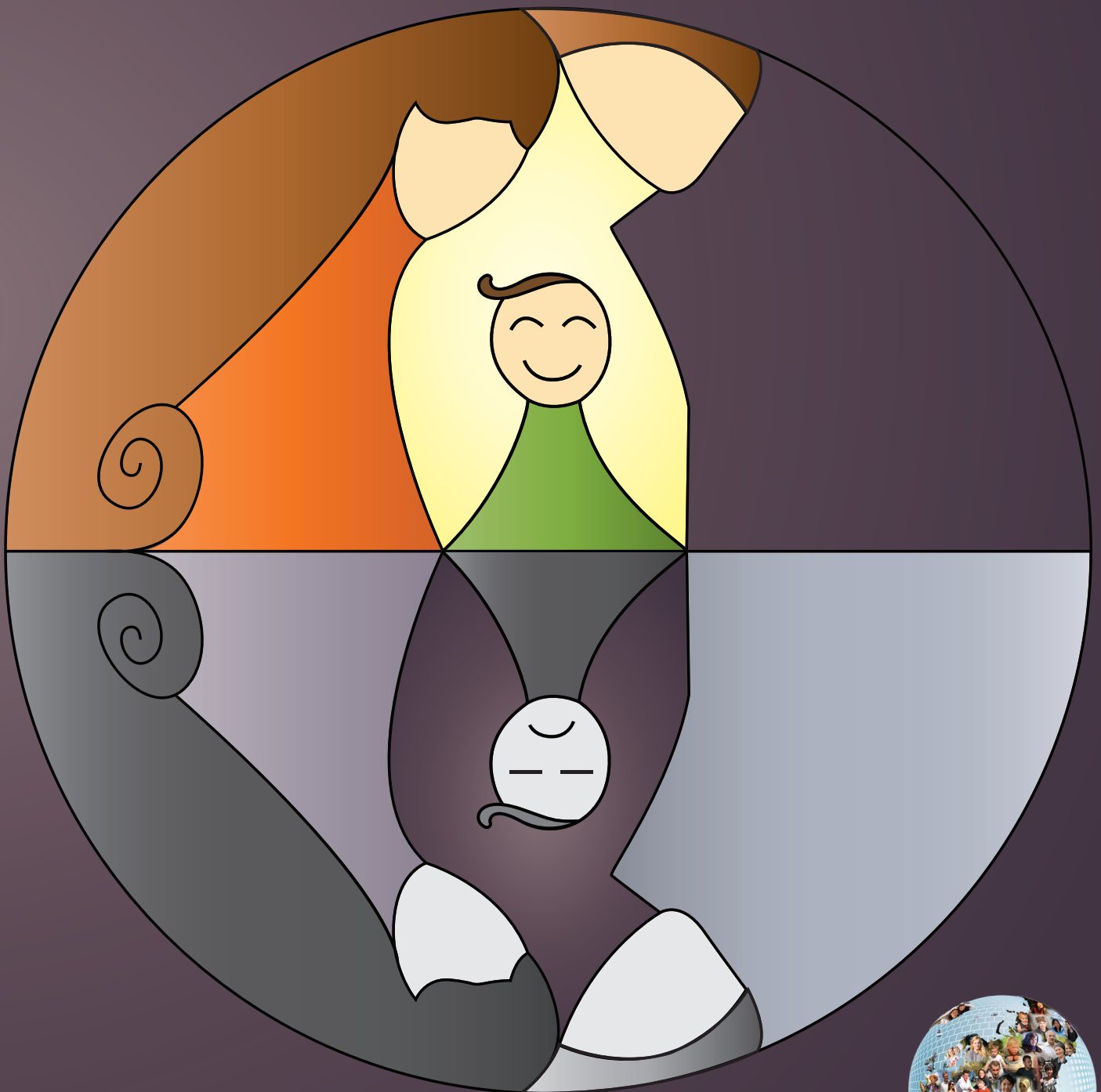




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Survey on Adverse Childhood Experiences in Montenegro



SURVEY ON ADVERSE CHILDHOOD EXPERIENCES IN MONTENEGRO

National Survey Report

By: the Institute of Public Health of Montenegro

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ABSTRACT

The Survey on Adverse Childhood Experiences in Montenegro included a representative sample of first-year university students (n = 1 600) in Montenegro from seven cities. The survey took into account the gender distribution of students [833 females (53.2%) and 732 (46.8%) males, whose mean age (\pm SD) is 19.9 ± 1.9 years]. The survey aimed to estimate the prevalence of child maltreatment and other adverse childhood experiences (ACEs), the characteristics of health-risk behaviours and to explore the associations between ACEs and health-risk behaviours. Results showed that the most commonly reported ACEs were emotional abuse (30.4%) and emotional neglect (27%). Males were more emotionally neglected (38% of all males) than females (18.1% of all females). Physical abuse was reported by 24.3% of the respondents, sexual abuse 3.9%, while physical neglect was reported by 18.8%. As for household dysfunction, witnessing the mother being treated violently (24%) and alcohol misuse (11.9%) in the family were the most common. The most common health-risk behaviours reported were smoking, risky sexual behaviour (more than three lifetime sexual partners) and alcohol and drug abuse. The study shows a strong-graded incremental response between the number of ACEs and the likelihood of harmful alcohol and drug abuse, multiple sexual partners, smoking and attempted suicide. These results show that there is a need for a strategy for the prevention of child maltreatment and other ACEs.

Keywords

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EXECUTIVE SUMMARY

This survey of adverse childhood experiences in Montenegro was conducted between October and December 2012 in a representative sample of first year university students ($N = 1\,600$, 98% response rate) selected from all universities in Montenegro [732 males (46.8%) and 833 females (53.2%), mean age (\pm SD) 19.9 ± 1.9 years]. The survey studied the prevalence and characteristics of various risky behaviours (sexual experiences, early pregnancies, substance abuse); exposure to various forms of adverse childhood experiences in the first 18 years of life – including child abuse and neglect, domestic violence and family dysfunction; and to test the associations between adverse childhood experiences and health-risk behaviours.

The main findings of the survey are presented below:

- *Behavioural and lifestyle factors:* The prevalence of current smoking was 22.6% in males and 14.8% in females; the prevalence of alcohol drinking problem was significantly higher for males than females (12.4% vs. 5.0%, respectively; $P < 0.001$). Despite this, only 4.5% of males and 2.7% of females had ever considered themselves to be alcoholics. A statistically significant difference was found in the prevalence of use of street drugs in males vs. females (19.1% vs. 3.7%, respectively, $P < 0.001$), and in relation to this, the percentage of males and females that had ever had a problem with use of street drugs was 13.4% vs. 10.3%, respectively. The percentage of students who had ever attempted to commit suicide was similar among males and females and the small gender imbalance was not statistically significant (3.3% vs. 3.1%). The prevalence of early sexual intercourse (< 16 years) was 51.2% for males and 15.2% for females, with a statistically significant difference in relation to gender ($P < 0.001$).
- *Sexual experiences:* The prevalence of lifetime sexual intercourse was significantly higher for males compared to females (80.0% vs. 35.7%, respectively; $P < 0.001$). The mean number of lifetime sexual partners was significantly higher for males compared to females (5.0 vs. 1.0, respectively; $P < 0.001$). There was statistically a difference between males and females with regard to having more than three different sexual partners (58.3% vs. 9.0%, respectively; $P < 0.001$). Among female students who have ever had sexual intercourse, 5.9% were pregnant at some point in their life, while 25% of those pregnancies were unplanned at that time. The percentage of pregnancies at an early age (< 19 years) was 58%.
- *Association of lifestyle/behavioural factors with demographic and socioeconomic characteristics of the students and their parents:* There was a highly significant association of current smoking also with age. Age and the mother's education were associated with drinking problems. The prevalence in the abuse of drugs was highly significantly associated with the age of the students, along with the mother's educational status. The mother's employment status was found to be related to the use of street drugs in students. Naturally, age was strongly and positively associated with sexual intercourse. There was a statistical relationship with the mother's employment status, whereas the father's employment was not associated with students' sexual intercourse. There was no association between the age of students and suicide attempts and this was also the case with parental education and employment status, and attempted suicide among students, with the father's unemployment being a highly significant predictor of suicide attempts.
- *Prevalence of child maltreatment*

Physical abuse

Physical abuse was experienced by almost one-quarter of all students (24.3%). They were exposed to different forms of physical abuse while they were children, meaning that they were spanked, pushed, grabbed or had something thrown at them, or had marks or were injured.

Sexual abuse

Contrary to the majority of studies showing that females are more prone to sexual abuse than males, our study showed that sexual abuse was reported by 3.9% of all respondents, among whom 6.8% were males and 1.5% were females, and gender differences were statistically significant ($P < 0.001$).

Emotional abuse

The most common adverse childhood event reported in a survey was emotional abuse (30.4%), indicating that almost one-third of respondents during their childhood were afraid that they might be physically hurt, were sworn at or insulted.

Emotional neglect

Emotional neglect was reported by 27% of respondents in the study. Of those emotionally neglected, 38% were males, and 18.1% were females and gender differences were statistically significant ($P < 0.001$).

Physical neglect

As for physical neglect, this type of maltreatment was reported by 18.8% of all respondents, from which 23.9% were male, and 14.4% were female and gender differences were statistically significant ($P < 0.001$).

- *Associations between ACEs and demographics:* In the present study physical abuse is highly associated with the level of the father's education, while emotional abuse is related to the father's education as well as the gender of the respondents. In addition, sexual abuse was associated with gender, indicating four times as high a risk for males as opposed to females. Physical neglect is associated with gender, age, a lower level of parental education, as well as whether a parent is unemployed. Emotional neglect was found to be related to a lower education of the mother and the gender of the respondents, showing more than twice as high a risk for boys. Contrary to the majority of studies exploring sexual abuse, this study showed a different pattern. Sexual abuse was reported to be associated with gender, but, surprisingly showed four times as high a risk for males compared to females. This reversed pattern may suggest underreporting of sexual abuse among girls due to cultural stereotypes (not revealing sexual abuse), as well as misinterpretation of the question (the perpetrator being five or more years older).

- *Associations between ACEs and health-risk behaviours:* Results showed that smoking was common among individuals who had been physically abused. In addition, those who were physically abused were more than three times as likely to use drugs, and more than eight times as likely to attempt suicide. Those individuals who witnessed alcohol abuse in the family were more likely to have an alcohol problem themselves, increasing the odds by almost two-and-a-half times. Having a family member who had mental illness increased the likelihood of drug abuse and suicide attempts. Those respondents who experienced emotional neglect, alcohol abuse in the family or witnessed the mother being treated violently, were more likely to engage in risky sexual behaviour (having multiple partners). In particular, those who experienced several types of adverse childhood experiences (such as physical abuse, mental illness or drug abuse in the family) are at greater risk of attempting suicide. Moreover, parental divorce or separation is shown to be associated with all of the abovementioned health-risk behaviours, increasing the odds of attempted suicide more than eight-fold, and with a more than two-fold increased likelihood of the manifestation of other risky behaviours. Having a family member who either used illicit drugs or had a mental illness, increased the odds of several risky behaviours. Those who lived with a family member who used illicit drugs had nine times as high odds of attempting suicide, while those who lived with a mentally ill family member were more than twice as likely to be drug users and 16 times as likely to have attempted to commit suicide.
- *Association between ACE count and health-risk behaviours:* In general, there was relatively strong graded association between health-risk behaviours and the number of adverse childhood experiences. When compared to students who reported experiencing no ACEs, those who experienced four or more ACEs, had 2.7 times as high a likelihood of smoking, 10 times as high a likelihood of alcohol and illicit drug use, twice as high a likelihood of multiple sexual partners and 138 times as high a likelihood of attempted suicide. This graded response strongly suggests that ACEs cause health-harming behaviours.

