was more prevalent among those growing up in rural rather than urban surroundings (18.2% versus 14.6%). The rates of experienced emotional neglect in Serbia are two times lower compared to most ACE studies in the region *(12,13,37)* but higher than in Albania *(36)*.

with deviant parental behaviours (such as alcohol and drug abuse) and when parents have anxiety or other mental disorders *(4,6)*. Children who experience emotional maltreatment undergo a unique form of violence. Although no physical pain or sexual contact is inflicted, the consequences can be just as severe and long-lasting *(38)*. A history of emotional abuse and neglect is associated with increased anxiety, depression, post-traumatic stress, physical symptoms, lifetime trauma exposure and difficulties in interpersonal relationships *(39)*.The co-occurrence rate of emotional maltreatment with other forms of maltreatment, such as physical abuse and neglect, is high and it is often difficult to separate the effects of the different types *(40,41)*.

Physical neglect

Physical neglect is the most common type of neglect and can seriously jeopardize children's development, slow progress in body weight and lead to malnutrition, serious illnesses and increased potential for physical injuries *(6)*. Children who suffer this kind of neglect usually leave the house, cannot control their social actions and do not feel safe because they have been deprived of basic needs; they are also especially prone to substance abuse later in life *(42)*. The survey found that 8.9% participants reported being physically neglected in terms of not having enough food or having to wear dirty clothes, with higher prevalence in males (11.6% versus 7.4%). This represents lower prevalence than in other countries in the region *(12,13,37)*, the reason for which can be found in the socioeconomic status of Serbian survey respondents: physical neglect is highly correlated with poor socioeconomic status, but only 4.2% of the Serbian sample evaluated their status as poor, with the vast majority being of average or above-average status. Most of the respondents' parents were in employment and around 95% of parents of both genders had at least secondary education.

The Serbian students were therefore less at risk from this kind of maltreatment during childhood, but 19.7% of respondents indicated that at least on a few occasions there was no one to provide necessary medical help (reported more frequently by females). These data reflect some trends in countries such as India and Nepal, where girls are less likely to be offered medical help *(43)*.

Sexual abuse

Results show that 4.3% of respondents reported experiencing at least one kind of sexual abuse during their life, with all types of identified abuse more common in males (7.5% versus 2.5%). This prevalence is about two times lower than that of most countries in the region *(12,13,36,44)* and the prevalence of 8.5% found in the BECAN study in Serbia *(34)*. The significant gender difference in reporting (predominantly males) is similar to ACE surveys in Albania *(36)*, Montenegro *(37)* and the former Yugoslav Republic of Macedonia *(12)*, although much research has shown that girls are 2–3 times more likely to be sexually abused *(6,45)*.

Taking account of varying definitions, two meta-analyses in the United States found the prevalence rates in national surveys ranged from between 12% and 17% for females and 5% and 8% for males, and 2–16% for males and 8–30% for females, with a mean prevalence of sexual abuse across studies of 9% for males and 19% for females *(46,47)*. An estimated prevalence rate of 20% for females and 10% for males was considered realistic in a review of studies conducted in 21 countries outside the United States *(48)*. A recent meta-analysis of 65 studies of 22 countries *(49)* also showed the prevalence of sexual abuse for boys was lower than for girls (female to male ratio 2.5:1).

While girls consistently report more sexual victimization than boys, differences in prevalence and gender predomination between countries can be explained by differences in research methodologies. A comprehensive meta-analysis that combined prevalence figures of childhood sexual abuse reported in 217 publications published between 1980 and 2008, including 331 independent samples with a total of 9 911 748 participants, confirmed that sexual abuse is a global problem of considerable extent, but also that methodological issues drastically influence self-reported prevalence *(50)*.

The differences between the Serbian ACE survey and most epidemiological studies can be explained in two ways. First, differences can arise from the definition of sexual abuse *(51)*. The Serbian survey used a wider concept, with the main focus on the age difference (sexual experience with an adult person or persons five or more years older). The other possible reason may arise from cultural-specific norms *(51,52)*. Many respondents came from conservative environments, and children, especially girls, often cannot talk about abuse experienced, especially sexual abuse in the family, because of the shame they feel and an urge to suppress and deny. Loyalty to parents may also influence children's readiness to disclose sexual abuse *(53)*.

It is therefore possible that the results of the Serbian ACE survey may originate in underreporting of sexual abuse

among girls due to cultural stereotypes. Boys, on the other hand, are often prone to exaggerate and may wish to emphasize their sexuality by recounting experiences with older females, perhaps not recognizing the age difference as an indicator of abusive behaviour: misinterpretation of the question (the perpetrator being five or more years older) might also have influenced the results.

The most common perpetrator of sexual abuse on the females in the survey was someone they trusted, and for boys it was a stranger. The most frequently used methods of procuring involvement in sexual abuse were trickery (for girls) and giving psychoactive substances (boys). Studies have shown that in most cases in which the victims were girls, perpetrators were friends or acquaintances, followed by family members and, in the smallest number, strangers *(54)*. Boys are more likely to be sexually abused by male non-family members, while for girls it is a male family member *(6,55)*. Although the Serbian data differ somewhat from these results, they support the conclusion that the dynamics and pattern of vulnerability to sexual abuse differ considerably between boys and girls.

Household dysfunction

Exposure to different kinds of household dysfunction is established as one of the most serious risk factors for any type of abuse or neglect during childhood. The study analysed divorce rates for respondents' parents, alcoholism or drug abuse, history of mental illness, suicide attempts and criminal behaviour in the family, and witnessing mother being treated violently (domestic violence).

The most frequently reported form of household dysfunction was violent treatment of the mother: 18.7% of respondents reported witnessing domestic violence at least once in their life, with no statistical difference between genders. The most common form of violent behaviour towards the mother was when she was pushed, grabbed or slapped. The BECAN study also confirmed family violence as a problem in Serbia, with 37.9% of children reporting witnessing at least one violent scene between adults in the family (shouting and inflicting injuries), of which 26% were in the year prior to the survey *(34)*.

Exposing children to domestic violence usually causes emotional trauma in an intensity as severe as exposure to direct maltreatment. Studies have shown that witnessing domestic violence has a negative impact on a child's well-being, development and health, especially in relation to psychological aspects, and severely influences and endangers social relationships and academic development in childhood and during later life, leading to substance abuse problems *(42,56,57)*.

