



# **Survey of Adverse Childhood Experiences among Romanian university students**

**Study Report from the 2012 Survey**



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**Adriana Baban, Alina Cosma, Robert Balazsi,  
Dinesh Sethi and Victor Olsavszky**

## Abstract

A survey on adverse childhood experiences (ACE) was conducted on a representative sample of 2088 young adults (1343 females, and 745 males) from 17 public universities in Romania. The aim of the study was to assess the prevalence of ACE in Romania, and to identify relationships between exposure to ACE and health risk behaviors, and health outcomes. The study findings show a high reported prevalence of physical abuse (26.9%), emotional abuse (23.6%), sexual abuse (12.7%), physical neglect (16.5%), and emotional neglect (26.3%). Female participants reported significantly more often being exposed to sexual and emotional abuse. Overall, 18% of students reported exposure to at least four types of ACE. Exposure to household dysfunctions was also common: 21.9% lived with an alcoholic parent, 17.4% witnessed violent treatment of their mother, 15.6% had experienced parental separation, and 12.9% reported that a household member had a mental illness. ACE were positively associated with engagement in health-risk behaviors in late adolescence and young adulthood, such as smoking, alcohol abuse, illicit drug usage, attempting suicide, running away from home, or multiple sexual partners. Moreover, the exposure to a higher number of ACE increased the probability of having somatic complaints and mental health problems in adulthood. The study results offer inputs for policy makers and health specialists to take measures for reducing and preventing child maltreatment.

## Keywords

Accident and injury prevention, Child abuse  
Child advocacy, Child welfare  
Community health services. Health surveys

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# Contents

Acronyms .....	6
Executive summary .....	10
1. Introduction .....	14
1.1 Rational for conducting a survey of adverse childhood experiences in Romania .....	15
2. Conceptual definitions of child maltreatment .....	17
2.1 Child maltreatment .....	17
2.2 Physical abuse .....	17
2.3 Sexual abuse.....	18
2.4 Psychological abuse and neglect.....	18
2.5 Physical neglect .....	18
2.6 Involvement in physical fighting and bullying behaviors .....	19
3. The consequences of child maltreatment.....	20
3.1 Short and long term consequences.....	20
4. Ecological model of risk and protective factors for child maltreatment .....	25
4.1 Risk factors .....	25
4.2. Protective factors.....	26
5. Methodology.....	28
5.1 Aim, objectives and scope of the study.....	28
5.2 For whom is this research intended .....	28
5.3 Research design.....	29
5.4 Research instruments .....	29
5.5 Pilot study .....	30
5.6 Procedure.....	30
5.7 Ethical aspects.....	30
5.8 Sampling.....	31
5.9 Response rate .....	32
5.10 Data analysis .....	33
6. Results .....	34
6.1 Socio-demographic characteristics of respondents .....	34
6.2 History of exposure to adverse childhood experiences.....	35

6.3 Household dysfunctions.....	40
6.4 Number of adverse childhood experiences- ACE score .....	41
6.5 Witnessing violence in the community during childhood .....	45
6.6 Physical fighting and bullying victimization .....	45
6.7 Health risk behaviors .....	47
6.8 The interrelatedness of ACEs (childhood abuse and neglect, household dysfunction) and health-risk behaviors .....	50
6.9 The interrelatedness of ACEs and health status .....	54
7. Discussion .....	58
8. Conclusions.....	63
8.1. Limitations of the study.....	64
9. Recommendations .....	66
10. References:.....	69
ANNEX 1 .....	72
A1.1 Maltreatment by category .....	72
A1.2 Household dysfunction by category .....	73
A1.3 Health risk behavior by category: .....	73

## **Acronyms**

ACE- adverse childhood experience

WHO- World Health Organization

CDC- Centre for Disease Control

UN- United Nations

HBSC- Health Behavior in School Children

SD- standard deviation

N- number of participants

CI- confidence interval

OR- Odds ratio

## Contributors

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*Adriana Baban, Alina Cosma, Robert Balazsi, Dinesh Sethi and Victor Olsavszky.*



## Foreward

It is only recently that violence and its prevention is being clearly recognized as a public health problem. Violence has for a long time been considered a criminal justice and human rights concern. There is growing recognition that health systems have a key role to play in advocacy and providing preventive programmes, in addition to providing services for victims of maltreatment who have been harmed physically, sexually or mentally. The *UN Secretary General's Study on violence against children* has highlighted the plight of the world's children. It highlights that violence against children is ever prevalent irrespective of geography, race, class, religion and culture. The *World report on violence and health* has emphasised the scale, risk factors and advocates for evidence based programming to prevent child maltreatment.