Results from this survey are, in general, comparable with reports from the region, including the former Yugoslav Republic of Macedonia and Albania. Violence against children occurs in all countries of the world in various forms and environments, and it is often deeply rooted in the cultural, social and economic milieu of the community. Therefore, this survey provides a global insight into the magnitude and main determinants of adverse childhood experiences in Montenegro. In these terms, it is an important message for policy makers in Montenegro who should be aware of the burden of illness related to adverse childhood experiences and the resulting health-risk behaviour of young adults. Finally, there is an urgent need to implement and monitor existing national strategies on violence prevention, as well as to develop a national action plan for child maltreatment prevention in collaboration with all stakeholders (governmental and nongovernmental actors and organizations). The national action plan should include objectives, priorities, a timetable and mechanism of monitoring and evaluation.

1. Introduction

The survey on adverse experiences of young people in Montenegro is a result of cooperation between the Ministry of Health of Montenegro, World Health Organization and the Institute of Public Health of Montenegro, as a part of the UN Integrated programme and the biennial collaborative agreement with WHO. It was conducted to acquire specific knowledge on different adverse experiences during childhood, such as exposure to family physical and psychological violence, sexual violence and abuse, peer violence, community and collective violence, as well as on their associations with health-risk behaviours.

The personality of an individual develops during childhood; hence child abuse and neglect, as a form of traumatism, seriously impair regular development. Although resilient children manage to develop as healthy and socially adapted individuals despite adverse childhood experiences [1-4], numerous surveys indicate that family violence has indisputable negative consequences for the physical, mental and social development of children, and that it is associated with difficulties in psychological functioning, behavioural problems, depression and weaker social competences [5-11].

Violence towards children varies with their age, developmental status and the existence of and level of interaction with the environment [12]. Thus, younger children tend to be more exposed to domestic violence, but as they grow up and spend more time away from home and the family environment, the likelihood that they will be exposed to violence in the broader social environment increases.

1.1. Conceptual definitions of child maltreatment

Child maltreatment is a form of adverse childhood experience (ACE). Children may experience one or more adverse childhood experiences, including emotional, physical and sexual abuse, or physical and emotional neglect. Adverse childhood experiences can be caused by a dysfunctional family: alcohol or drug abuse, mental illness of family members, violent treatment of the mother, parental separation or divorce, or imprisonment of a family member. But also a dysfunctional household is considered to be also an adverse childhood experience.

Child abuse is defined as: “all forms of physical and/or emotional maltreatment, sexual abuse, neglect or negligent treatment, or other economic exploitation, which causes an actual or potential harm to the child’s health, survival, development or dignity in the context of relations responsibility, trust or power” [13].

As stated in the WHO documents (World Report on Violence and Health and Report of the Consultation on Child Abuse Prevention) [13,14] there are four different types of child abuse:

- physical abuse;
- emotional and psychological abuse;
- sexual abuse; and
- child neglect.

1.1.1. Physical abuse of a child

Physical abuse of a child is defined as the intentional use of force against a child that results in – or has a high likelihood of resulting in – harm to the child’s health, survival, development or dignity. This includes hitting, beating, kicking, shaking, biting, strangling, scalding, burning, poisoning and suffocating. Physical violence against children in the home is very often inflicted with the object of punishment.

1.1.2. Emotional and psychological abuse

Emotional and psychological abuse involves both isolated incidents, as well as 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 its physical, mental, spiritual, moral or social development. Abuse of this type includes: restrictions of movement; patterns of belittling, blaming, threatening, frightening, discriminating against or ridiculing; and other non-physical forms of rejection or hostile treatment.

1.1.3. Sexual abuse

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

1.1.4. Child neglect

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

As stated earlier, the impact of child abuse and neglect is discussed in the light of physical, psychological, behavioural and societal consequences. Still, in reality, these consequences cannot be completely separated. Child abuse and neglect can also lead to impaired brain development with long-term consequences to cognitive, verbal and abstract abilities.

In recent years there has been a growing amount of research into early brain development, including the effects of maltreatment on the developing brain during infancy and early childhood, which has started to provide clear indications that the brain’s development can be physiologically altered by prolonged, severe or unpredictable stress – including abuse during early childhood. Such changes in the development of the brain can conversely have a negative impact on the child’s physical, cognitive, emotional and social development. Studies have shown that if stimulation and nurture are lacking, for example, if the parents or caregivers are not affectionate towards or interested in the child, the development of the child’s brain may be impaired. Since the brain is adapting to its environment, it will adapt to a negative environment just as easily as to a positive one. The brain of a child who experiences stress, for instance in the form of physical or sexual abuse or chronic neglect, will focus its resources on survival and reaction to environmental threats. Such chronic stimulation of the brain’s response to fear means that specific

regions of the brain will frequently be activated; hence these regions will probably be overdeveloped at the expense of other regions that cannot be activated at the same time. The final consequence may be that regions of the brain that are not connected to the fear response are not “available” to the child for cognitive functions.

The effects of experiences on brain development during infancy and early childhood create the basis for expression of intelligence, emotions and personality. When these early experiences are primarily negative, children may develop emotional, behavioural and learning problems that persist throughout their lifetime, especially if targeted interventions are lacking. Children who experienced chronic abuse and neglect during their early years may live in a persistent state of hyper-arousal or dissociation, anticipating a threat from all directions. Their ability to benefit from social, emotional and cognitive experiences may be impaired. Children who have not developed healthy attachments with their caregivers and whose early emotional experiences, through their impact on the brain, have not created the necessary groundwork for positive emotional development may have a limited capacity for empathy. The ability to feel remorse and empathy are developed based on experience, and, in extreme cases, if a child feels no emotional attachment to any human being, that child cannot be expected to feel remorse for any criminal act.

There is some evidence that, where maltreatment has already occurred, an intensive, early intervention can help minimize the long-term effects of this trauma on brain development. Still, while such early intervention with maltreated children can minimize the effects of abuse and neglect, it is much more beneficial to prevent maltreatment before it occurs, that is, to act so that it does not occur at all [15].

So, child maltreatment contributes to a large spectrum of negative physical and psychological health outcomes. Physical consequences, such as brain impairment, may have psychological implications. Psychological problems are often acted out as high-risk behaviour. Depression and anxiety can enhance the likelihood that a person will smoke, abuse alcohol or drugs or eat excessively. High-risk behaviours can in turn lead to long-term physical health problems such as sexually transmitted diseases, cancer or obesity.

Still, it is necessary to point out that not all abused and neglected children will suffer long-term consequences. The outcomes of individual cases will be varied and will differ, influenced by combination of several factors, including:

- the child’s age and developmental status at the time of abuse or neglect,
- type of maltreatment (physical abuse, neglect, sexual abuse, etc.),
- frequency, duration and severity of maltreatment,
- relationship between the victim and the abuser.

Researchers also have begun to explore why, given similar conditions, some children experience long-term consequences of abuse and neglect while others emerge relatively unscathed. The ability to cope, and even thrive, following a negative experience is often referred to as “resilience”. It is important to note that resilience is not an inherent trait in children but results from a mixture of both risk and protective factors that cause a child’s positive or negative reaction to adverse experiences. A number of protective and promotional factors – individually, within a family, or within a community – may contribute to an abused or neglected child’s resilience. These include positive attachment, self-esteem, intelligence, emotion regulation, humour, and independence [16].

1.2. The scale of the problem

Child maltreatment – the physical, sexual and emotional abuse, exploitation and neglect of children – has been shown through the World report on violence and health (WHO, 2002) and the UN Secretary-General's Study on violence against children (2006) to be widely prevalent in all societies [14,15].

There is a great deal of uncertainty around estimates of the frequency and severity of child maltreatment worldwide. Furthermore, much violence against children remains largely hidden and unreported because of fear and stigma and the societal acceptance of this type of violence.

Violence against children occurs in all countries of the world in various forms and environments, and it is often deeply rooted in the cultural, social and economic milieu of the community. Corporal punishment and other cruel or degrading forms of punishment are habitually used by parents and other family members at home, by persons responsible for child care in institutions, by teachers in educational system, or by the peers. In the community, homeless or poorly socialized children can be physically assaulted or otherwise abused. Children forced into prostitution often describe violent actions by clients. Sexual abuse, physical and psychological abuse, and sexual harassment also occur in all environments [12,17].

Infants and preschool children are at the greatest risk of fatal maltreatment as a result of their dependency, vulnerability and relative social invisibility. Their cases are least likely to come to the attention of those who are in a position to monitor their care and safety and who are not family members or caregivers. The risk of fatal abuse is two to three times as high in low-income and middle-income countries than it is in high-income countries. It is also greater in societies with large economic inequalities than in those where wealth is more evenly distributed. The most common cause of death is head injury, followed by abdominal injuries and intentional suffocation. While it is not possible to specify the proportion of child homicides that are committed by parents and other family members, special studies conducted in mainly high-income countries suggest that members of the family are responsible for the majority of homicides in children aged 0–14 years [15].

In children, the consequences of violence can vary widely. Physical injuries and, in extreme cases, death are direct consequences. The WHO estimates of child homicide suggest that infants and very young children are at greatest risk, with rates for the 0–4 year age group about double those for 5–14-year-olds as a result of their dependency and vulnerability.

WHO has estimated that every year there are 31 000 homicide-related deaths in children under the age of 15 (WHO, 2010). In their 2006 report, WHO estimated that violence-related deaths were almost twice as high in low-income countries (2.58/100 000) than in high-income countries (1.21/100 000) (WHO, 2006) [17,18].

Young children are at greater risk of being killed as a result of child abuse than adolescents, who are most commonly killed during episodes of interpersonal violence. Although a large proportion of child homicide deaths result from child abuse, many are thought to be under-detected in routine surveillance systems, largely owing to underreporting and concealment. Only one-third of all child deaths resulting from child abuse are classified as homicides. Children in the first year of life are the most vulnerable to becoming victims of homicide, including maternal infanticide [19].

According to the estimates of WHO's Global Burden of Disease in 2008, 5.1 million people worldwide died as a result of injuries and violence. This accounts for around 9% of the world's deaths and 27% of all deaths among children aged 5–14 years. Among children under 5 years of age, injuries are the leading cause of death after the first birthday. In addition to the deaths, tens of millions of children require hospital care for non-fatal injuries. Many are left with some form of disability, often with lifelong consequences. The majority of injury-related deaths are unintentional or “accidental” – 3.6 million or 6.4% – and intentional injuries account for almost 1.5 million or 2.7%. Suicide is the leading cause of death from violence-related injuries (15%), followed by homicide – 10%. [20,21] Globally, 90% of injury-related deaths occur in low- and middle-income countries. Although unintentional injury is a major contributor to mortality worldwide, the burden is unequally distributed between low- and middle-income countries and high-income countries. The mortality rate from unintentional injuries in low- and middle-income countries is almost double the rate found in high-income countries [21–24].

According to the data from UNICEF 2010 (Child disciplinary practices at home: evidence from a range of low- and middle-income countries) [25] violence against children within the family is one of the most common forms of child maltreatment.

In high-income countries, the annual prevalence of physical abuse ranges from 4% to 16%, and approximately 10% of children are neglected or emotionally abused. During childhood, between 5% and 10% of girls and up to 5% of boys are exposed to penetrative sexual abuse, and up to three times this number are exposed to any type of sexual abuse. However, official rates for substantiated child maltreatment indicate less than a tenth of this burden. [19,26]. Eighty percent of this maltreatment is perpetrated by parents or parental guardians, and poverty, mental health problems, low educational achievement, alcohol and drug abuse, having been maltreated oneself as a child, and family breakdown or violence between other family members are all important risk factors for parents abusing their children [15,26]. Population-based studies from developing countries show much higher prevalence rates of physical abuse. Little attention has been devoted to psychological abuse as compared with physical abuse, although it is known that this type of abuse may have serious health (for example, mental disorders) and social (for example, alcohol and drug abuse, poor school performance) consequences. The prevalence of psychological abuse varied substantially across countries (~10% in some developed countries and 12–33% in Eastern European countries) [27].