Parental divorce, the second most common household dysfunction in the study (reported by every eighth respondent), is also recognized as a common risk factor for the development of anxiety, depression and substance abuse in adulthood *(42)*.

Other prevalent kinds of household dysfunction were alcohol abuse by family member (9.1%) and having a person with mental illness/depression in the family (6.6%). Studies have shown that exposure to parental alcohol abuse is highly associated with ACEs *(58,59)*. Harmful alcohol use can directly affect physical and cognitive functions, reducing self-control and making an individual more prone to acting violently, even towards children. It can impair parents and caregivers' sense of responsibility and reduce the amount of time and money available to spend on the child, leading to neglect of children's basic needs *(60)*. Mental illness is a key risk factor for child physical abuse, neglect and sexual abuse *(2)* and typically features a perpetrator characteristic of most fatal child maltreatment cases *(61)*. An examination of fatal child maltreatment cases over a two-year period in the United Kingdom (2009–2011) identified parental mental illness in 58% *(62)*.

Physical fighting and bullying

The study shows a high presence of physical fighting and bullying among Serbian students. Being a victim of bullying during childhood was reported by 18.4% of respondents, with a significant gender difference in prevalence (21.4% in males versus 16.7%). These results are similar to previous findings in Serbia that provided global self-estimations suggesting 21.8% of pupils were victims of bullying more than 1–2 times in their life (which is lower prevalence than the world average of 33% *(63)*), with verbal insults and mockery the most common form. In general, boys are more involved in physical, verbal and cyberbullying and girls are more inclined towards relational bullying *(64)*.

In the Serbian study, 43.5% of participants reported being involved in physical fighting during their childhood, with significantly higher prevalence among boys (71.6% versus 27.4%). The finding that girls are less involved in physical violence is consistent with the Health Behaviour in School-aged Children survey, which has shown that boys'

involvement in physical fighting is three times that of girls *(65)*.

Witnessing community violence is also identified as a cause of ACEs *(66,67)*. A large proportion of students in the Serbian study (76.1%) reported witnessing community violence at least once, most frequently by seeing or hearing someone being beaten up, with higher prevalence among males (83.8% versus 71.7%). The study's findings show that the chances of respondents being bullied, involved in physical fighting or witnessing community violence increased with exposure to multiple ACEs, which reveals a similar trend to the Romanian ACE study *(13)*.

Interrelationships between ACEs

The study shows a strong interrelationship between different forms of ACEs. Almost three quarters of respondents who experienced physical abuse (74.2%) and almost half of those who experienced physical (46.2%) and psychological (45.7%) neglect also experienced psychological abuse. These results are consistent with findings from other comparable studies of ACEs *(12,13,36,37)* and support many studies that have shown the high co-occurrence of emotional abuse and other forms of maltreatment, especially physical abuse and neglect *(40,41,68)*.

The *European report on preventing child maltreatment (2)* indicates that young people who experienced physical or sexual maltreatment during childhood are at increased risk of being involved in violent behaviour or being arrested in adolescence. Two questions on respondents' violent behaviour were included in the study to investigate the possible influence of experienced adverse events on later abusive behaviour. A surprisingly high percentage (24.5%) reported psychologically harassing (insulting, humiliating) other people, and 16.3% had physically abused (beaten) others. Most of these respondents also reported at least one type of ACE. Only 8.2% of those who had bullied psychologically and 11.3% of physical reported that they had never experienced any ACE.

These results are consistent with other studies showing that adolescents who experience ACEs have a greater likelihood of developing abusive behaviour toward other people. Studies of adolescents in the United States, for instance, show that those who suffered physical or sexual abuse in childhood had an increased risk of perpetrating bullying, physical fighting and dating violence and delinquency *(69,70)*. Several studies also indicate that adults who were abused or neglected as children are at increased risk of intergenerational abuse or neglect compared to those who have not experienced maltreatment *(71,72)*; some, such as one conducted in the United Kingdom *(73)*, indicate a cyclic effect in which those with higher ACE counts have higher risks of exposing their own children to ACEs.

Health-risk behaviours

The two most prevalent health-risk behaviours among respondents in the study were the use of alcohol and smoking, followed by multiple sexual partners, early sexual activity and illicit drug use.

Alcohol use

Alcohol is legal in most countries and forms part of the tradition, customs and culture of many nations. It nevertheless is a poison that depresses the central nervous system: its numerous detrimental effects on health, especially that of young people, are well documented in the scientific literature. Alcohol contributes to more than 200 disease and injury conditions and is associated with health problems such as alcohol dependence, liver cirrhosis and cancers. Recent research suggests a causal relationships between alcohol consumption and incidence of infectious diseases such as tuberculosis and HIV *(74)*.

The Serbian study found that 73.6% of respondents reported using alcohol in their life, 59.9% during the previous month and 10% frequently (drinking five or more drinks in three or more occasions), with significantly higher prevalence in males (18% versus 5.3%). The results are similar to a European School Survey Project on Alcohol and Other Drugs (ESPAD) study that showed widespread use of alcohol among Serbian young people, with 89.1% of adolescents reporting use of alcohol at least once in their life and more than half (54%) during the month prior to the survey *(75)*.The latest national health survey (2013) confirmed gender differences in excessive drinking of young people (22.7% males versus 10.6% females) *(76)*. The ACE study in Serbia reported here found that ACEs, especially sexual abuse (OR=1.95) and different kinds of household dysfunction such as alcohol abuse by family member (OR=1.55), mental illness in the family (OR=1.61), family member imprisonment (OR=2.15) and suicide (OR=2.02), and parental divorce (OR=2.15), increase the possibility of alcohol abuse later in life; this is also shown in other studies *(77,78)*.

Smoking

Smoking is one of the most important risk factors associated with morbidity and mortality. The tobacco epidemic is among the biggest public health threats the

world has ever faced, killing nearly 6 million people each year. Smoking substantially increases the risk of death from lung and other cancers, heart disease, stroke, chronic respiratory disease and other conditions. Globally, it causes about 71% of lung cancer, 42% of chronic respiratory disease and nearly 10% of cardiovascular disease *(79)*. People who start smoking in adolescence are more likely to continue to smoke as adults and face a range of health risks *(24)*.