The Ministry of Health of Romania has worked collaboratively with the WHO Regional Office for Europe on highlighting the problem of violence at country level through its biennial collaborative agreements. Since 2006, violence prevention has been a priority on this shared agenda. This has ranged from the launch of the *World report on violence and health* and establishing a steering group for the prevention of violence, which led to the development and the launch of the *National report on violence and health* in 2010, and more recently, this survey of adverse childhood experiences. The current report fits in with the priority given to violence prevention in Romania.

This study used the survey methodology made available in *Preventing child maltreatment: a guide to taking action and generating evidence* and applied it to a representative sample of 2088 university students aged over 18 years. Its findings are striking; child maltreatment and other adverse childhood experiences are very prevalent, whether it is physical abuse, which 27% of young adults report having experienced in childhood, or emotional neglect, reported by 24%. Furthermore, the study also finds a strong association between adversity in childhood and health-risk behaviours, implying that these would result in ill health later in life. This is of particular concern in the European Region, where there is a renewed focus on the life course approach, equity and the prevention of noncommunicable disease. The scientific evidence informs us that reducing the cycles of violence by investing in nurturing relationships and improving social cohesion across the generations at country level are worthwhile investments. One of the aims of the report is to stimulate a national policy dialogue on how to address the problem of child maltreatment. Child maltreatment is a health and social problem and its prevention requires joint actions by different sectors in a

collaborative way. Decisive action is needed to fill these gaps and to take effective steps using the evidence on prevention to secure the safety and well-being of children.

Gauden Galea, Director, Division of Noncommunicable Diseases and Life-Course,  
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## Executive summary

### **Introduction:**

Violence and violent manifestations are major problems of nowadays society affecting all age categories, regardless of gender or socio-economic status. A particular attention is given to violent manifestations against children. Children are a vulnerable population category, as they depend on adults for love and nurture in order to develop. Unfortunately, often enough adults neglect them or even expose them to violent treatments. It becomes thus necessary to quantify the prevalence of child abuse and neglect. Furthermore, there is a need to identify risk and protective factors associated with abuse, and immediate health consequences, in order to offer a solid scientific fundament for developing intervention and prevention programs.

The aim of the present study was to collect data on childhood exposure to adverse experiences (abuse, neglect and household dysfunctions) using a CDC/WHO methodology. We also analyzed the relationships between exposure to adverse childhood experiences (ACE) and involvement in health risk behaviors and health problems in a Romanian university students sample.

### **Methodology and data analysis:**

The study was conducted on a national representative sample of 2088 Romanian students (1343 women and 745 men). Data collection and analysis was done using the methodology developed by Center for Diseases Control and World Health Organization.

### **Results**

#### **Exposure to abuse, neglect and household dysfunctions**

<b>Physical abuse</b>	A high number of participants have been exposed to physical abuse during their first 18 years of life (27.5% of males and 26.6% of females). There weren't any significant differences between the two genders.
<b>Corporal punishment</b>	More than one third of the participants (37.1%) reported that they were spanked while growing up. Males reported significantly more often exposure to this type of treatment (42.4% vs. 34.4%).
<b>Physical neglect</b>	18.5% of the participants reported physical neglect while growing up. Males reported significantly more often this type of abuse (22% vs. 16.6%).
<b>Psychological abuse and neglect</b>	23.6% of the participants (24.9% of females vs. 21.3% males) indicated they were exposed to psychological abuse during their first 18 years of life. There were no significant differences between the two genders. 26.3% of

	participants were exposed to psychological neglect; females reported significantly higher numbers than males (28.9% vs. 21.9%)
<b>Sexual abuse</b>	9% of the participants indicated exposure to sexual abuse during the first 18 years of their lives. Females reported significantly more often this type of abuse. Most frequently, participants reported situations where they were forced to touch or fondle their own body (7.6%). The actual intercourse was reported by 2.7% of participants.
<b>Household dysfunctions</b>	Most frequently, participants experienced situations where someone in their family was abusing alcohol (21.9% of participants). 17.4% of participants reported that they were exposed to situations where mother was treated violently (15% of males and 18.7% of females). 15.6% indicated that they have experienced their parents' divorce. 12.9% of participants reported that they had one person in their family who was mentally ill (15% of females and 3.5 of males).