Exposure to multiple types and repeated episodes of maltreatment is associated with increased risks of severe maltreatment and psychological consequences. Child maltreatment substantially contributes to child mortality and morbidity and can have profound and damaging consequences during childhood and adolescence and throughout adult life. Children who have experienced abuse or neglect are more likely to have: poorer physical and/or mental health outcomes; social difficulties, such as insecure attachments with caregivers and problematic relationships with peers, and as adults later in life; cognitive dysfunction, attributable to the negative impact of excessive stress on brain development. Psychological problems often manifest themselves as high-risk behaviours. Depression and anxiety, for example, may make a person more likely to smoke, abuse alcohol or drugs, or overeat. High-risk behaviours, in turn, can lead to long-term physical health problems, such as sexually transmitted diseases, cancer, and obesity [16]. The high burden and serious and long-term consequences of child maltreatment warrant increased investment in preventive and therapeutic strategies from early childhood.

1.3. Evidence from Montenegro

The study on family violence and violence against women conducted during November 2011 showed that 13.1% of respondents aged ≥ 18 were exposed to some kind of family violence [28]. The study was carried out on a representative sample of 1 103 respondents in 17 Montenegrin municipalities. The most common forms of violence are humiliation and insults (29%) and slapping, kicking and pushing (23%). The study showed that every fourth respondent, predominantly male, aged 18–30 and 51–60 believes that in some situation the victims could be responsible for the violence and that the physical violence was justified.

In the Montenegro Indicator Cluster Survey (MICS) 2005, every tenth women believes that being beaten by her husband is justified if she neglects the children, goes out without telling him, argues with him, burns the food or refuses sex with him [29]. Almost 23% of the poorest and 16% of women with primary school education or less believe the same. Physical, as well as psychological, punishment is the most common way of disciplining children age 2–14 years. Although only 5% of mothers/caregivers believed that children should be physically punished, 61% of children aged 2–14 years were subjected to at least one form of psychological or physical punishment by a member of the family.

According to the results of the National Health Survey from 2008, 1.6% of young people aged 12–19 answered that they had been exposed to physical violence within the family in the last 12 months; 3% of them had been subjected to peer violence in schools, and 4% in the street [30]. Similar results were gained in the area of psychological harassment (insults, humiliation, belittling, mocking, blackmail etc.) – 2.3% of young people were exposed to psychological violence within the family, 4% in the school and 4.2% in the street. As many as 11.2% of participants answered that they participated in physical fights that they had initiated, but an even higher percentage participated in fights initiated by others (27%).

The study on violence against primary school children (pupils of the 6th to 9th grade – age 10–16), which was conducted in 12 primary schools in seven municipalities in Montenegro in 2009, showed more disturbing findings [31]. As many as 20.07% of the respondents were subjected to some form of physical violence, and 9.25% were constantly suffering violence. A significant number of children (4.58%) were exposed to severe physical abuse in the form of being bound, confined to isolated rooms and injured. Almost every second child was exposed to emotional abuse.

1.4. Legal framework for protecting children's rights in Montenegro

As an independent country, since 2006 Montenegro has been approaching the process of ratification of international agreements which were signed during the period of the former State Union (Serbia and Montenegro). In 2006, the Convention on the Rights of the Child was accepted, as well as accompanying optional Protocols on the Involvement of Children in Armed Conflicts and the optional Protocol on the Sale of Children, Child Prostitution and Child Pornography.

In the Constitution of Montenegro, Article 74 relates to the rights of children, and states: “A child shall enjoy rights and freedoms appropriate to his age and maturity” and “A child shall be guaranteed special protection from psychological, physical, economic and any other exploitation or abuse.” The Constitution also stipulates special protection and the obligation of the family through Article 72: “The family shall enjoy special protection” and “Parents shall be obliged to take care of their children, to bring them up and educate them.”

The Constitution of Montenegro provided for the Institution of the Ombudsman of Montenegro whose main role is to protect human rights and freedoms. Since its establishment, this institution has been dealing with the protection and promotion of the rights of children, especially by implementing the Project on the Protection the Rights of the Child in Montenegro. In 2009, the Deputy Ombudsman for the protection of the rights of the child was appointed.

During the last few years, Montenegro has enacted a number of documents related to children's rights and violence against children. These national documents are:

- the Law on the Family
- the Law on Protection Against Domestic Violence
- the Strategy on Protection Against Domestic Violence
- the Law on Social and Child Protection
- the Protocol on the Rules of Procedure of Institutions in case of Domestic Violence
- the Criminal Code of Montenegro.

According to the Law on the Family, parents are entitled and obliged to take care of their children. The care of children includes the looking after, upbringing and education of, acting for and support to children, as well as administering their property. Parents who misuse their parental rights or seriously neglect their parental duties could be deprived of their parental rights. The following are considered an abuse of parental rights by this law: physical, sexual and emotional maltreatment, exploitation of a child by forcing him/her to work excessively or to subjecting him/her to work prohibited by the law, encouraging bad habits and the inclination of a child, etc.

Domestic violence is defined by the Law on the Protection Against Domestic Violence as “omission or commission by family member in violating physical, psychological, sexual or economic integrity, mental health and peace of other family member, irrespective of where the incident of violence has occurred.” The law also defines forms of violence and stipulates orders of protection and follow-up procedures as well as penalties for violation of the law. Nevertheless, it is important to emphasize that there is no policy that covers prevention of child maltreatment, which represents a global problem as well.

The Criminal Code provides sanctions for offences as: sexual intercourse with a child, cohabitation with a minor, deprivation of a minor, neglect or abuse of a minor, violence in a family or family community, and incest.

1.5. Background to the survey

In order to be able to quantify the scope of violence as a public-health issue in the country, to identify risk and protective factors, and to be able to conduct efficient preventive strategies, it is essential to collect good quality epidemiological data.

The objectives of this survey are to study the prevalence of child maltreatment and other adverse childhood experiences in Montenegro; testing for the associations with health-risk behaviours among young people (use of psychoactive substances, alcohol abuse, risky sexual behaviour), and adjusting for differences in socioeconomic factors.

In conclusion, by making use of the standardized WHO methodology for the collection of data on adverse childhood experiences, this survey will provide better insight into and data on the presence and the extent of violence, neglect and abuse during childhood. This will be a basis for development of the objective and adequate response, in order to prevent severe and long-term consequences of child maltreatment and violence.

2. Aim and objectives of the survey

The general aim of the survey is to get a global insight into the prevalence and characteristics of various risky behaviours (sexual experiences, early pregnancies, substance abuse); exposure to various forms of adverse childhood experiences in the first 18 years of life, including: child abuse and neglect; domestic violence and family dysfunction; as well as to test the associations with health-risk behaviours.

More specifically, the objectives of the survey were as follows:

- To assess the prevalence of adverse childhood events (during the first 18 years of life)
- To assess the prevalence of child abuse and neglect:
 - prevalence of physical abuse in the first 18 years of life;
 - prevalence of emotional abuse in the first 18 years of life;
 - prevalence of sexual abuse in the first 18 years of life;
 - prevalence of physical neglect in the first 18 years of life; and
 - prevalence of emotional neglect in the first 18 years of life.
- To assess the prevalence of household dysfunction:
 - prevalence of witnessed domestic violence in the first 18 years of life; and
 - prevalence of parental separation, family misuse of alcohol, drugs, mental illness among household members.
- To assess the prevalence of health-risk behaviours (smoking, alcohol and drug abuse, numerous sexual partners, early pregnancies)
- To assess the associations of adverse childhood experiences with socio-demographic and socioeconomic characteristics and behavioural/lifestyle factors.
- To assess the prevalence and associations of health-risk behaviours by the number of adverse childhood experiences,
- To assess the association between different categories of adverse childhood experiences.

3. Survey methodology and sample

The survey was designed and conducted as a cross-sectional study.

3.1. Target population

Target population of the survey are students of the first year of all universities in Montenegro. There are three universities in Montenegro: the University of Montenegro (state university), the University of Donja Gorica (private university), and Mediterranean University (private university).

3.2. Sample frame, size and representativeness

Due to the small number of students enrolling annually in the first year of studies, several faculties were excluded from the sample frame of the University of Montenegro: the Music Academy, Academy of Fine Arts, and Academy of Dramatic Arts, which are attended by about 1% of the total number of students enrolling in studies at all universities in Montenegro annually. The sample frame at these faculties was so small that this could not in any way alter the results that were gained.

According to the data on annual attendance of the universities in Montenegro, about 4% of the total number of first-year students in Montenegro enrol at the University of Donja Gorica, while 8% of them enrol at Mediterranean University. The remaining 88% of students enrol at the University of Montenegro.

The sample is designed as a two-stage stratified sample, where the units of the first stage are faculties. The sample frame included 22 faculties of the University of Montenegro, two faculties of Mediterranean University and one faculty of the University of Donja Gorica. Thus, representativeness of the sample was attained, which ensures reliable extrapolation of the findings to the population level.

The sample size was calculated on the basis of the following indicators:

- a) Values from the tables of normal distribution for 95% confidence interval,
- b) Probability $P = 0.05$
- c) Accuracy $e = 2.45\%$.

Taking into account the above values, a sample scope of $n = 1\,600$ students was calculated.

3.3. Stratification, allocation and sample selection

The units of the first stage were selected proportionate to the number of students enrolled in the first year in the academic year 2012/2013. In total, 12 faculties were selected from the University of Montenegro, while all faculties from the sampling frame from the University of Donja Gorica and Mediterranean University entered the second stage. The second-stage units were students enrolled in the first year of the studies in the academic year 2012/2013. In the second stage, the sample was stratified by gender.

3.4. Characteristics of the sample

The sample size was planned as 1 600 participants, students of the first year of all faculties in Montenegro. One of the criteria for choosing students was the fact that they are of a suitable age, for three reasons:

1) participants are old enough and mature enough to understand questions; 2) no need for parental approval for participation in the study; and 3) only participants older than 18 will be able to answer items in the questionnaire which are mainly related to the period of first 18 years of life.

Out of 1 600 students in the sample, 1 565 questionnaires were entered in the database. 35 students (2.2%) refused to participate in the study and returned questionnaires blank, with or without written comments. Another 85 (5.3%) questionnaires were only partially filled, but these are entered into the database.

The survey was conducted in the sampled faculties, taking into account gender structure of the participants. The sample size by faculty and by gender is shown in Table 1.

Table 1. Sample size by faculty and by gender

Faculties	Number of students in the sample			Number of respondents		
	Total	Male	Female	Total	Male	Female
Institute of Foreign Languages, Podgorica	14	12	2	14	2	12
Faculty of Mechanical Engineering, Podgorica	39	9	30	34	29	5
Faculty of Civil Engineering, Podgorica	67	16	51	78	58	20
Faculty of International Economics, Finances and Business – University of Donja Gorica, Podgorica	46	19	27	55	28	27
Faculty of Tourism – Mediterranean University, Bar	32	16	16	29	11	18
Nautical Faculty, Kotor	127	22	105	133	100	33
UM Faculty of Business Studies “Montenegro Business School” – Mediterranean University, Podgorica	40	20	20	49	17	32
Law Faculty, Podgorica & Budva	287	158	129	284	109	175
Faculty of Sports and Physical education, Niksic	44	8	36	35	31	4
Faculty of Philosophy, Niksic	243	178	65	214	30	184
Faculty of Medicine with Faculty of Physiotherapy, Igalo	91	60	31	105	29	76
Faculty of Economics, Podgorica & Bijelo Polje	356	194	162	355	145	210
Electro-Technical Faculty, Podgorica	214	55	159	180	143	37
TOTAL	1 600	767	833	1 565	732	833

4. Survey instrument

Given that the survey was implemented in cooperation with the World Health Organization, survey instrument recommended by the WHO technical expert for the subject area was applied. A composite survey instrument was developed – a questionnaire that is synthesis of the two adapted standard questionnaires of the World Health Organization – *Family Health History Questionnaire* and the questionnaire on injuries from the “*Guidelines for Conducting Community Surveys on Injuries and Violence*”.