Smoking nevertheless remains widely socially accepted in Serbia. The latest national health survey shows that 34.7% of adults and 19.2% of young people aged 15–19 years smoke *(76)*. In the ACE study, 27% of respondents reported smoking at some time in their life and 17.9% declared themselves active smokers, with an average starting age of 17 and no significant difference between genders (this finding differs from other ACE studies in which prevalence and initiation age were significantly different between genders *(13,36)*). The chance of smoking increased about 1.5 times if the person was exposed to physical abuse, emotional abuse and neglect, mental illness of a family member or parental separation/ divorce, and about two times if the person was exposed to sexual abuse, illicit drug use or imprisonment of a family member. These results are similar to other ACE survey findings that also stress the association between dysfunctional family environments and smoking *(12,13,36)*, although plausible evidence from international surveys is limited *(2)*.

Risky sexual behaviours

Risky sexual behaviours include early sexual relationships, multiple sexual partners, not using reliable methods of contraception and not using condoms as an effective protection against sexually transmitted infections. Involvement in behaviours such as these significantly increases the chances of contracting HIV/AIDS (the sixth cause of death in the world) and infections that are entirely attributable to unsafe sex, such as syphilis, gonorrhoea and Chlamydia. Cervical cancer, one of the leading causes of death worldwide (11% of global deaths), is attributed to sexual transmission of the human papilloma virus. Non-use of contraception or employing ineffective methods increases the risk of unintended pregnancy and its consequences, including unsafe abortions *(79)*.

Risky sexual behaviours were common among respondents in the study, 14.2% of whom reported having multiple sexual partners and 12.6% initiating sexual activity early, with males engaging more often. Males tended to have their first sexual encounters at a younger age (16.7 years) than women (17.7), which is similar to other ACE studies in the region *(13,14,36,37)*.

Analysis of the relationship between different ACE categories and involvement in risky sexual behaviours shows that sexual abuse during childhood significantly increased probabilities by more than five for early sexual activity (OR=5.18) and more than four for multiple sexual partners (OR=4.41). The chance of involvement in both behaviours was 2.5 times higher if the respondent had a family member imprisoned. Early sexual activity was increased in those with a history of physical abuse and neglect, and experience of the suicide of a family member. Having multiple sexual partners increased in association with reported drug abuse in the family. Studies have shown the robust association between child maltreatment, especially sexual abuse, physical abuse, emotional abuse and neglect, with increased rates of risky sexual behaviours (teenage pregnancy, earlier onset of sexual activity, greater numbers of sexual partners, abortion, and sexually transmitted infections) *(19,80)*.

Illicit drug use

Illicit drug use was also identified in the study (12.1%), with significantly higher prevalence in males (19.3% versus 8%). Use of cannabis, which is not legal in Serbia, was included among the illicit drugs considered. The findings are similar to the ESPAD study, which showed that 15.1% of first-grade students in Serbian secondary schools in Serbia had tried some of the illegal drugs at least once *(75)*.

A significant correlation between all types of ACEs and later drug abuse was found, the strongest correlation being with drug abuse by family member (OR=3.39). Exposure to physical abuse, emotional abuse and neglect increases the chances of drug use by 1.5–2 times *(80)*. A very strong association between childhood adversity and drug abuse is also found during early transition to adulthood *(81)*.

The consequences of drug abuse are numerous. Adverse effects such as cardiac crisis and respiratory depression can occur within minutes of use. Chronic substance-induced physical problems such as liver cirrhosis, nephropathy and some forms of cardiac pathology generally emerge after a longer period of drug exposure. Chronic harm indirectly related to drug use, such as infectious diseases (hepatitis, HIV and tuberculosis) and injury-associated disability, can occur at any stage in the natural history of the drug-use disorder. Mental health problems connected to drug abuse can vary from relatively

time-limited emotional, perceptual or cognitive disturbances to severe episodes of psychiatric disorders.

The spectrum of drug-associated adverse health effects occurs across the lifespan. Adverse effects in the first years of life may begin with obstetric complications, fetal distress, stillbirth, and low birth weight as a result of maternal drug-taking during pregnancy. Self-inflicted injuries and homicides become more prominent in the adolescent and young adult years. Among the latter population, excess morbidity may be manifest through non-age-appropriate and unexpected physical conditions. Health harms associated with illegal drug use and drug dependence persist even into middle age and late life *(82)*.

Relationships between health-risk behaviours and ACEs

The study shows a strong graduated relationship between self-reported health-risk behaviours (such as smoking, alcohol and drug abuse, risky sexual behaviours, suicide attempts and running away from home) and the number of ACEs (multiple forms of child abuse and neglect and household dysfunction), which is in accordance with other ACE studies *(12,13,36,37,83,84)*.

It demonstrates that the chances of taking part in all the considered health-risk behaviours increase if the person is exposed to a higher number of ACEs. The chances of smoking, for instance, increased by almost two times if the person was exposed to two or more ACEs, and the potential of early initiation of smoking increased by about two times for people with 1–3 ACEs and three times for those with four or more. Young people with three ACEs also had a two-times higher chance of consuming alcohol to excess and four or more created an almost three-times higher risk of driving while drinking. The probability of illicit drug use increased as the number of ACEs grew: a person with two ACEs had almost twice as high a risk (OR=2.11) of using drugs, those with three more than twice (OR=2.39), and four or more ACEs increased the risk by three (OR=3.35).

The risks of early sexual activity and multiple sexual partners were three times higher in respondents with four or more ACEs and the risk of early pregnancy was two times higher in those with one, more than four times higher with two, six times with three, and almost 12 times with four or more. Chances of attempting suicide also increased dramatically with the number of experienced ACEs – more than six times for people with one ACE, almost 11 times with two, 23 times for those with three and 78 times for four or more. The risk of running away from home also rose with a higher number of experienced ACEs, so individuals with two ACEs had a three-times higher risk, those with three more than four times and people with four or more greater than eight times the risk of running away from home.

Although the survey did not investigate health problems and long-term consequences of ACEs, many studies have shown that the likelihood of a person developing a range of physical and mental pathological conditions (such as heart disease, cancer, depression in adulthood and sexually transmitted infections) increases with the number of reported ACEs *(13,57,84,85)*. One study *(25)* showed that one adverse exposure almost doubles the risk of overall poor health and four or more almost triples the risk of illness requiring medical attention.

8. CONCLUSIONS

The survey was performed on a sample of 2381 first-year university students and used CDC/WHO methodology to investigate the prevalence of their exposure to different ACEs during the first 18 years of life and the influence of these negative experiences on their health-risk behaviours later in life.