More than 64% of participants were exposed to at least one type of abuse; 15.2% of males and 20.1% of females reported experiencing at least four types of abuse. Four or more abuse types were experienced by 15.2% of males and 20.1% of females.

### **Fighting, bullying victimization and witnessing violence in their community**

More than one third of participants have been bullying victims during their childhood. Also, more than three quarters of participants have been witnessing violence in the community where they were brought up. The chance of being bullied, of getting involved in physical fighting, or witnessing violence in their community increased as the exposure to ACE categories increased.

### **The relationship between exposure to adverse childhood experiences and involvement on health risk behaviors**

Participants who were exposed to adverse childhood experiences had a higher probability of getting involved in health risk behaviors. Therefore, the persons who were physically abused had higher chances to be early smokers, and to have suicide attempts. Exposure to psychological abuse increased the chance for early smoking, drug consumption and suicide attempts. Participants who reported sexual abuse were more likely to drink and drive, to have suicide attempts and to have an early start of their sex life. Exposure to psychological neglect increased the likelihood to have an early pregnancy and to have suicide attempts. Having a family member who was abusing drugs during their first 18 years increased the chance to abuse drugs and to start smoking at an early age. Having a family member who was abusing alcohol increased the chances for drug abuse and suicide attempts. Witnessing episodes where mother was treated violently increased the chance of using drugs and of

having suicide attempts. The separation/divorce of the parents increased the likelihood for using drugs and having suicide attempts. These results indicate that the experience of adverse experience during childhood increases the chance of involvement in several health risk behaviors in late adolescence and adulthood.

Overall, the results indicate that exposure to a higher number of ACEs increases the probability of involvement in health risk behaviors.

### **Health status and its relationship with ACEs**

The chance of having health problems increases as the exposure to ACE categories increases. If a person is exposed to two ACE categories the chance of having asthma increases by 2.17 times. The chance of having skin problems, back pains or sleep problems increased progressively if a person was exposed to a higher number of ACEs. The chance of having depression increases from 1.9 times, if a person experienced a single ACE category, up to 6.33 times if a person experienced four or more ACE categories. If a person was exposed to four or more ACE categories the chance of having sexually transmitted diseases increased by 3.85 times.

### **Conclusions**

The present results are in line with previous research and indicate that the prevalence of adverse childhood experiences among Romanian students is high. Moreover, there are significant associations between ACE and involvement in health risk behaviors and health status in adults.

The most prevalent abuse types reported have been psychological abuse and neglect, and physical abuse and neglect. Sexual abuse was reported by one tenth of our sample with women indicating significantly more often experiencing this kind of abuse. Alcohol consumption by a family member and witnessing episodes where the mother was treated violently were the most frequently reported household dysfunctions. .

Involvement in risky sexual behaviors, smoking and early smoking, and illicit drug use were the most frequently reported risk behaviors. As the exposure to ACEs increased, the chance for early smoking, alcohol consumption, illicit drugs use, multiple sex partners, unwanted pregnancies and suicide attempts also increased.

Exposure to ACEs increased the likelihood of having sleep problems, depression, headaches, back pains, and skin problems.

### **Implications**

The present study offers much needed data for a better conceptualization of childhood abuse and its consequences on people's health and involvement in health risk behaviors in

Romania. Also, it offers an input for policy makers and health specialists in order to take measures to reduce and prevent child maltreatment.

# 1. Introduction

Violence represents one of the world's greatest problems. The violent manifestations are universal and highly prevalent. Moreover, their short and long term consequences on people's health emphasize the need for prevention and intervention. World Health Organization defines violence as "*the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation*" (p. 5) (1). This definition draws attention on the association between the intention of committing the violent act and the actual violent manifestations no matter the consequences. The category of violent behaviors also includes: interpersonal violence, suicidal behaviors and armed conflicts. The manifestation of violence goes beyond physical violence and includes: threats, harassments, psychological abuse and neglect. Unintended incidents like auto injuries or burnings are not included in the category of violent behavior, according to this definition.

In the last decades, an important interest has been directed towards child abuse and maltreatment. As the 2006 United Nations report on violence against children stresses *no country is immune to this phenomenon, the violent manifestations cut across boundaries of geography, race, class, religion and culture* (p. XI) (2). Children can be exposed to abuse in their homes, in schools, at the playground or in other institutions, and the abuser can be a parent or other family members, people who live in their community, teachers, people who work in different child care institutions, or even peers.