Some questions had to be modified and adapted to the characteristics of the sample and local context, while others had to be completely omitted due to their unsuitability for the survey sample, survey setting and the local context. Adaptation, modifications and translations of the questionnaires were made by the survey team members, in close cooperation with the WHO Country Office and WHO technical expert for the subject area Dr Dinesh Sethi, who approved the final version of the questionnaire.

Due to specificity of the data, two different forms of the questionnaire were produced – female and male version. The male version contains 64 questions in total, with 183 variables, while the female version contains 67 questions in total, with 198 variables.

The questionnaires contain questions from the following subject areas:

- basic socio-demographic characteristics of the survey participants and their parents;
- risky behaviour of the survey participants and their parents regarding tobacco use;
- risky sexual behaviour and potential pregnancy of the partner in the male version of the questionnaire, while the female version has a set of questions about pregnancy and childbirth;
- consumption of alcohol and drink-driving ;
- consumption of drugs;
- a set of questions concerning potential suicide attempts and their consequences;
- a set of questions about the family setting and relationships (existence of support, caring relationship, neglect, physical and emotional abuse, etc.);
- a set of questions about several forms of sexual abuse by members of the wider family, family friends and acquaintances, or by persons out of the family or unknown persons, 5 or more years older;
- a set of questions about peer violence and harassment;
- a set of questions on community violence;
- a set of questions on collective violence.

Here is the detailed explanation of which questions were omitted and why:

The question about the country of birth is left out because Montenegro is not a federation of countries, and because this question may be perceived as an identifier in a small environment.

Questions about race are left out because there are no races in Montenegro, only nationalities. We did not opt to ask children about nationality, as we did not deem it appropriate for an anonymous questionnaire.

The question about the level of schooling they have completed is left out because our sample consists of students, and all students must have completed secondary school (in order to enrol at university).

Two questions about how many days students missed college were included in the national questionnaire which were not in the original questionnaire.

All *the questions about current employment status* are left out because there is no significant point in asking students this.

Questions 25b1–25b4 from *the Handbook, Appendix 1 - Questionnaire* were not applicable because of the age span in the answer categories (questions about the quantities of drinks consumed during different age intervals.) The other questions were hence transformed into one question: “What was your usual number of drinks of alcohol per week during the age interval 15–19 years”

As regards questions 40a–40e and Questions 67A–67E from *the Handbook, Appendix 1 - Questionnaire*, only 40a and 67a were taken. These questions were not deemed appropriate for classroom administration of the questionnaires and for the sample population on ethical grounds.

Questions 68a–68e from the *Handbook, Appendix 1 - Questionnaire* were not included as these questions are not applicable in this sample.

However, despite the modifications and adaptations, students had numerous objections to the questionnaire, for the following reasons:

- some questions in the questionnaire were not age-appropriate for most students in the sample, such as the set of questions about first pregnancy and childbirth, second pregnancy and childbirth, or pregnancy of the partner for male participants;
- the content of many questions was deemed inappropriate by some participants, some even refused to participate or left the questionnaires blank for this reason. In total, 35 students refused to participate in the survey when they read the questionnaire.

Questions and answers regarding abuse by category, household dysfunction, and lifestyle/behavioural factors were:

Abuse by category:

- **Physical abuse***

Did a parent or other adult in the household...

- *Push, grab or slap you? (sometimes, often or very often)*
- *Hit you so hard that you had marks or were injured? (sometimes, often or very often)*
- *How often were you spanked? (a few times per year, many times per year, weekly or more often)*

*In the first 18 years of life

- **Emotional abuse***

Did a parent or other adult in the household...

- *Swear at you, insult you or put you down? (often or very often)*
- *Act in a way that made you afraid that you would be physically hurt? (sometimes, often or very often)*

- **Emotional neglect***

You never felt loved

- *You thought your parents wished you had never been born? (rarely, sometimes, often or very often)*
- *You felt that someone in your family hated you? (rarely, sometimes, often or very often)*

- **Sexual abuse***

Did an adult or older relative, family friend or stranger at least 5 years older than you...

- *Touch or fondle your body in a sexual way?*
- *Have you touch their body in a sexual way?*
- *Attempt to have any type of sexual intercourse with you (oral, vaginal, anal)?*
- *Actually have any type of sexual intercourse with you (oral, vaginal, anal)?*

- **Physical neglect***

- *Did you ever have to wear dirty clothes?*
- *There was never someone to take you to a doctor if you needed it?*
- *You didn't have enough to eat, even when there was enough food (sometimes, often or very often)?*
- *Your parents were too drunk or high to take care of the family (sometimes, often or very often)?**

Household dysfunction by category:

- **Substance abuse***

Did you...

- *live with anyone who was a problem drinker or alcoholic?*
- *live with someone who used drugs?*

- **Mental illness***

- *Was a household member depressed or mentally ill?*
- *Did a household member attempt suicide?*

- **Domestic violence – Violent treatment of mother***

Has your mother or stepmother...

- *Been pushed grabbed or slapped or had things thrown at her? (sometimes, often or very often)*
- *Been kicked, beaten, hit with a fist, or with a hard object? (sometimes, often or very often)*
- *Ever been hit repeatedly, for a period of at least few minutes?*
- *Ever been threatened with, or hurt by a knife or gun?*

- **Criminal behaviour in household***

- *Has a household member ever gone to prison?*
- *Has anyone in your household ever committed a serious crime?*

*In the first 18 years of life

- **Parental separation or divorce***
 - *Have your parents ever separated or divorced?*

Lifestyle/behavioural factors:

- **Smoked at least 100 cigarettes**
 - *Have you smoked at least 100 cigarettes in your entire life?*
- **Problem with alcohol**
 - *Have you ever had a problem with your use of alcohol?*
- **Self-perception as an alcoholic**
 - *Have you ever considered yourself to be an alcoholic?*
- **Consensual sexual experiences***
 - *Have you ever had sexual intercourse?*
- **No. of lifetime sexual partners**
 - *With how many different partners have you ever had sexual intercourse?*
- **Drug use ever**
 - *Have you ever taken any drugs?*
- **Problems because of drug use ever**
 - *Have you ever had a problem with your use of drugs?*
- **Self-perception as drug addict**
 - *Have you ever considered yourself addicted to drugs?*
- **Attempts to commit suicide**
 - *Have you ever attempted to commit suicide?*

*In the first 18 years of life

5. Process of survey implementation

The survey was conducted with accordance of the Rector of the University of Montenegro, the University of Donja Gorica and Mediterranean University.

Once the approval letter from the rectors was received, a letter containing a description of the research project and organization of the survey was sent to the deans of all the faculties selected in the first sampling stage. At the beginning of the academic year 2012/2013, survey team members contacted the sampled faculties in order to arrange terms for administration of the questionnaires to students.

The number of survey administrators was defined in correspondence with the sample size. Nine survey administrators from the Institute of Public Health of Montenegro were engaged.

Members of the survey team organized one day of training for the survey administrators, where they were familiarized with the survey, the questionnaire and way of its administration, method of distribution and collection of the filled questionnaires, as well as with all other issues significant for the implementation of the survey.

All necessary materials for the survey were prepared at the Institute of Public Health of Montenegro. Based on the data on the number of students at different faculties, the corresponding number of questionnaires were packed into the boxes specially made for the survey. One box with all the necessary materials was prepared for each cluster.

The questionnaires were not labelled at all, in order to assure anonymity. Students were instructed to put the filled questionnaires back into the blank white envelopes they received, and to seal envelopes themselves – again in order to assure anonymity. They were instructed to place the sealed envelopes into the box. During data collection, special effort was directed towards assuring that participants felt safe in terms of data anonymity. This was also accentuated in the instructions of the survey instrument, and repeated several times by the survey administrators. After completion, the survey administrators brought boxes with filled questionnaires directly to the Institute of Public Health of Montenegro.

Field implementation of the survey was very difficult and very demanding in terms of all resources. The main reason for that is the fact that students do not have mandatory classes, and in many faculties they rarely attend classes, especially when they are preparing for their exams. Hence, quite often it was very difficult to reach the needed number of students to fill in the questionnaires. Most faculties had to be revisited several times for this reason, up to six times. The sampling procedure defined as a set the number of students from each faculty. Students were then contacted during classes.

Field data collection lasted from 19 October to 29 December 2012.

Two different databases were produced for entry of the data, in the statistical software SPSS. The survey team members carefully inspected all questionnaires, and coded them for entry into the databases.

In this report, results are not presented by individual faculty or city, but only at the national level. All results are presented for the total survey population, as well as for male and female participants individually (except for those derived from gender-specific questions).

Data was collected in seven cities, in all regions of Montenegro – Podgorica, Bar, Budva, Kotor, Igalo, Nikšić and Bijelo Polje. (Table 2; Fig. 1).

Table 2. Faculties in the sample by geographical location

MUNICIPALITY	FACULTY
PODGORICA	<i>INSTITUTE OF FOREIGN LANGUAGES</i>
	<i>FACULTY OF MECHANICAL ENGINEERING</i>
	<i>FACULTY OF CIVIL ENGINEERING</i>
	<i>FACULTY OF INTERNATIONAL ECONOMICS, FINANCE AND BUSINESS – UNIVERSITY OF DONJA GORICA</i>
	<i>FACULTY OF BUSINESS STUDIES "MONTENEGRO BUSINESS SCHOOL" – MEDITERRANEAN UNIVERSITY</i>
	<i>LAW FACULTY</i>
	<i>FACULTY OF MEDICINE</i>
	<i>FACULTY OF ECONOMICS</i>
	<i>ELECTRO-TECHNICAL FACULTY</i>
BAR	<i>FACULTY OF TOURISM – MEDITERRANEAN UNIVERSITY</i>
BUDVA	<i>LAW FACULTY (study programme)</i>
KOTOR	<i>NAUTICAL FACULTY</i>
IGALO	<i>FACULTY OF PHYSIOTHERAPY</i>
NIKŠIĆ	<i>FACULTY OF PHILOSOPHY</i>
	<i>FACULTY OF SPORTS AND PHYSICAL EDUCATION</i>
BIJELO POLJE	<i>FACULTY OF ECONOMICS (study programme)</i>

Fig. 1. Geographical map of Montenegro



Municipalities and largest cities and towns of Montenegro
Opštine i veći gradovi Crne Gore

6. Ethical considerations

Students were informed about the aims of the survey. All the aspects of anonymity were thoroughly explained to them, and they were instructed not to write their name or any other identifier on the questionnaires. It was also explained to students that data analysis would only be done on an aggregate level, not by faculties.

Since universities in Montenegro are autonomous institutions, only approval from the rectors was needed. In addition, the deans of all sampled faculties were informed about the survey, its aims and methodology, and their written approval was also obtained.

In accordance with national regulations, the survey was approved by the Ethics Committee of the Institute of Public Health of Montenegro.