The results are similar to previous research in this area showing that different forms of child maltreatment are highly prevalent in Serbia *(34,35)*. The findings demonstrate a strong association between ACEs and health-harming behaviours, which is also in line with ACE surveys performed in other countries in the region *(12,13,36)*.

Results show that respondents were most frequently exposed to psychological abuse (more than one third – every sixth student – experienced this more than a few times), physical abuse (almost one third – 1 in 10 more than a few times) and psychological neglect (every sixth student). Sexual abuse was reported by 4.3% and physical neglect by 8.9%. Males had higher prevalence of exposure to physical abuse and neglect and psychological and sexual abuse, and females to psychological neglect. The higher proportion of males exposed to some of the forms of abuse was anticipated, but their higher prevalence of sexual abuse was surprising: this may be real or due to responder bias, and further research is required to understand this finding better.

The fact that almost two thirds of respondents experienced corporal punishment at least once during their childhood (almost one third on more than one occasion) confirms that this type of punishment is widespread in the country.

The most frequent types of household dysfunction encountered were violent treatment of the mother (domestic violence) and separated or divorced parents, followed by alcohol abuse by family member and mental illness/depression in the family.

The study revealed the frequent co-occurrence of different forms of child maltreatment and household dysfunction. Almost three quarters of respondents exposed to physical violence also experienced psychological violence and almost one half witnessed violent treatment of their mother. Around a third who experienced all other categories of maltreatment also experienced physical abuse and a similar trend was found with physical and emotional neglect. Emotional abuse was highly prevalent in all other forms of adverse experiences.

Among the types of household dysfunction experienced, violent treatment of the mother was most frequently associated with other types of adverse experiences. These data accord with findings in practice *(6)* and the growing body of research during the last decade showing that co-occurring child maltreatment is more common than single forms. Polyvictimization has a cumulative effect on children's mental health and is more highly related to trauma symptoms than experiencing repeated single-type victimization *(86–89)*.

Bullying and involvement in physical fighting were common. Every fifth respondent reported being a victim of bullying and almost a half had been involved in physical fighting during their childhood. The gender difference was statistically significant, with males more frequently involved in both cases. Most respondents who had bullied other people also reported at least one type of experienced ACE, which indicates that adolescents who experience ACEs are more prone to develop abusive behaviour towards others. This supports the notion that child maltreatment is a risk factor for violence across the life-course.

A high proportion of respondents (more than three quarters) reported witnessing community violence, most frequently by seeing or hearing someone being beaten up, with higher prevalence among males. Due to relatively recent events in the region, some respondents also had adverse experiences of being forced to leave their home (refugee status) or suffering or witnessing violence by the military, police or various paramilitary formations during their childhood: one in eight reported having to move due to war, genocide, terrorist or ethnic conflicts, 4.9% reported witnessing the destruction of their homes, and 3.9% had been victims of police, military, gang or paramilitary force violence.

The most prevalent health-risk behaviours among respondents were use of alcohol and smoking, followed by multiple sexual partners, early sexual activity and illicit

drug use. The association between ACEs and these health-harming behaviours has implications for the prevention of noncommunicable diseases.

The study shows the frequent co-occurrence of different forms of child maltreatment and types of household dysfunction. Importantly, the results demonstrate that the odds of developing health-harming behaviours increases with exposure to multiple ACEs. Compared to no ACEs, exposure to four or more is associated with increased chances of starting smoking early, frequent alcohol use, drink-driving, underage pregnancy and attempted suicide. This is in line with findings of ACE surveys performed in other countries in Europe and globally. An association between bullying other people and exposure to at least one type of ACE was also identified, which supports other studies showing that health-harming behaviours can have an impact across the entire life-course, may induce a wide range of noncommunicable diseases (such as heart disease and cancer), mental disorders or premature mortality, and can result in increasing use of health services and loss of working capability, representing extra costs to society *(2)*.

The findings confirm that child maltreatment and other ACEs are important public health problems in Serbia. The study provides detailed insights into different types of violence against children and the cumulative effect of ACEs on health-harming behaviors. Its results offer an opportunity to advocate for greater action in investing in children and preventing child maltreatment as a means of accruing benefits across the life-course.

9. LIMITATIONS OF THE STUDY

The results of the survey are subject to certain limitations.

First, the survey was based on a sample of university students, who represent only one part of the young population of Serbia. They also tend to have higher socioeconomic status than their peers, so the number and intensity of ACEs among this student population may be lower than that found in the young population with lower socioeconomic status. The sample of students was nevertheless representative, so the results can be generalized for the population of young students in Serbia.

Second, as the responses were based on self-reporting, there is a possibility of underreporting of sensitive issues, especially in relation to domestic violence or sexual abuse, or exaggerating in areas such as voluntary sexual experiences, especially among males. Anonymity was guaranteed, but some students might have been inclined to give answers they believed were socially acceptable.

The questionnaire was lengthy so required a very long time and high concentration to complete. Many respondents commented negatively about the length of the questionnaire.

Finally, the retrospective study design raises the possibility of recall bias, such as reporting the most recent or most severe events and omitting those that happened in earlier childhood. The study nevertheless reports high levels of ACEs and a strong association with health-harming behaviours.

10. POINTS FOR ACTION

- Based on the results of this study and WHO recommendations *(2,9,90,91)*, several action points are offered for consideration by policy-makers and practitioners to reduce the public health and societal burden arising from child maltreatment and other ACEs.
- Comprehensive information systems on types of maltreatment and risk factors should be developed at national level to enable information-sharing between different sectors. Currently, data are collected separately in each sector involved in child protection: a unique database would simplify the registering process and data monitoring and evaluation.
- Existing legislation for the prevention of child maltreatment should be enforced by investing in training staff from different sectors (health, social welfare, justice, police and education), including special protocols for child protection.
- Governance mechanisms should be strengthened to enable intersectoral action for the prevention of child maltreatment and promotion of child health and well-being. An opportunity to achieve this will be presented by the new national strategy on the prevention of violence in children and protection of children from violence when the current one expires in 2015. This should give greater priority to the implementation and evaluation of evidence-based programmes *(92)*.
- Governance mechanisms should be improved to ensure intersectoral working to prevent and respond to child maltreatment.
- Health systems' capacity to implement evidence-informed programmes for the prevention of child maltreatment should be strengthened *(2,90)*.
- Existing programmes that are being implemented (such as home visiting and parenting programmes, UNICEF's School without Violence initiative and life-skill training programmes for children and young people) should be evaluated and improved and/or implemented more widely, as appropriate.
- Further research on evaluating risk factors, causes, consequences, costs and prevention methods effective against child maltreatment should be encouraged.