Gilbert et. al., (2008) stresses the fact that, each year, between 4% to 16% of children from developed countries are being exposed to physical abuse, and one out of ten children is psychologically neglected or abused. During childhood, between 5% to 10% of the girls and almost 5% of boys are forced to have sexual intercourse, and almost three times more children are victims of other types of sexual abuse (3).

The last two decades of research on child abuse shows that exposure to violence and abuse during childhood has a negative impact on children's physical, psychological and social health, and its consequences can be traced throughout adulthood. Child abuse is an important contributing factor to a higher mortality and morbidity rate in this population, and it is also related to children's and adolescents' involvement in health risk behaviors (e.g. substance abuse, risk sexual behaviors, delinquency).

Violence against children is not justifiable, and all forms of violence are preventable. Therefore, international community, governments and local administrations, civil organizations, civil society and citizens need to understand this problem and take the

necessary measures to reduce and prevent all violent manifestations directed towards children.

## **1.1 Rational for conducting a survey of adverse childhood experiences in Romania**

In the last decade, violence against children has become a hot topic for Romanian authorities, NGOs and civil society. Several changes have been made in the Romanian legislation, but the implementation of all these new legislative changes is still a work in progress. The high prevalence of violence against children in Romania, as shown in the latest official statistics or in the media news, emphasize the need for a scientific analysis of child abuse.

A 2002 WHO report (4) showed that 84% of Romanian adolescents (13 to 14 years old) have been exposed to corporal punishment and 24% have reported physical abuse. Emotional abuse was reported by 21% of adolescence, and 9% indicated that they have been victims of sexual abuse. The prevalence of neglect in the adolescent sample was higher than the prevalence of abuse. The report shows that 46% of adolescents were physically neglected, 44% reported were emotionally neglected, and that 34% were exposed to educational abuse. No gender difference was registered. Adolescents living in rural areas reported significantly higher prevalence of all forms of abuse.

According to General Directorate of Social Assistance and Child Protection in Romania, most of child abuse situations happens within the family, and that most often children are neglected by the persons who should offer them care and nurture. Also, it appears that most of the abuse cases happen in rural areas (e.g. work exploitation, neglect or forcing the child to commit crimes). The same source states that the most vulnerable age period is between 10 and 13 years old (5).

Violence among Romanian school-age children is a widespread phenomenon according to Health Behavior in School Children (HBSC) data (6,7). HBSC study offers information on school children involvement in physical fighting and bullying behaviors. According to HBSC 2010 results, Romanian children, regardless of the age at which data were collected: 11, 13 or 15, have a constantly higher rate of involvement in physical fighting compared to the average rate from all the 41 countries included in the study. The highest prevalence was recorded for 11 years old children (8% of girls and 25% of boys) and for 13 years old children (6% of girls and 26% of boys).

According to the same study, **bullying victimization** among Romanian school children has a very high prevalence. For all age categories, Romanian boys reported a higher prevalence compared to the HBSC average (19% vs. 14.3% for 11 years old children; 22.4% vs. 13.1% for 13 years old children, and 17.2% vs. 9.8% for 15 years old children). The same trend is



present for girls also. Bullying victimization rates decreased as the family socio-economic status increased. Romanian children have *the highest prevalence for bullying-others situations for both genders and all age groups*. Only 11 years old girls reported the second prevalence rate in all the countries surveyed, after Latvia (17.2% vs. 22.5%).

One in three Romanian women is a victim of domestic violence (8), but usually this phenomenon tends to be frequently underreported and the real prevalence might be even higher. In 2012, the Romanian Parliament has voted some important changes to the previous law against domestic violence (Law no 25/2012). The most important modifications state that: the victim has the right to ask for a protection order against the abuser; the court of law can prohibit the aggressor to stay or to return to their residence; and the aggressor can be forced to cover all the legal costs associated with the abuse (medical costs, law suite costs, the costs associated with providing a temporary shelter to his wife and/or children). The victim can ask for a restriction order which asserts the evacuation of the aggressors from their residence; keeping a minimum distance of 200 m from the victim; and the interdiction to contact the victim by phone or by sending any type of correspondence. This restriction order cannot be longer than 2 years (9).