7. Data analysis

The following methods have been used:

For comparing the distribution of socioeconomic characteristics and behavioural/lifestyle factors in male vs. female students, a Chi-squared test and/or the Fisher's exact test were used.

In order to compare the mean values of numerical variables in male vs. female students, the Mann-Whitney test was used.

Binary and multiple logistic regression was used to assess the association of lifestyle/behavioural factors and adverse childhood experiences (dependent variables expressed in a dichotomous/binary scale) with the socio-demographic and socioeconomic characteristics of students and their respective parents, as well as to assess the association between ACE and outcomes of health risk behaviours.

The statistical significance was set at $P < 0.05$ for all analysis. The dataset was edited for inconsistencies. Missing data was not part of the statistical analysis.

All statistical analysis was performed using SPSS (Statistical Package for Social Sciences, version 17.0).

8. Results

Results of the survey are presented in the following sections:

- Demographic and socioeconomic characteristics of the sample
- Behavioural and lifestyle factors
- Prevalence of adverse childhood experiences
- Association of lifestyle/behavioural factors with demographic and socioeconomic characteristics of the students in the sample and their parents
- Association of adverse childhood experiences with demographic and socioeconomic characteristics and behavioural/lifestyle factors
- Adverse Childhood Experiences (ACE) and demographic and socioeconomic characteristics of the students and their parents.

8.1. Demographic and socioeconomic characteristics of the sample

This section presents distribution of socio-demographic and socioeconomic characteristics of students and their parents.

The sample consisted of 53.2% females and 46.8% males, whose mean age (\pm SD) is 19.9 ± 1.9 years. The majority of students have never been married. For those who have been/are married, the mean age (\pm SD) at their first marriage is 20 ± 2.4 years. The average age (\pm SD) of mothers at birth was 27.1 ± 5.4 years.

Most students have been living at their current address for more than two years. In the first 18 years of life, students moved with their families on average once. 87.8% of families owned a house/apartment.

Most parents have an intermediate level of education and a regular job, but more than a quarter of them are unemployed. (Table 3).

Table 3. Demographic and socioeconomic characteristics of students in the sample and their parents

Demographic and socioeconomic characteristics	%	No.
Gender:		
Male	46.8	732
Female	53.2	833
Age:		
18-19 years	56.3	859
20-21 years	34.8	532
22-23 years	5.9	90
24+ years	3.1	46
Maritalstatus:		
Married/living together	2.3	35
Widow/widower	0.2	3
Separated/divorced	0.5	7
Never been married	97.0	1 500
Age at first marriage:		
17-18 years	24	6
19-20 years	52	13
21-22 years	12	3
23+	12	3
Mother's age at birth delivery:		
16-20	10	143
21-25	34.1	488
26-30	32.1	459
31-35	16.8	240
36-40	5.9	85
40+	1.1	16
Length of living at the current address:		
Less than 6 months	28.6	423
6 months to 2 years	7.1	106
2 years or longer	64.1	950
Number of times family moved:		
0	55.5	788
1-2	30.1	428
3-4	10.9	154
5+	3.4	49
Family owned a house/apartment	87.8	1 363
Level of education of parents^a:		
Mother		
Lower level	7.1	110
Intermediate level	68.2	1 052
High level	24.5	378
Father:		
Lower level	5.1	80
Intermediate level	64.9	1 003
High level	29.8	460
Employment status of parents^b:		
Mother:		
Employed	63.8	981
Unemployed	28	430
Retired	5.1	78
Other	2.9	44
Father:		
Employed	72.4	1 086
Unemployed	6.8	102
Retired	15.3	230
Other	5.4	80

^a The "lower level" of education includes the categories "completed elementary school or less" and "completed several grades of secondary school". The "intermediate level" of education includes categories "completed secondary school" and "completed a few years of college or university". The "high level" of education means completed college/university or higher education (Master's degree, PhD).

^b The category "employed" includes subcategories "regular (permanent) job", "part-time or occasional job" and "self-employed (own business)". The category "other" includes subcategories "recipient of social benefits", "other" and "unknown".

8.2. Behavioural and lifestyle factors

The prevalence of current smokers was found to be significantly higher in male respondents compared to female respondents (22.6% vs. 14.8%, $P < 0.001$). The mean number of cigarettes smoked per day was significantly higher among males than females (20.0 vs. 10.0; Mann Whitney test; $P < 0.001$).

The prevalence of problems with drinking alcohol was significantly higher for males than females (12.4% vs. 5.0%; Fisher's exact test: $P < 0.001$). Despite this, only 4.5% of males and 2.7% of females had ever considered themselves to be an alcoholic, but this gender difference was not statistically significant (Fisher's exact test: $P = 0.083$).

A statistically significant difference was found in the prevalence of the use of street drugs in males vs. females (19.1% vs. 3.7%; Fisher's exact test: $P < 0.001$).

Among those students who reported drug abuse, the percentage of males and females that had ever had a problem with the use of street drugs was 13.4% vs. 10.3%, and the gender difference was not statistically significant (Fisher's exact test: $P = 0.893$).

The percentage of students who had ever attempted to commit suicide was similar among males and females and the small gender difference was not statistically significant (3.3% vs. 3.1%; Fisher's exact test: $P = 0.937$).

The prevalence of lifetime sexual intercourse was significantly higher for males compared to females (80.0% vs. 35.7%, respectively; Fisher's exact test: $P < 0.001$).

Among students that reported having had sexual experiences, the percentage of those that had initiated sexual intercourse before or up to age of 16 was significantly higher compared to female students (51.2% vs. 15.2%, respectively; Fisher's exact test: $P < 0.001$). The mean number of lifetime sexual partners was significantly higher for males compared to females (5.1 vs. 1.0, respectively; Mann Whitney: $P < 0.001$).

There is a statistically high gender difference regarding the number of sexual partners ever (more than three partners: 58.3% males and 9.0% females; Fisher's exact test: $P < 0.001$).

Among female students who have ever had sexual intercourse, 5.9% were pregnant at some point in their life, while 25% of those pregnancies were unplanned at that time. The percentage of pregnancies at an early age (<19 years) was 58%.

Table 4. Distribution of lifestyle/behavioural factors in the students included in survey

Lifestyle/behavioural factor – variable	Male		Female		P	Total	
	%	No.	%	No.		%	No.
Smoked at least 100 cigarettes	28.6	206	16.9	137	< 0.001	22.4	343
Current smokers	22.6	162	14.8	119	< 0.001	18.5	281
Problem with alcohol	12.4	86	5.0	40	< 0.001	8.4	126
Self-perception as an alcoholic	4.5	32	2.7	22	0.083	3.6	54
Voluntary sexual experiences ^a	80.0	544	35.7	279	< 0.001	56.3	823
Early sexual intercourse (< 16 years)	51.2	262	15.2	41	< 0.001	18.5	145
No. of lifetime sexual partners > 3	37.6	174	3.9	10	< 0.001	25.5	184
Number of pregnancies	-	-	5.9	49			
Unplanned pregnancy among those who were ever pregnant	-	-	25	5		25	5
Early pregnancy (< 19 years) among those who were ever pregnant	-	-	58	11		58	11
Drug use ever	19.1	133	3.7	30	< 0.001	10.8	163
Problems because of drug use ever	13.4	17	10.3	3	0.893	12.8	20
Self-perception as drug addicts	8.7	11	3.4	1	0.572	7.7	12
Attempts to commit suicide	3.3	23	3.1	25	0.973	3.2	48

^a In the first 18 years of life

8.3. Prevalence of adverse childhood experiences

This chapter measures the prevalence of adverse childhood experienced by gender as well as the ACE scores. Over 60% of all respondents reported at least one adverse childhood experience. The most common adverse childhood abuse events reported in the survey were emotional abuse (30.4%) and emotional neglect (27%). Males were more emotionally neglected (38% of all males) than females (18.1% of all females) and gender differences were statistically significant ($P < 0.001$).

As for household dysfunction, witnessed violence (mother treated violently) and alcohol misuse in family were the most common events.

Table 5. Content and distribution of adverse childhood events

ACE	Male		Female		P	Total	
	%	No.	%	No.		%	No.
Childhood abuse and neglect							
<i>Physical abuse</i>	24.8	163	23.8	162	0.050	24.3	325
<i>Emotional abuse</i>	33.3	217	27.5	187	0.011	30.4	404
<i>Sexual abuse</i>	6.8	39	1.5	11	<0.001	3.9	50
<i>Physical neglect</i>	23.9	161	14.4	113	<0.001	18.8	274
<i>Emotional neglect:</i>	37.7	249	18.1	146	<0.001	27.0	395
Household dysfunction							
<i>Drug abuse</i>	5.5	38	2.0	16	0.001	3.6	54
<i>Alcohol abuse</i>	15.2	107	9.0	72	<0.001	11.9	179
<i>Mental illness</i>	5.9	42	6.2	51	0.899	6.1	93
<i>Mother treated violently (Was your mother (or stepmother)...ever)</i>	40.3	281	9.9	79	<0.001	24.0	360
<i>Family member imprisoned</i>	10.0	71	5.9	48	0.003	7.8	119
<i>Parental separation or divorce</i>	9.0	64	11.9	98	0.078	10.6	162
Number of categories of adverse childhood experiences ^a							
0	24.4	176	47.9	396		37.0	572
1	23.7	171	20.8	172		22.2	343
2	20.9	151	14.3	118		17.4	269
3	13.2	95	8.0	66		10.4	161
4	7.1	51	4.1	34		5.5	85
5	4.7	34	2.3	19		3.4	53
6 or more	3.3	43	2.5	21		4.2	64

For each category of ACEs, all categories of frequencies of affirmative answers are understood as exposure. Respondents were defined as exposed to a category if they responded "yes" to one or more of the questions in that category.

8.4. Association of lifestyle/behavioural factors with the demographic and socioeconomic characteristics of the students and their parents

This section provides a description of the association of lifestyle/behavioural factors with the demographic and socioeconomic characteristics of the *students and their parents*.

8.4.1. Smoking status and demographic and socioeconomic correlations

Table 6 presents the association of current smoking status with the demographic and socioeconomic characteristics of the students and their respective parents. There was a highly significant association of current smoking with the male gender as well as age, either treated as a numerical variable or as a categorical term ($P < 0.001$). There were no associations with employment status of the parents; father's education was not associated with current smoking, whereas mother's education was related to smoking ($P = 0.008$).

Table 6. Association of current smoking status with the demographic and socioeconomic characteristics of the students and their parents

Socioeconomic characteristics	Smokers		OR ^a	95% CI ^b	P
	%	No.			
Gender:					
<i>Male</i>	22.6	162	1.68	1.29-2.19	0.001
<i>Female</i>	14.8	119	1.00	Reference	
Age (numerical)	-	-	1.11	1.04-1.17	0.001
Age group:					
<i>18-19 years</i>	14.8	124	0.57	0.44-0.75	0.001
<i>20+</i>	23.2	151	1.00	Reference	
Mother's education:					0.008(2)
<i>Lower level</i>	26.2	28	1.27	0.77-2.08	0.347
<i>Intermediate level</i>	16.4	169	0.70	0.52-0.946	0.02
<i>High level</i>	21.8	81	1	Reference	-
Father's education:					0.45(2)
<i>Lower level</i>	22.1	17	1.17	0.65-2.11	0.59
<i>Intermediate level</i>	17.4	171	0.87	0.65-1.16	0.36
<i>High level</i>	19.4	88	1	Reference	-
Mother's employment status:					
<i>Unemployed</i>	16.4	97	1.26	0.60-1.04	0.09
<i>Other</i>	19.8	180	1	Reference	
Father's employment status:					
<i>Unemployed</i>	19.3	57	0.92	0.78-1.5	0.63
<i>Other</i>	18.0	211	1	Reference	

^a OR = odds ratio

^b CI = confidence interval

8.4.2. Alcohol problems and demographic and socioeconomic correlations

Table 7 presents the association of alcohol problems among students with the demographic and socioeconomic characteristics of the students in the sample and their parents. The prevalence of drinking problems was significantly higher among male students compared with their female counterparts ($P < 0.001$). There were evident relationships with age as a numerical variable ($P = 0.02$), as well as the mother's education ($P = 0.01$) and father's education level ($P = 0.02$). Parental employment status did not show any significant association with alcohol problems in the young adults who were examined.