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ANNEX 1

ACE SURVEY QUESTIONNAIRE – MEN

Put mark in the relevant field or write numbers/letters in provided space. Example: or Month August Year 1994

1.What is your birth date ?

Month_____ Year_____

2. What is your sex?

1 ☐ Male 2 ☐ Female

3. What is your current marital status? Are you now ...

1 ☐ Married
2 ☐ Not married but living together with partner
3 ☐ Never married (*if answered, go to question 5)*
4 ☐ Separated
5 ☐ Divorced
6 ☐ Widowed

4. If married, during what month and year were you first married?

Month_____ Year_____

5. How long have you lived at your current residence?

1 ☐ Less than 6 months
2 ☐ Less than 1 year
3 ☐ Less than 2 years
4 ☐ 2 or more years

6. For most of your childhood, did your family own their home?

1 ☐ Yes
2 ☐ No

7. During your childhood, how many times did you move residences even in the same town?

Number of times:_____

8. Until the beginning of secondary school, you lived in:

1 ☐ Urban area
2 ☐ Rural area

9. How old was your mother when you were born?

Age:_____

10a. How much education does/did your mother have? (Choose one)

1 ☐ No formal schooling
2 ☐ Less than primary school
3 ☐ Primary school completed
4 ☐ Secondary / High school completed
5 ☐ College/University completed
6 ☐ Post graduate degree

10b. How much education does/did your father have? (Choose one)

1 ☐ No formal schooling
2 ☐ Less than primary school
3 ☐ Primary school completed
4 ☐ Secondary / High school completed
5 ☐ College College/university completed
6 ☐ Post graduate degree

11a. Which of the following best describes current employment status of your mother?

1 ☐ Employed (public sector)
2 ☐ Employed (private sector)
3 ☐ Self-employed
4 ☐ Retired
5 ☐ Unemployed (able to work)
6 ☐ Unemployed (unable to work)
7 ☐ Receiving social help
8 ☐ Other, _____
9 ☐ Unknown

11b. Which of the following best describes current employment status of your father?

1 ☐ Employed (public sector)
2 ☐ Employed (private sector)
3 ☐ Self-employed
4 ☐ Retired
5 ☐ Unemployed (able to work)
6 ☐ Unemployed (unable to work)
7 ☐ Receiving social help
8 ☐ Other, _____
9 ☐ Unknown

12. During first 18 years what was material situation of your family?

1 ☐ Very poor
2 ☐ Poor
3 ☐ Average
4 ☐ Good
5 ☐ Very good

13a. How many days of lectures or other regular activity did you miss in the past 30 days due to stress or feeling depressed?

Number of days:_____

13b. How many days of lectures or other regular activity did you miss in the past 30 days due to poor physical health?

Number of days:_____

14a. Have you smoked at least 100 cigarettes in your entire life?

1 ☐ Yes
2 ☐ No

14b. How old were you when you began to smoke cigarettes fairly regularly?

Age:_____

14c. Do you smoke cigarettes now?

1 ☐ Yes
2 ☐ No ⟶ *Go to q15a*

14d. On average, about how many cigarettes a day do you smoke?

Number of cigarettes:_____

15a. Did you used to smoke cigarettes (but do not smoke now)?

1 ☐ Yes
2 ☐ No ⟶ *Go to q16a*

15b. About how many cigarettes a day did you smoke?

Number of cigarettes:_____

15c. How old were you when you quit?

Age:_____

During your first 18 years of life:

16a. Did your father smoke?

1 ☐ Yes, and still does
2 ☐ Yes, but he quit when I was _____years *(your age)*
3 ☐ No

16b. Did your mother smoke?

1 ☐ Yes, and still does
2 ☐ Yes, but she quit when I was _____years *(your age)*
3 ☐ No

17a. During the past month, about how many days per week did you exercise for recreation or to keep in shape?

1 ☐ 0 days
2 ☐ 1 day 65 days
3 ☐ 2 days76 days
4 ☐ 3 days87 days
5 ☐ 4 days

17b. During past month, when you exercised for recreation or to keep in shape how long did you usually exercise (minutes)?

1 ☐ 0 min 5 40-49 min
2 ☐ 1-19 min6 50-59 min
3 ☐ 20-29 min 760 or more min
4 ☐ 30-39 min

18a. What is the most you have ever weighed?

Weight in pounds:_____

18b. How old were you then?

Age:_____

19a. Have you ever drank alcohol (other than few sips)?

1 ☐ Yes

2 ☐ No ⟶ *Go to q22*

19b. How old were you when you had your first drink of alcohol other than a few sips?

Age:_____

19c. During the past month, have you had any beer, wine, wine cooler, cocktails or liquor?

1 ☐ Yes

2 ☐ No ⟶ Go to q 22

19d. During past month, **how many days per week** did you drink any alcoholic beverages on average?

1 ☐ 0 days 54 days

2 ☐ 1 day 65 days

3 ☐ 2 days 76 days

4 ☐ 3 days 87 days

19e. On the days when you drank, about **how many drinks per day** did you have on average?

1 ☐ 1 drink

2 ☐ 2 drinks

3 ☐ 3 drinks in past month

4 ☐ 4 or more drinks

5 ☐ Didn't drink alcohol

19f. Considering all types of alcoholic beverages, how many times during the past month did you have 5 or more drinks on an occasion?

Number of times:_____

19g. During the past month, how many times have you driven when you had perhaps too much drink?

Number of times:_____

20. Have you ever had a problem with your use of alcohol?

1 ☐ Yes

2 ☐ No

21. Have you ever considered yourself to be an alcoholic?

1 ☐ Yes

2 ☐ No

22. During past 30 days, how many times did you ride in a car or other vehicle driven by someone who had been drinking alcohol?

Number of times:_____

23a. During your first 18 years, of life did you live with anyone who was a problem drinker or alcoholic?

1 ☐ Yes

2 ☐ No ⟶ *Go to q24*

***23b. Check all who were**:*

1 ☐ Father

2 ☐ Mother

3 ☐ Brothers

4 ☐ Sisters

5 ☐ Other relatives

6 ☐ Other non-relatives

24. Have you ever been married to someone (or lived together with someone as if you were married) who was a problem drinker or alcoholic?