Romanian laws interdict any type of abuse directed towards the child within the family, in schools or public spaces (Law 272/2004). By adopting this law, Romania has joined the other 33 states in which any kind of child abuse is officially prohibited. Moreover, in 2007 the Romanian Government approved the National Strategy for reducing violence in schools (10). Every County School Inspectorate and every school has the obligation to plan activities aiming to reduce violence in schools. Even if these measures have been implemented over the last few years, their impact on reducing school violence is still weak. As the HBSC 2010 results showed, involvement in bullying behaviors has increased compared to 2006.

The first chapters of this report present a short conceptualization of child maltreatment and the main assumptions of the ecological model for child maltreatment. We then focus on presenting the main findings of the ACE survey conducted on a Romanian university students' sample. In the end we discuss the implications of these data for public health policy makers and mental health practitioners.

## 2. Conceptual definitions of child maltreatment

### 2.1 Child maltreatment

Child maltreatment can be defined as “*all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child’s health, survival, development or dignity in the context of a relationship of responsibility, trust or power*” (p. 16) (1). The high variability of the types of the abuse, the children’s age, the context in which the abuse occurs, and the relationship with the abuser, makes the developing the appropriate prevention and intervention strategies difficult. The aggressors in the context of child abuse can vary from parents or other family members, to family friends, strangers, people who are in a position of power over the child (teachers, social workers, medical staff etc.), or peers.

The *World Report of Violence against Children* (2) distinguishes four types of child maltreatment:

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

Besides these types of child maltreatment, we can include physical fighting and bullying behaviors among violent behaviors to which children are exposed during their childhood. These behaviors have a high prevalence among school age children, and their effects on children physical and mental health are well documented (7).

The ACE Study is the first large-scale study to empirically demonstrate that various types of trauma and household dysfunctions in childhood significantly increase the risk for physical and mental disease in adulthood. While the relationship between childhood maltreatment and mental health problems is well documented, the ACE Study breaks new ground in exposing the physical manifestations of childhood trauma. The ACE Score is calculated by tallying the total number of categories of childhood stressors evaluated with a standardized questionnaire.

### 2.2 Physical abuse

Physical abuse of a child is defined as the intentional use of physical force against a child that results in – or has a high likelihood of resulting in – harm for the child’s health, survival, development or dignity. In this category are included behaviors like hitting, beating, kicking, shaking, biting, strangling, scalding, burning, poisoning and suffocating (1). There is evidence that a great proportion of physical violence against children in the

home is inflicted with the object of punishing (11). One particular example of physical abuse of a child is beaten child syndrome. This term is used to describe children who have repeated strong injuries on their skin, bones or at their nervous system level. These children have multiple bones fractures, repeated head or visceral trauma.

### **2.3 Sexual abuse**

Sexual abuse is defined as the involvement of a child in sexual activity that he or she does not fully comprehend, is unable to give informed consent to, 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).

This type of abuse is most often recognized by health practitioners who treat children for other health complaints or behavioral problems and after a further analysis realize that they were symptoms of a sexual abuse. It is common that children who are victims of sexual abuse to have infectious transmitted disease, lesions in their genital area, abdominal pain, constipation, chronic urinary infections or behavioral problems (2, 12).

### **2.4 Psychological abuse and neglect**

Emotional or 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 his/her physical, mental, spiritual, moral or social development. Abuse of this type includes rejecting, degrading, blaming, threatening, frightening, terrorizing, isolating, corrupting, discriminating against or ridiculing; exploiting and other non-physical forms of rejection or hostile treatment; and denying emotional responsiveness (1). Witnessing domestic violence is considered to be a particular type of psychological abuse. The long term consequences of psychological abuse and neglect can sometimes be more negative than the exposure to physical or sexual abuse.

### **2.5 Physical neglect**

Neglect includes isolated incidents as well as a pattern of failure over time on the part of a parent or other family 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 (1):

- health;
- education;
- emotional development;
- nutrition; and
- shelter and safe living conditions.

The parents of neglected children are not necessarily poor. They may equally be financially well off. Neglect might be borderline when it comes to the issue of poverty and ignorance on the part of the caregivers about the developmental needs of children and should be very carefully assessed (11).

## **2.6 Involvement in physical fighting and bullying behaviors**

Involvement in physical fighting is the most common form of interpersonal violence in children and adolescents. The major differences between fighting and bullying includes the absence of the power imbalance, the actions are not repetitive and most of the times children who engage in fighting have similar ages and physical power. Fighting can have a negative impact on the children's mental and somatic health and can also be associated with bullying or medical attended injuries (13). On the other hand, bullying can be defined as the situations when *a person is bullied when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more other persons, and he or she has difficulty defending himself or herself* (14).