Table 7. Association of alcohol problems with the demographic and socioeconomic characteristics of the students and their parents

Socioeconomic characteristics	Problem with alcohol		OR ^a	95% CI ^b	P
	%	No.			
Gender:					
<i>Male</i>	12.4	87	2.68	1.18–3.95	0.001
<i>Female</i>	5.0	40	1	Reference	
Age (numerical)	-	-	1.08	1.01–1.16	0.02
Age group:					
18-19 years	7.4	62	0.76	0.52–1.10	0.15
20+	9.5	61	1	Reference	
Mother's education:					0.01(2)
<i>Lower level</i>	15.0	16	2.76	1.39–5.48	0.001
<i>Intermediate level</i>	8.5	86	1.45	0.89–2.36	0.13
<i>High level</i>	6.0	22	1	Reference	-
Father's education:					0.02(2)
<i>Lower level</i>	16.7	13	2.14	1.08–4.23	0.03
<i>Intermediate level</i>	7.6	74	0.88	0.58–1.33	0.56
<i>High level</i>	8.5	38	1	Reference	-
Mother's employment status:					
<i>Unemployed</i>	8.5	50	1.04	0.71–1.51	0.84
<i>Other</i>	8.3	74	1	Reference	
Father's employment status:					
<i>Unemployed</i>	9.8	29	0.79	0.81–1.95	0.30
<i>Other</i>	7.9	91	1	Reference	

^a OR = odds ratio

^b CI = confidence interval

8.4.3. Drug abuse and demographic and socioeconomic correlations

Table 8 presents the association of use of street drugs among students with the demographic and socioeconomic characteristics of students and their parents. The prevalence of the drugs abuse was highly significantly associated to the gender and age of the students, in both cases, as well as numerical and categorical variables, along with the mother's educational status ($P < 0.001$). The mother's employment status was found to be related to use of street drugs by students ($P = 0.04$), while the father's education and employment status did not show any statistical association with drug abuse by students.

Table 8. Association of drugs abuse among students with the demographic and socioeconomic characteristics of the students and their parents

Socioeconomic characteristics	Drug abuse		OR ^a	95% CI ^b	P
	%	No.			
Gender:					
<i>Male</i>	19.1	133	6.12	4.06–9.23	0.001
<i>Female</i>	3.7	30	1	Reference	
Age (numerical)	-	-	1.12	1.04–1.21	0.001
Age group:					
18-19 years	7.5	62	0.45	0.32–0.63	0.001
20+	15.1	97	1	Reference	
Mother's education:					0.001(2)
<i>Lower level</i>	17.1	18	1.25	0.69–2.25	0.45
<i>Intermediate level</i>	8.9	91	0.59	0.41–0.85	0.001
<i>High level</i>	14.2	52	1	Reference	-
Father's education:					0.07(2)
<i>Lower level</i>	16.2	12	1.37	0.69–2.70	0.36
<i>Intermediate level</i>	9.4	92	0.73	0.51–1.05	0.09
<i>High level</i>	12.4	55	1	Reference	-
Mother's employment status:					
<i>Unemployed</i>	8.6	51	1.44	0.48–0.98	0.04
<i>Other</i>	12.0	107	1	Reference	
Father's employment status:					
<i>Unemployed</i>	12.5	37	0.78	0.86–1.89	0.22
<i>Other</i>	10.1	117	1	Reference	

^a OR = odds ratio

^b CI = confidence interval

8.4.4. Experiences of sexual intercourse and demographic and socioeconomic characteristics

Table 9 presents association of students' experiences of sexual intercourse with demographic and socioeconomic characteristics of the students and their parents. Male students reported a considerably higher prevalence of sexual intercourse than females ($P < 0.001$). Naturally, age was strongly and positively associated with sexual intercourse ($P < 0.001$). Parental education was not associated with sexual intercourse of the students. There was statistical relationship with mother's employment status ($P = 0.04$), whereas father's employment was not associated with students' sexual intercourse.

Table 9. Association of sexual behaviour with demographic and socioeconomic characteristics of the students and their parents

Socioeconomic characteristics	Sexual intercourse		OR ^a	95% CI ^b	P
	%	No.			
Gender:					
<i>Male</i>	8.0	544	7.19	5.67–9.13	0.001
<i>Female</i>	35.7	279	1	Reference	
Age (numerical)	-	-	1.36	1.23–1.05	0.001
Age group:					
18-19 years	49.8	399	0.53	0.43–0.66	0.001
20+	64.9	411	1	Reference	
Mother's education:					0.06(2)
Lower level	57.1	60	0.83	0.53–1.30	0.42
Intermediate level	54.3	536	0.74	0.58–0.95	0.02
High level	61.5	217	1	Reference	-
Father's education:					0.11(2)
Lower level	65.8	50	1.39	0.83–2.32	0.20
Intermediate level	54.6	512	0.87	0.69–1.09	0.24
High level	57.9	252	1	Reference	-
Mother's employment status:					
Unemployed	52.7	303	1.25	0.64–0.98	0.04
Other	58.3	503	1	Reference	
Father's employment status:					
Unemployed	58.5	169	0.86	0.89–1.51	0.26
Other	54.8	613	1	Reference	

^a OR = odds ratio

^b CI = confidence interval

8.4.5. Attempts to commit suicide and demographic and socioeconomic characteristics

Table 10 presents the association of students' attempts to commit suicide with the demographic and socioeconomic characteristics of the students and their parents. There were no associations in regard to gender or age among students. On the other hand, parental education (mother's: $P = 0.005$; father's: $P = 0.012$) and employment status (mother's: $P = 0.018$) showed a statistically significant association with suicide attempts among students, according to which the father's unemployment showed a highly significant association with the mentioned suicide attempts ($P < 0.001$).

Table 10. Association of suicide attempts with the demographic and socioeconomic characteristics of the students and their parents

Socioeconomic characteristics	Suicide attempts		OR ^a	95% CI ^b	P
	%	No.			
Gender:					
<i>Male</i>	3.3	23	1.07	0.60–1.90	0.82
<i>Female</i>	3.1	25		Reference	
Age (numerical)	-	-	1.00	0.85–1.17	0.98
Age group:					
18-19 years	2.5	21	0.67	0.37–1.21	0.19
20+	3.7	24	1	Reference	
Mother's education:					0.005(2)
<i>Lower level</i>	8.7	9	2.61	1.08–6.29	0.03
<i>Intermediate level</i>	2.5	26	0.71	0.36–1.40	0.32
<i>High level</i>	3.5	13	1	Reference	-
Father's education:					0.012(2)
<i>Lower level</i>	9.2	7	0.25	0.09–0.66	0.006
<i>Intermediate level</i>	2.9	29	0.84	0.41–1.69	0.617
<i>High level</i>	2.5	11	1	Reference	-
Mother's employment status:					
<i>Unemployed</i>	4.6	27	2.01	1.13–3.60	0.018
<i>Other</i>	2.3	21	1	Reference	
Father's employment status:					
<i>Unemployed</i>	6.1	18	2.74	1.49–5.04	0.001
<i>Other</i>	2.3	27	1	Reference	

^a OR = odds ratio

^b CI = confidence interval

8.4.6. Association of adverse childhood experiences with demographic and socioeconomic characteristics and behavioural/lifestyle factors

Table 11 presents association of different types of child abuse and neglect with the demographic and socioeconomic characteristics of the students and their parents. Physical abuse is shown to be highly associated with the level of the father's education, while emotional abuse is found to be related with the father's education as well as gender of the respondents. In addition, sexual abuse was reported to be in associated with gender, indicating a four-fold greater risk for males as opposed to females. As for physical neglect, this type of child abuse cuts across all socioeconomic characteristics indicating an association with gender, age, a lower level of parental education as well as their unemployed status. On the other side, mental neglect was found to related to a lower education of the mother and the gender of the respondents, showing more than a two-fold increased risk for boys.

Table 11. Association of different types of child abuse with the demographic and socioeconomic characteristics of the students and their parents

Socioeconomic characteristics	Physical abuse		Emotional abuse		Sexual abuse		Physical neglect		Emotional neglect	
	%	OR ^a 95% CI ^b	%	OR ^a 95% CI ^b	%	OR ^a 95% CI ^b	%	OR ^a 95% CI ^b	%	OR ^a 95% CI ^b
Gender:										
Male	24.7	1.05 0.82–1.35	33.3	1.31 1.04–1.66	6.8	4.72 2.40–9.31	23.8	1.88 1.44–2.45	37.7	2.73 2.15–3.47
Female	23.8	1 Reference	27.5	1 Reference	1.5	1 Reference	14.3	1 Reference	18.1	1 Reference
Age (numerical)		0.99 0.94–1.06		1.02 0.96–1.08		0.87 0.68–1.13		1.05 0.99–1.12		0.99 0.94–1.06
Age group:										
18–19 years	23.5	0.88 0.68–1.13	29.4	0.87 0.68–1.10	3.8	0.97 0.55–1.72	15.1	0.5 0.44–0.75	25.1	0.80 0.64–1.02
20+	25.9	1 Reference	32.4	1 Reference	3.9	1 Reference	23.5	1 Reference	29.4	1 Reference
Mother's education:										
Lower level	29.3	1.36 0.81–2.28	40.7	1.65 1.02–2.66	5.6	1.13 0.40–3.19	28.7	2.23 1.33–3.74	37.6	1.49 0.94–2.36
Intermediate level	23.9	1.03 0.76–1.38	29.5	1.00 0.76–1.32	3.2	0.63 0.33–1.18	18.8	1.28 0.92–1.78	24.9	0.82 0.62–1.07
High level	23.4	1 Reference	29.4	1 Reference	5.0	1 Reference	15.3	1 Reference	28.9	1 Reference
Father's education:										
Lower level	33.8	2.32 1.32–4.09	46.3	2.22 1.31–3.76	3.2	0.64 0.14–2.80	37.5	2.88 1.68–4.97	37.1	1.52 0.89–2.58
Intermediate level	26.3	1.62 1.21–2.19	30.1	1.11 0.85–1.44	3.5	0.67 0.38–1.26	17.8	1.04 0.77–1.40	25.5	0.88 0.68–1.14
High level	18.0	1 Reference	28.0	1 Reference	4.9	1 Reference	17.2	1 Reference	28.0	1 Reference
Mother's employment status:										
Unemployed	28.0	1.05 0.81–1.35	30.1	1.00 0.79–1.28	3.6	0.86 0.48–1.54	22.8	1.5 1.2–2.05	29.2	1.2 0.95–1.52
Other	24.1	1 Reference	30.1	1 Reference	4.1	1 Reference	15.8	1 Reference	25.5	1 Reference
Father's employment status:										
Unemployed	26.2	1.13 0.83–1.55	34.9	1.28 0.96–1.71	2.8	0.65 0.29–1.46	26.6	1.87 1.38–2.54	29.5	1.19 0.89–1.59
Other	23.8	1 Reference	29.4	1 Reference	4.3	1 Reference	16.3	1 Reference	25.9	1 Reference

^a OR = odds ratio

^b CI = confidence interval

The results in Table 12 present association of household dysfunctions and socioeconomic characteristics of the students and their parents. Table 12 indicates that living with a drug user was demonstrated to be related with a lower level of the father's education, as well as gender, putting males at more than twice as much risk. On the other side, alcohol abuse in the family showed an association with age (as a numerical category), parental education level and the employment status of the mother. Violence against the mother was also found to be associated with the 18–19 age group of respondents, as well as gender and a lower level of the father's education, whereas parental divorce or separation was shown to be related with the father's lower educational level. As for mental illness of a family member, any association with the socioeconomic characteristics of the students and their parents was not as evident.