1 ☐ Yes

2 ☐ No

25a. Have you ever used street drugs?

1 ☐ Yes

2 ☐ No ⟶ *Go to q26*

25b. How old were you the first time you used them?

Age:_____

25c. About how many times have you used street drugs in your life?

1 ☐ 0
2 ☐ 1-2 times
3 ☐ 3-10 times
4 ☐ 11-25 times
5 ☐ 26-99 times
6 ☐ 100 or more times

25d. Have you ever had a problem with your use of street drugs?

1 ☐ Yes
2 ☐ No

25e. Have you ever considered yourself to be addicted to street drugs?

1 ☐ Yes
2 ☐ No

25f. Have you ever injected street drugs?

1 ☐ Yes
2 ☐ No

25g. Have you ever go to rehabilitation?

1 ☐ Yes
2 ☐ No

*(If **yes**, how many times_____)*

26. During your first 18 years of life did you lived with anyone who used street drugs?

1 ☐ Yes
2 ☐ No

During first 18 years of your life:

27a.Were your parents ever separated or divorced?

1 ☐ Yes
2 ☐ No

27b. Did you ever live with a stepfather?

1 ☐ Yes
2 ☐ No

27c. Did you ever live with a stepmother?

1 ☐ Yes
2 ☐ No

28. Did you ever live in a foster home?

1 ☐ Yes
2 ☐ No

29a. Did you ever run away from home for more than one day?

1 ☐ Yes
2 ☐ No

29b. Did any of your brothers or sisters ever run away from home for more then one day?

1 ☐ Yes
2 ☐ No

30. Was anyone in your household depressed or mentally ill?

1 ☐ Yes
2 ☐ No

31. Did anyone in your household attempt to commit suicide?

1 ☐ Yes
2 ☐ No

32. Did anyone in your household ever go to prison?

1 ☐ Yes
2 ☐ No

33. Did anyone in your household ever commit a serious crime?

1 ☐ Yes
2 ☐ No

34a. Have you ever attempt to commit suicide?

1 ☐ Yes
2 ☐ No → *Go to q35a*

34b. How old were you the first time you attempted suicide?

Age:_____

34c. How many times have you attempted suicide?

Number of times: _____

34d. How old were you the last time you attempted suicide?

Age:_____

34e. Did any suicide attempt ever result in an injury, poisoning or overdose that had to be treated by doctor or nurse?

1 ☐ Yes
2 ☐ No

35a. Has a doctor, nurse or other health professional ever asked you about family or household problems during your childhood?

1 ☐ Yes
2 ☐ No

35b. How many close friends or relatives would help you with your emotional problems or feelings if you needed it?

1 ☐ None
2 ☐ 1 person
3 ☐ 2 persons
4 ☐ 3 or more

Sometimes physical blows occur between parents. While you were growing up in **your first 18 years of life**, how often did your father (or stepfather) or mother's boyfriend do any of these things to your mother (or stepmother)?

36a.Push, grab, slap or throw something at her?

1 ☐ Never
2 ☐ Once, twice
3 ☐ Sometimes
4 ☐ Often
5 ☐ Very often

36b. Kick, bite, hit her with a fist, or hit her with something hard?

1 ☐ Never
2 ☐ Once, twice
3 ☐ Sometimes
4 ☐ Often
5 ☐ Very often

36c. Repeatedly hit her over at least a few minutes?

1 ☐ Never
2 ☐ Once, twice
3 ☐ Sometimes
4 ☐ Often
5 ☐ Very often

36d. Threaten her with a knife or gun, or use knife or gun to hurt her?

1 ☐ Never
2 ☐ Once, twice
3 ☐ Sometimes
4 ☐ Often
5 ☐ Very often

While you were growing up in **your first 18 years of life**, how often did your mother (or stepmother) or father's girlfriend do any of these things to your father (or stepfather)?

37a. Push, grab, slap or throw something at him?

1 ☐ Never
2 ☐ Once, twice
3 ☐ Sometimes
4 ☐ Often
5 ☐ Very often

37b. Kick, bite, hit him with a fist, or hit him with something hard?

1 ☐ Never
2 ☐ Once, twice
3 ☐ Sometimes
4 ☐ Often
5 ☐ Very often

37c. Repeatedly hit him over at least a few minutes?

1 ☐ Never
2 ☐ Once, twice
3 ☐ Sometimes
4 ☐ Often
5 ☐ Very often

37 d. Threaten him with a knife or gun, or use knife or gun to hurt him?

1 ☐ Never
2 ☐ Once, twice
3 ☐ Sometimes
4 ☐ Often
5 ☐ Very often

Some parents spank their children as a form of discipline. While you were growing up in* your first 18 years of life*:

38a. How often were you spanked?

1 ☐ Never ⟶ *Go to q39*
2 ☐ Once, twice
3 ☐ A few times a year
4 ☐ Many times a year
5 ☐ Weekly or more

38b. How severely were you spanked?

1 ☐ Not hard
2 ☐ A Little hard
3 ☐ Medium
4 ☐ Quite hard
5 ☐ Very hard

38c. How old were you the last time you remember being spanked?

Age:_____

While you were growing up in your first 18 years of life, how true were each of the following statements:*(Q39-53)*

39. You didn't have enough to eat.

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

40. You knew there was someone to take care of you and protect you.

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

41. People in your family called you things like "lazy" or "ugly".

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

42. Your parents were too drunk or high to take care of the family.

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

43. There was someone in your family who helped you feel important or special.

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

44. You had to wear dirty clothes.

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

45. You felt loved.

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

46. You thought your parents wished you had never been born.

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

47. People in your family looked out for each other.

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

48. You felt that someone in your family hated you.

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

49. People in your family said hurtful or insulting things to you.

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

50. People in your family felt close to each other.

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

51. You believe you were emotionally abused.

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

52. There was someone to take you to the doctor if you needed it..

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

53. Family was a source of strength and support.

1 ☐ Never true
2 ☐ Rarely true
3 ☐ Sometimes true
4 ☐ Often true
5 ☐ Very often true

Sometimes parents or other adults hurt children. While you were growing up, that is, during your first 18 years of life, how often did a parent, stepparent or adult living in your home:

54a. Swear at you, insult you, or put you down?