Table 12. Association of household dysfunctions and the socioeconomic characteristics of the students and their parents

Socioeconomic characteristics	Substance abuse in the family (drug)	Substance abuse in the family (alcohol)	Mental illness	Mother treated violently	Parental divorce or separation
	OR ^a 95% CI ^b	OR ^a 95% CI ^b	OR ^a 95% CI ^b	OR ^a 95% CI ^b	OR ^a 95% CI ^b
Gender:					
Male	2.81	1.32–2.50	0.95	6.16	0.73
Female	1	Reference	1	1	1
Age (numerical)	1.03	0.91–1.16	1.08	0.99–1.16	0.05
Age group:					
18-19 years	0.80	0.51–0.96	0.70	0.67	0.88
20+	1	Reference	1	1	1
Mother's education:					
Lower level	1.82	1.39–4.27	1.43	1.65	1.64
Intermediate level	0.86	0.68–1.45	0.95	1.20	0.90
High level	1	Reference	1	1	1
Father's education:					
Lower level	3.13	1.51–5.02	1.95	2.15	2.62
Intermediate level	0.86	0.73–1.50	0.71	1.08	1.20
High level	1	Reference	1	1	1
Mother's employment status:					
Unemployed	0.57	1.01–1.89	1.18	1.20	0.98
Other	1	Reference	1	1	1
Father's employment status:					
Unemployed	1.27	1.18–2.42	1.21	1.19	2.29
Other	1	Reference	1	1	1

^a OR = odds ratio^b CI = confidence interval

Adjusting for age, gender and parental education, Table 13 shows that smoking was common among individuals who had been physically abused. In addition, those who were physically abused were more than three times as likely to use drugs, and more than eight times likely to attempt suicide. Those individuals who witnessed alcohol abuse in the family were more likely to have an alcohol problem themselves, increasing the odds by almost two-and-a-half times. Having a family member who had a mental illness increased the odds of drug abuse and suicide attempts. Those respondents who experienced emotional neglect, alcohol abuse in the family and violence against the mother were more likely to engage in risky sexual behaviour (having multiple partners). In particular, those who experienced several types of childhood maltreatment such as physical abuse, mental illness and drug abuse in the family are at a greater risk of attempting suicide. Moreover, parental divorce or separation is shown to be associated with all the above-mentioned health-risk behaviours, increasing the risk of a suicide attempt by more than eight times, and a more than two-fold increased likelihood of the manifestation of other here mentioned risk behaviours. Having a family member who had either used illicit drugs or had a mental illness, increased the odds of several risky behaviours. Those who lived with a family member who used illicit drugs had a nine times as high chance of attempting suicide, while those who lived with a mentally ill family member were more than twice as likely to be a drug user and 16 times more likely to commit suicide.

Table 13: Prevalence and adjusted relative odds^a of health risk behaviours by type of adverse childhood experience

	Current smoker	Problem with alcohol use	Drug abuse	Early sex <= 16 years	Multiple partners > 3	Suicide attempts
Prevalence (%)	281 (18.5%)	127 (8.1%)	163 (10.8%)	303 (38.8%)	293 (40.7%)	48 (3.2%)
Emotional abuse	1.02 (0.64–1.65)	1.63 (0.83–3.20)	0.74 (0.40–1.36)	1.05 (0.63–1.76)	0.96 (0.54–1.71)	1.84 (0.40–8.43)
Physical abuse	1.64 (1.02–2.64)*	1.86 (0.95–3.62)	3.17 (1.75–5.74)*	1.10 (0.64–1.89)	0.68 (0.36–1.27)	8.21 (1.83–36.90)**
Sexual abuse	1.74 (0.79–3.82)	1.30 (0.43–3.90)	1.42 (0.56–3.62)	1.56 (0.71–3.44)	2.09 (0.82–5.31)	3.76 (0.58–24.27)
Emotional neglect	1.03 (0.68–1.56)	1.59 (0.90–2.81)	0.84 (0.51–1.41)	0.63 (0.39–1.02)	0.53 (0.31–0.89)*	0.92 (0.28–3.00)
Physical neglect	1.00 (0.62–1.62)	1.11 (0.58–2.10)	0.99 (0.55–1.81)	1.65 (0.97–2.79)	1.38 (0.75–2.54)	2.83 (0.89–8.98)
Substance abuse in family (drugs)	1.36 (0.53–3.49)	1.71 (0.56–5.22)	2.11 (0.75–5.93)	1.81 (0.67–4.88)	3.34 (0.95–11.77)	9.69 (2.05–45.74)**
Substance abuse in family (alcohol)	1.10 (0.62–1.93)	2.40 (1.26–4.58)*	1.74 (0.93–3.26)	0.93 (0.50–1.71)	2.07 (1.02–4.17)*	0.54 (0.12–2.35)
Mother treated violently	0.92 (0.58–1.46)	0.80 (0.43–1.51)	1.45 (0.85–2.46)	1.05 (0.65–1.72)	1.69 (0.98–2.89)	0.57 (0.16–2.09)
Mental illness	1.19 (0.57–2.47)	1.79 (0.77–4.13)	2.54 (1.15–5.64)*	1.11 (0.48–2.55)	0.80 (0.29–2.18)	16.46 (4.73–57.25)**
Parental divorce or separation	2.19 (1.31–3.67)**	2.64 (1.35–5.15)**	2.88 (1.56–5.31)**	2.01 (1.09–3.73)**	2.02 (0.99–4.11)	8.80 (2.66–29.05)**

* $P < 0.05$; ** $P < 0.001$ ^a odds ratio adjusted for age, gender and education

Table 14 shows the relationship between categories of adverse childhood exposures. Of those respondents who reported physical abuse, 76.4% experienced emotional abuse. In addition, out of the respondents who reported any of the following three: sexual abuse, emotional or physical neglect, almost half reported emotional abuse as well. The most common household dysfunctions reported by those who were exposed to adverse childhood experiences were: violent treatment of the mother and alcohol abuse. Emotional abuse and neglect, along with physical abuse showed a high co-occurrence with all forms of household dysfunctions.

Table 14: Relationship between categories of adverse childhood experiences^a

First category of adverse experiences	Emotional abuse	Physical abuse	Sexual abuse	Emotional neglect	Physical neglect	Substance abuse in family(drug)	Substance abuse in family (alcohol)	Mother treated violently	Mental illness	Parental divorce or separation
Emotional abuse	–	61.2	6.1	41.5	27.3	8.2	20.0	48.0	10.8	15.9
Physical abuse	76.4	–	6.2	39.8	28.4	6.7	20.5	49.1	10.7	14.9
Sexual abuse	48.9	40.0	–	42.6	40.8	10.9	29.2	34.7	8.0	12.2
Emotional neglect	48.5	37.7	6.2	–	39.2	6.3	20.4	38.6	12.1	15.9
Physical neglect	46.0	38.8	9.5	56.1	–	8.4	23.4	42.8	13.9	16.0
Substance abuse in family (drugs)	7.1	46.7	13.5	48.0	44.0	–	41.5	51.9	26.9	15.4
Substance abuse in family (alcohol)	53.7	44.2	9.9	47.6	38.0	12.8	–	47.3	23.6	20.9
Mother treated violently	57.9	48.0	5.4	43.7	32.4	7.8	22.7	–	12.2	17.3
Mental illness	56.6	43.6	5.3	52.2	40.7	15.6	44.1	47.3	–	34.4
Parental divorce or separation	48.5	35.8	4.7	39.5	27.2	5.1	23.3	39.1	19.6	–

^a Percentage (%) of those exposed to another category

Table 15 shows the prevalence and adjusted relative odds of health-risk behaviours by number of adverse childhood exposures. In general, the table indicates that there was a relatively strong, graded association between health-risk behaviours and the number of adverse childhood experiences. Regarding suicide attempts, this health-risk behaviour was found to be over 100 times as likely when the number of adverse childhood experiences rise to four or more. The odds of using illicit drugs and alcohol abuse were also found to be higher as the number of adverse childhood experiences reaches four or more. The smoking status of respondents followed the same trend. Associations were not as evident regarding sexually risky behaviour and the number of adverse childhood experiences.

Table 15. Prevalence and adjusted relative odds of health-risk behaviours by number of adverse childhood experiences

Health risk behaviour	Number of adverse childhood experiences				
	None (n = 572)	1 (n = 343)	2 (n = 269)	3 (n = 161)	≥ 4 (202)
Current smoker	Prevalence % OR ^a (95%CI ^b)	15.6 1.17 (0.78–1.75)	19.4 1.56 (1.03–2.36)*	25.5 2.13 (1.34–3.37)*	30.7 2.67 (1.76–4.04)*
Problem with alcohol use	Prevalence % OR ^a (95%CI ^b)	2.4 1.0 (reference)	9.5 3.19 (1.55–6.54)*	14.6 6.25 (3.02–12.98)*	24.6 10.37 (5.33–20.16)*
Illicit drug use	Prevalence % OR ^a (95%CI ^b)	2.7 1.0 (reference)	8.2 2.72 (1.38–5.36)*	12.1 3.75 (1.91–7.36)*	19.4 6.32 (3.17–12.60)*
Early sex (<16y)	Prevalence % OR ^a (95%CI ^b)	34.8 1.0 (reference)	36.2 0.95 (0.60–1.51)	35.2 0.84 (0.52–1.35)	47.4 1.26 (0.77–2.06)
Multiple partners (>3)	Prevalence % OR ^a (95%CI ^b)	31.4 1.0 (reference)	37.1 1.26 (0.75–2.13)	40.6 1.10 (0.65–1.85)	47.8 1.36 (0.74–2.50)*
Unwanted pregnancy^c	Prevalence % OR ^a (95%CI ^b)	18.2 1.0 (reference)	0 0	0 0	50.0 100.0
Suicide attempt	Prevalence % OR ^a (95%CI ^b)	0.2 1.0 (reference)	0.9 5.63 (0.58–54.59)	1.1 7.73 (0.79–75.17)	3.2 17.49 (1.92–159.42)*
			Unstable estimates		137.77 (18.36–1033.88)*

* P < 0.05

a) OR = odds ratio

b) CI = confidence interval

c) among 833 female students;

9. Discussion and conclusions

Our study aimed to conduct a detailed assessment of the prevalence of adverse childhood experiences (ACE), and to explore potential associations between those experiences, socio-demographic characteristics, socioeconomic and lifestyle/behavioural factors.

The results of this study indicate a high prevalence of adverse childhood experiences in Montenegro. Almost two-thirds (63%) of students reported at least one ACE, which is comparable with the findings in the former Yugoslav Republic of Macedonia, but lower when compared with Latvia and Albania (83.1% and 72.1%, respectively) [32-34].

The methodological differences, particularly in the definitions of types of abuses and neglect, as well as cut-off values could notably be attributed to a variation in the prevalence rates of childhood maltreatment [35,36]. The cross-sectional study on a representative sample of the population of Germany, using the Childhood Trauma Questionnaire, indicated that 68.2% of respondents reported at least one type of abuse or neglect, and 14.5% of respondents reported at least one type of severe abuse and neglect [37]. But in the another study, based on empirically derived cut-off scores, which were lower than in previous analyses, the total prevalence rate and the prevalence rates for different types of abuse and neglect (except for physical neglect and abuse) were also lower, although data from the same survey as the previous study had been used [36]. According to the more recent study, approximately 34% reported at least one abuse or neglect of any kind.