1 ☐ Never
2 ☐ Once, twice
3 ☐ Sometimes
4 ☐ Often
5 ☐ Very often

54b. Threaten to hit you or throw something at you, but didn't do it?

1 ☐ Never
2 ☐ Once, twice
3 ☐ Sometimes
4 ☐ Often
5 ☐ Very often

54c. Actually push, grab, shove, slap or throw something at you?

1 ☐ Never
2 ☐ Once, twice
3 ☐ Sometimes
4 ☐ Often
5 ☐ Very often

54d. Hit you so hard that you had marks or were injured?

1 ☐ Never
2 ☐ Once, twice
3 ☐ Sometimes
4 ☐ Often
5 ☐ Very often

54e. Act in a way that made you afraid that you might be physically hurt?

1 ☐ Never
2 ☐ Once, twice
3 ☐ Sometimes
4 ☐ Often
5 ☐ Very often

Before you start answering questions in the table, please read following carefully:

Some people, while growing up in their first 18 years of life, had a sexual experience with an adult or someone at least five years older then themselves. These experiences may have involved a relative, family friend or stranger. During first 18 years of life, did an adult or older relative, family friend, or stranger ever:

ALL questions from FHH men- Q59a-Q62a) except section h (added by us)	c)The first time this happened, how old were you?	c) The first time, did this happened against your wishes?	d) The last time this happened how old were you?	e) About how many times did this happened to you?	f) Ho many different people did this to you?	g) What was sex of the person(s) who did it ?	h) How old was person(s) who did it?
55a. Touch or fondle your body in sexual way ? 1 ☐ Yes 2 ☐ No If " yes"	_____ age	1 ☐ Yes 2 ☐ No	_____ age	_____ times	_____ people	1 ☐ Male 2 ☐ Female 3 ☐ Both	_____ age
56a. Have you touch their body in a sexual way? 1 ☐ Yes 2 ☐ No If " yes"	_____ age	1 ☐ Yes 2 ☐ No	_____ age	_____ times	_____ people	1 ☐ Male 2 ☐ Female 3 ☐ Both	_____ age
57a. Attempt to have any type of sexual intercourse (oral,anal,or vaginal) with you? 1 ☐ Yes 2 ☐ No If " yes"	_____ age	1 ☐ Yes 2 ☐ No	_____ age	_____ times	_____ people	1 ☐ Male 2 ☐ Female 3 ☐ Both	_____ age
58a. Actually have any type of sexual intercourse (oral,anal,or vaginal) with you? 1 ☐ Yes 2 ☐ No If " yes"	_____ age	1 ☐ Yes 2 ☐ No	_____ age	_____ times	_____ people	1 ☐ Male 2 ☐ Female 3 ☐ Both	_____ age
If you answered "NO"to each of the last 4 questions (55a-58a) about sexual experiences with older persons, please skip to Q 62a							

Did any of these sexual experiences with an adult or person at least 5 years older than you involve:

59a.A relative who lived in your home?

1 ☐ Yes
2 ☐ No

59b. A non-relative who lived in your home?

1 ☐ Yes
2 ☐ No

59c. A relative who didn't live in your home?

1 ☐ Yes
2 ☐ No

59d. A family friend or person whom you knew and who didn't live in your home?

1 ☐ Yes
2 ☐ No

59e. A stranger?

1 ☐ Yes
2 ☐ No

59f. Someone who was supposed to be taking care of you?

1 ☐ Yes
2 ☐ No

59g. Someone you trusted?

1 ☐ Yes
2 ☐ No

Did any of these sexual experiences involve:

60a. Trickery, verbal persuasion, or pressure to get you participate?

1 ☐ Yes
2 ☐ No

60b. Being given alcohol or drugs?

1 ☐ Yes
2 ☐ No

60c. Threats to harm you if you didn't participate?

1 ☐ Yes
2 ☐ No

60d. Being physically forced or overpowered to make you participate?

1 ☐ Yes
2 ☐ No

61a. Have you ever told a doctor, nurse or other health professional about these sexual experiences?

1 ☐ Yes
2 ☐ No

61b. Has a therapist or counsellor ever suggested to you that you were sexually abused as s child?

1 ☐ Yes
2 ☐ No

Apart from other sexual experiences you have already told us about, while you were growing up during your first 18 years of life:

62a. Did a boy or group of boys about your own age ever force you or threaten you with harm in order to have sexual contact:

1 ☐ Yes
2 ☐ No *Go* ⟶ *to Q63*

62b. If "YES "did the contact involve someone touching your sexual parts or trying to have intercourse with you (oral or anal)?

1 ☐ Yes
2 ☐ No

62c. If "YES" how many times did someone do this to you?

1 ☐ Once
2 ☐ Twice
3 ☐ 3-5 times
4 ☐ 6-10 times
5 ☐ More than 10 times

62d. Did the contact involve a person actually having intercourse with you (oral or anal)

1 ☐ Yes
2 ☐ No ⟶ *Go to Q63*

62e. If "YES" how many times did someone do this to you?

1 ☐ Once
2 ☐ Twice
3 ☐ 3-5 times
4 ☐ 6-10 times
5 ☐ More than 10 times

63. Do you think that you were sexually abused as a child?

1 ☐ Yes
2 ☐ No

64a. Have you ever been under the care of psychologist, psychiatrist, or therapist?

1 ☐ Yes
2 ☐ No ⟶ *Go to Q65a*

64b. For what reason did you undergo therapy?

1 ☐ Physical violence
2 ☐ Sexual abuse
3 ☐ Emotional abuse
4 ☐ Alcohol abuse
5 ☐ Drugs abuse
6 ☐ Other_____

These next questions are about BEING BULLIED when you were growing up. Bullying is when a young person or group of young people say or do bad and unpleasant things to another young person. It is also bullying when a young person is teased an lot in an unpleasant way or when a young person is left out of things in purpose. It is not bullying when two young people of about the same strengths or power argue of fight or when teasing is done in a friendly and fun way. When you were growing up, during the first 18 years of your life...

65a. How often were you bullied?

1 ☐ Never → *Go to q 66*
2 ☐ Once
3 ☐ A few times
4 ☐ Many times

65b. How were you bullied most often?