According to the current study, the most frequently reported types of abuse were emotional abuse and neglect, as well as physical abuse. These results are consistent with the findings from other comparable studies of ACEs [33-34]. It is very difficult to make a distinction between emotional abuse and emotional neglect, so some studies use the term emotional maltreatment to cover both [38]. Measuring the prevalence of emotional maltreatment raises many issues, beginning from the broad range of emotionally damaging behaviour, classified as sexual and physical abuse and neglect, then the fact that the vulnerability of children changes with age, ranging to the difficulties of drawing boundaries between unpleasant everyday experiences and abusive treatment. Emotional maltreatment in childhood leaves consequences, prolonged throughout childhood and the entire life span. Almost one-third of respondents in our study experienced emotional maltreatment (30.4% reported emotional abuse and 27% emotional neglect), significantly more of them being male. The current study supports the findings from other studies that emotional abuse accompanied other forms of abuses, especially physical maltreatment [39]. Emotional abuse was reported by 76.4% of our respondents who also experienced physical abuse.

Almost a quarter of the students had been exposed to physical abuse and there was no difference between genders. But according to MICS 2005, boys were more likely to be subjected to both minor and severe physical disciplining (46% and 7%) in comparison to girls (38% and 4%, respectively) [29]. This study indicates that mothers from socially disadvantaged groups were more likely to be prone to use violent methods in child discipline. The lower level of the father's education was a predictor of physical abuse, according to the current study. A study in India showed that over 50% children were subjected to one form of physical abuse, and out of those children physically abused at home, 88.6% were abused by parents [40]. Although without gathering concrete empirical data about the possible reasons for the high percentage of physical abuse against children, the authors suggested that potential attributable factors may be: a patriarchal society that looks upon the children as the property of the father; poor parenting skills; belief in "spare the rod and spoil the child"; dysfunctional families; and a high level of domestic violence in the family.

Our study indicates that boys were more likely than girls to be physically neglected (23.9% vs. 14.4%, respectively). A lower education level and unemployment of the parents were predictors for physical neglect. On the contrary, studies in Denmark and in the United Kingdom concluded that females more often report emotional abuse and physical neglect [35, 41]. In our study, males reported more often than females household dysfunctions like: drug and alcohol abuse by a family member, violence against the mother and having a family member who is in prison. Living in dysfunctional families might account for the higher prevalence of emotional maltreatment and physical neglect in male students. But also it may be difficult to draw a line between deprivation and neglect, bearing in mind that they have been undergoing societal and economic transition in the region.

The overall prevalence of sexual abuse among our students (3.9%) was considerably lower compared to Latvia and the former Yugoslav Republic of Macedonia (10.9% and 12.9%, respectively) [32, 33]. According to the European Report on Preventing Child Maltreatment, 13.4% of girls and 5.7% of boys were sexually abused during their childhood [42]. But contrary to the general perception, in this study boys were more likely to be at risk of sexual abuse than girls (6.8% vs. 1.5%, respectively). The same surprising results were found in the former Yugoslav Republic of Macedonia (20.8% vs. 7.3%, respectively) and in Albania (8.8% vs. 4.7%, respectively) [32,34]. In Croatia, 10.8% of children have experienced some kind of sexual abuse, but there were no gender differences in the prevalence of direct-contact sexual abuse [43]. The likelihood of victimization, and gender differentiation increases with age and is less gender-specific for younger children. Sexually abused children are reluctant to self-report their experience with sexual violence in the family settings due to fear of what will happen to them and their family, fear of being blamed or rejected and that they will not be believed [44]. Cultural factors such as loyalty to parents and personal beliefs may also influence children's readiness to disclose abuse [45]. As mentioned previously, a variety of methodological approaches, particularly in definitions, could produce varying estimates for the frequency of sexual abuse, but also give subjective interpretations of some events as abusive or not [35]. Cultural specific norms could also contribute in differentiating whether or not someone regarded himself/herself as having been abused [35,46]. In our case, potential overreporting by boys could be due to misinterpretation of the questions used in the survey, which emphasized the 5-year age difference between potential victims and the perpetrator. The big issue is consensual sexual experience and at what age a child is competent to give "informed consent" [38]. Sexual abuse was more likely to occur in a family with alcohol and drug abuse problems, and where violence was used against the mother. Males were about three times as likely as females to be sexually assaulted by their friends, while females were twice as likely to be sexually abused by strangers [47].

As for household dysfunctions, which are perceived as one of the adverse experiences, according to the study's findings, violent treatment of the mother (24%) and alcohol abuse by a family member (11.9%) were the most common types of household dysfunctions, along with parental separation or divorce (10.6%). Our study found that 40.3% of male students and 9.9% of female respondents reported violence against the mother, and these gender differences were statistically significant ($P < 0.05$). As it seems unlikely that domestic violence witnessed by male and female students varied substantially, it could be suggested that the findings might have to do with different understanding of the questions by male and female respondents, as seen in a study on domestic violence in New Zealand [48]. Indeed, this study suggested that differences in details of violence reported by men and women more likely reflected perceptions rather than actual differences. Gender could play a major role in how children, particularly teenagers understand and react to violence against their mothers. The coping strategies vary with age and could be triggered by other adversities such as parental substance abuse [49]. Alcohol abuse by the father is most commonly connected with violence against the mother. A growing body of literature shows that abuse histories were strongly related to parental alcoholism, showing that exposure to parental

alcoholism is either highly associated with experiencing ACE's or exacerbating the effects of emotional abuse [50, 51]. On the other hand, bearing in mind the patriarchal environment in Montenegro and war surroundings in the recent past, we should not exclude the possibility that formed ideas about gender roles based on a social messages, associated with violence and victimization, could have contributed to the female students in our study perceiving some violent acts as normal behaviour.

As expected, considering the cultural context of Montenegro and traditionally-oriented society, parental separation or divorce is shown to be associated with several health-risk behaviours (being a smoker, substance abuse, early sex, suicide attempts) and more than eight times as high a risk of a suicide attempt.

Regarding health-risk behaviours, those reported most commonly by students were: smoking, risky sexual behaviour (having more than three lifetime sexual partners) and alcohol and drug abuse. More than half of the students have had sexual intercourse, and significantly more among boys than girls. Bearing in mind that 90% of respondents were 21 years old or under, having had more than three sexual partners during their lifetime could be considered as risky sexual behaviour. The study also showed that 38.8% had had sex before the age of 16, which is worrying. Unsurprisingly, smoking, and alcohol and drug abuse were more prevalent among males. A lower level of the parent's education increases the likelihood of later problems with alcohol for their children. Physical abuse was significantly associated with smoking, drug abuse and suicide attempts later in life. Exposure to non-sexual child maltreatment increases the likelihood of later mental disorders, suicide attempts, drug abuse, sexually transmitted diseases and risky sexual behaviour [17].

Our study presented strong relationships between the number of adverse childhood experiences and health-risk behaviours such as alcohol and drug abuse, smoking, attempted suicide and multiple sexual partners. When compared to students who reported experiencing no ACEs, with those who experienced four or more ACEs, the likelihood of smoking was 2.7 times as high, for alcohol problems and illicit drug use it was 10 times as high, twice as high for multiple sexual partners and 138 times as high for attempted suicide. This graded response strongly suggests that ACEs cause health-harming behaviours.

The Ramiro study shows the same trend of strong dose-response relationship between the number of ACE exposures and health-risk behaviours, particularly suicide attempts, use of illicit drugs, smoking and risky sexual activities [52]. It is estimated that approximately two-thirds of suicide attempts are due to abusive and traumatic childhood experiences [53]. The ACE score has a strong, graded correlation to suicide attempts during childhood/adolescence and throughout their whole lifespan. These findings suggest that child maltreatment and other ACEs may have a long-lasting negative impact on the physical health (such as the development of non-communicable diseases), reproductive health and mental wellbeing of those affected. This has strong implications for prioritising the development of a national action plan for the prevention of child maltreatment in Montenegro. The benefits of such public health and multi-sectoral action would be accrued in childhood and along the course of one's life.

9.1. Limitations of the study

This study has several limitations. Firstly, the cross-sectional design of the study has limited ability to assess causality between adverse childhood experience and health-risk behaviours as an outcome. This limitation could be overcome in future with longitudinal studies. Secondly, the survey was conducted in a representative sample of first-year university students, so the results cannot be extrapolated to the overall population of young people in Montenegro. Thirdly, the data is self-reported. So there is possibility of socially desirable answers being given and underreporting of sensitive issues, like, for example, sexual

abuse. One of the potential weakness in all retrospective studies is recall bias. But taking into account the young age of the respondents, the problem of recall bias is less likely.

Despite the very high response rate (only 2.2% of all respondents refused to participate in the survey), students had some objections to the questionnaire. The questionnaire was too long and complicated, and some questions were deemed inappropriate and unpleasant by some participants, and 5.3% of questionnaires were only partially filled in.

9.2. Recommendations

Given the study findings and the WHO recommendations in the World Report on Health and Violence [13], the following recommendations are proposed for the prevention of child maltreatment. Such action would be central to ensuring that the *Convention on the Rights of the Child* is adhered to. Furthermore, it is in keeping with the principles of equity, governance for health in developing a multi-sectoral response, evidence-based action and a life-long approach, which underpin the new European health policy *Health 2020: a European framework supporting action across government and society for health and well-being* [54].

- **Develop, implement and monitor a national multi-sectoral action plan for the prevention of child maltreatment**

To implement and monitor existing national strategies on violence prevention; to develop a national action plan to prevent child maltreatment in collaboration with all stakeholders (governmental and non-governmental actors and organizations); the national action plan should include objectives, priorities, a timetable and mechanism for monitoring and evaluation.

- **Enhance capacity for collecting data on violence and support regular research on the causes, consequences, costs and prevention of violence**

To enhance capacities for monitoring and for the establishment of a mechanism of systematic collection of data on violence; to assure cooperation and exchange of data between all stakeholders with a development of the capability to carry out comparative analysis. Look to prevent and reduce violence and injuries; promoting and carrying out research and training personnel.

- **Promote primary prevention responses**

To inform and raise awareness of the community about behaviours that can be recognized and defined as violence, with a view to preventing violence, through educative programmes in different media; to support change of perception in the public that violence should not be regarded as a “private matter” of individuals and families; to offer educational programmes to parents, that will present models of achieving discipline of children in a non-violent way, better understanding of the needs of children and learning of adequate ways to fulfil those needs, as well as programmes of developing adequate communication skills between children and parents; setting up social development programmes for children and adolescents through preschool and school, particularly targeting disadvantaged families.

- **Strengthen responses for victims of violence**

Training and education of staff, a multi-sectoral approach and integration of health, social and legal support; establishing emergency response system with defined referral mechanism; enhance the capability of the healthcare sector to recognize signs of violence, to treat and rehabilitate victims; include modules on violence prevention into curricula for medical students; strengthening policy and social services to act in case of child maltreatment in prompt and effective manner.

- **Integrate violence prevention into social and educational policies**

To assure timely and appropriate education of young people by their teachers, community members and institutions, and parents about how to recognize and how to protect themselves from various forms of violence and injuries; to advocate for zero tolerance of violence in schools; to strengthen social protection policies and programmes for the general population and disadvantaged groups.

- **Adherence to international treaties and laws**

To fully incorporate all signed international conventions and accompanying protocols and others treaties in the national legislative and recommended population-based interventions, such as: nurse–family partnerships, positive parenting, preschool enrichment, hospital-based training of parents to prevent abusive health trauma, school-based training for children to recognize signs of sexual abuse.

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