1 ☐ I was hit, kicked, pushed, shoved around, or locked indoors
2 ☐ I was made fun of because of my nationality/ethnic characteristics
3 ☐ I was made fun of because of my religion
4 ☐ I was made fun of with sexual jokes, comments, or gestures
5 ☐ I was bullied with explicit sexual harassment and threats that I will get hurt if I do not except sexual contact
6 ☐ I was left out of activities on purpose or completely ignored
7 ☐ I was made fun of because of how my body or face looked
8 ☐ I was bullied electronically (through phone messages, e-mails, social networks)
9 ☐ I was bullied in some other way _____

66. How often were you in a physical fight ? (A physical fight occurs when two young people of about the same strength or power choose to fight each other.)

1 ☐ Never 3 A few times
2 ☐ Once 4 Many times

These next questions are about witnessing community violence, about how often, when you were child, you may have seen or heard certain things in your NEIGHBOURHOOD OR COMMUNITY (not in your home, or on TV, movies, on the radio)

When you were growing up, during the first 18 years of your life (excluding news, papers, internet, radio, TV, talks of other people)

67a. Did you see or hear someone being beaten up in real life?

1 ☐ Never
2 ☐ Once
3 ☐ A few times
4 ☐ Many times

67b. Did you see or hear someone being stabbed or shot in real life?

1 ☐ Never
2 ☐ Once
3 ☐ A few times
4 ☐ Many times

67c. Did you see or hear someone being threatened with a knife or gun in real life?

1 ☐ Never
2 ☐ Once
3 ☐ A few times
4 ☐ Many times

These questions are about whether YOU did or did not experience any of the following events when you were a child. The events are all to do with collective violence, including wars, terrorism, political or ethnic conflicts, genocide, repression, disappearances, torture and organized violent crime such as banditry and gang warfare.

When you were growing up, during the first 18 years of your life...

68a.Were you forced to go and live in another place due to any of these events?

1 ☐ Never
2 ☐ Once
3 ☐ A few times
4 ☐ Many times

68b. Did you experience the deliberate destruction of your home due to any of these events?

1 ☐ Never
2 ☐ Once
3 ☐ A few times
4 ☐ Many times

68c. Were you beaten up by soldiers, police, militia, or gangs?

1 ☐ Never
2 ☐ Once
3 ☐ A few times
4 ☐ Many times

68d. Was a family member or friend killed or beaten by soldiers, police, militia, or gangs?

1 ☐ Never
2 ☐ Once
3 ☐ A few times
4 ☐ Many times

Sometimes subjective experience is not consistent with the events that actually occurred. Therefore we ask you to answer the following questions.

69a. Do you think that you were emotionally abused as a child?

1 ☐ Yes
2 ☐ No ⟶ *Go to q70a*

69b. Who emotionally abused you?

1 ☐ Mother/Father
2 ☐ Other family member
3 ☐ Peers
4 ☐ Partner
5 ☐ Other _____

70a. Do you think that you were physically abused as a child?

1 ☐ Yes
2 ☐ No ⟶ *Go to q71a*

70b. Who physically abused you?

1 ☐ Mother/Father
2 ☐ Other family member
3 ☐ Peers
4 ☐ Partner
5 ☐ Other _____

It happens that people during puberty make some thoughtlessness or create an incident for which they later regret. Following two questions will be about these situations. We ask you to answer the following questions and do it sincerely, because you will not suffer any consequences and your answers will be of great use in the study.

71a. Did it happen that you do next things to somebody: *(mark one or both answers)*

1 ☐ Emotionally harass (insult, humiliate)
2 ☐ Beat

71b. Who suffered those things?

1 ☐ Brother/sister
2 ☐ Parents
3 ☐ Other family members
4 ☐ Peers
5 ☐ Partner
6 ☐ Unknown people

The next questions are about voluntary sexual experiences only

72a. Have you ever had sexual intercourse ?

1 ☐ Yes
2 ☐ No

please, go to the section about injuries (next page)

72b. How old were you the first time you had sexual intercourse?

Age:_____

72c. With how many different partners have you ever had sexual intercourse?

Number of partners:_____

72d. During the past year, with how many different partners have you had sexual intercourse?

Number of partners:_____

72e. Have you ever gotten someone pregnant?

1 ☐ Yes

2 ☐ No

Please, go to the section about injuries (next page)

72f. How old were you the first time you got someone pregnant?

Age:_____

72g. What was the age of the youngest woman you ever got pregnant?

Age:_____

72h. How old were you then?

Age:_____

ANNEX 2

ACE SURVEY QUESTIONNAIRE – WOMEN

This is the same as men's questionnaire until question 72.

The next questions are about voluntary sexual experiences only

72a. Have you ever had sexual intercourse ?

1 ☐ Yes
2 ☐ No

Please, go to the section about injuries (next page)

72b. How old were you the first time you had sexual intercourse?

Age:_____

72c. With how many different partners have you ever had sexual intercourse?

Number of partners:_____

72d. During the past year, with how many different partners have you had sexual intercourse?

Number of partners:_____

73. Are you pregnant now?

1 ☐ Yes
2 ☐ No

74a. Have you ever been pregnant?

1 ☐ Yes
2 ☐ No

Please, go to the section about injuries (next page)

74b. How many times have you been pregnant?

Number:_____

74c. How many of these pregnancies resulted in the birth of a child?

Number:_____

75a. How old were you the first time you became pregnant?

Age:_____

75b. The first time you became pregnant how old was the person who got you pregnant?

Age: ____

75c. When your first pregnancy began did you intend to get pregnant at that time in your life?

1 ☐ Yes
2 ☐ No
3 ☐ Didn't care

75d. During what month and year did your first pregnancy end?

*Month:*_____ *Year:*_____

75e. How did your first pregnancy end?

1 ☐ Live birth(s)
2 ☐ Stillbirth/miscarriage
3 ☐ Tubal or ectopic pregnancy
4 ☐ Elective abortion
5 ☐ Other_____

76a. Were you pregnant second time?

1 ☐ Yes
2 ☐ No

Please, go to the section about injuries (next page)

76b. When your second pregnancy began did you intend to get pregnant at that time in your life?

1 ☐ Yes
2 ☐ No
3 ☐ Didn't care

76c. During what month and year did your second pregnancy end?

*Month:*_____ *Year:*_____

6d. How did your second pregnancy end?

1 ☐ Live birth(s)
2 ☐ Stillbirth/miscarriage
3 ☐ Tubal or ectopic pregnancy
4 ☐ Elective abortion
5 ☐ Other_____

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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Survey of adverse childhood experiences among Serbian university students

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