### **3. The consequences of child maltreatment**

Child abuse is a major manifestation of pathogenic family relationships which has negative effects on child's physical, social and emotional development. Even if the prototypical image of an abused child is centered on physical injuries, burning signs, abandonment or malnutrition, the socio-emotional consequences of abuse can have the greatest impact on further development (15). The consequences of living in an abusive environment can be visible in the children's immediate development and behavior, but quite often the impact of abuse and maltreatment can be noticeable in adulthood and affects the individual's health and social functioning.

#### **3.1 Short and long term consequences**

The manifestation of short and long term consequences of child abuse can vary as a function of: the age of the child when the abuse happened, the severity of the abuse, the child's relationship with the abuser, the time interval in which abuse occurred, and some other factors related with child's social environment (1). In the next paragraphs we present a brief analysis of short and long term consequences of exposure to different types of abuse (Table 1). The development areas affected vary from somatic and mental health (mental disorders at clinical and non-clinical level), to impaired cognitive and social functioning (delinquency, involvement in risk behaviors).

##### ***3.1.1 The effects of child abuse and maltreatment on somatic health***

Research literature emphasizes the strong associations between physical abuse and injuries, bone fractures or lesions of internal organs (3). Retrospective studies have documented the relationship between exposure to abuse during childhood and eating disorders (anorexia, bulimia), or health problems in adults (such as: cardiac diseases, cancer, chronic pulmonary disorder or liver dysfunctions). One possible explanatory mechanism for this output is that many children who are abused tend to use the engaging in several health risk behaviors (such as smoking, substance abuse, sedentary behavior etc.) as a coping strategy with their current or past situation (2). The experience of sexual abuse during childhood was associated with obesity, with early sex life, multiple sex partners, high abortion rates and also higher prevalence of sexual transmitted diseases (16)

##### ***3.1.2 The effects of child abuse and maltreatment on psychological health and development***

The experience abuse in childhood increases the chances of having internal disorders (anxiety, depression) or external disorder (aggressive behaviors, conduct disorder) in childhood, and even in adulthood. The exposure to corporal punishment has been related

with a low self-confidence and assertiveness, and with an increased lack of hope or feelings of humiliation (17). A large proportion of children who have been exposed to abuse or neglect have a higher probability of developing major depressive disorder in adolescence or adulthood, but the first symptoms usually appear in childhood (18). Moreover, exposure to childhood abuse increases the risk for posttraumatic stress disorder. Physical and sexual abuse during childhood doubles the risk for suicide attempts in young adults. Research literature indicate that the risk for suicide attempts increases as the person is exposed to more abuse categories or witnessing domestic violence episodes (19,20). There is a moderate relationship between experience of abuse during childhood and alcohol abuse, especially for girls (18).

According to Kendall-Tackett (2002), the main consequences of psychological abuse and neglect can appear at: an interpersonal level (low self-esteem, anxiety symptoms, depression, suicidal ideations or suicidal attempts); an emotional level (emotional instability, impulse control problems, anger, and substance abuse); social abilities level (antisocial behaviors, attachment problems, low social competences, low level of empathy and compassion, aggressiveness and violence); learning potential level (low academic achievement, learning difficulties); and also at health level (poor health, early death rates) (21).

One possible mechanism that could explain the relationship between child maltreatment and later psychological problems has been revealed by recent neuroscience research emphasizing the effect of child abuse and maltreatment on brain development. Repeated exposure to stress alters the function of hypothalamus-pituitary-adrenergic system. Even if short term exposure to stress facilitates the development of new functional coping strategies, prolonged exposure to stress over-activates the body's response to stress. This over-activation alters the normal brain metabolic functioning, and its coping with normal daily stress. For example, children who have been abused tend to have higher cortisol levels (22).

Scientific literature states that children who have been exposed to one type of abuse have a greater probability of experiencing other types of abuse too. Moreover, the frequency of abuse occurrence is highly associated with the abuse severity. Therefore, in most cases child abuse is a more a chronic condition, rather than a single event. Exposure to multiple types of abuse over long periods of time is associated with greater risks for having health problems (23, 24).

**Table 1. Health consequences of child abuse**

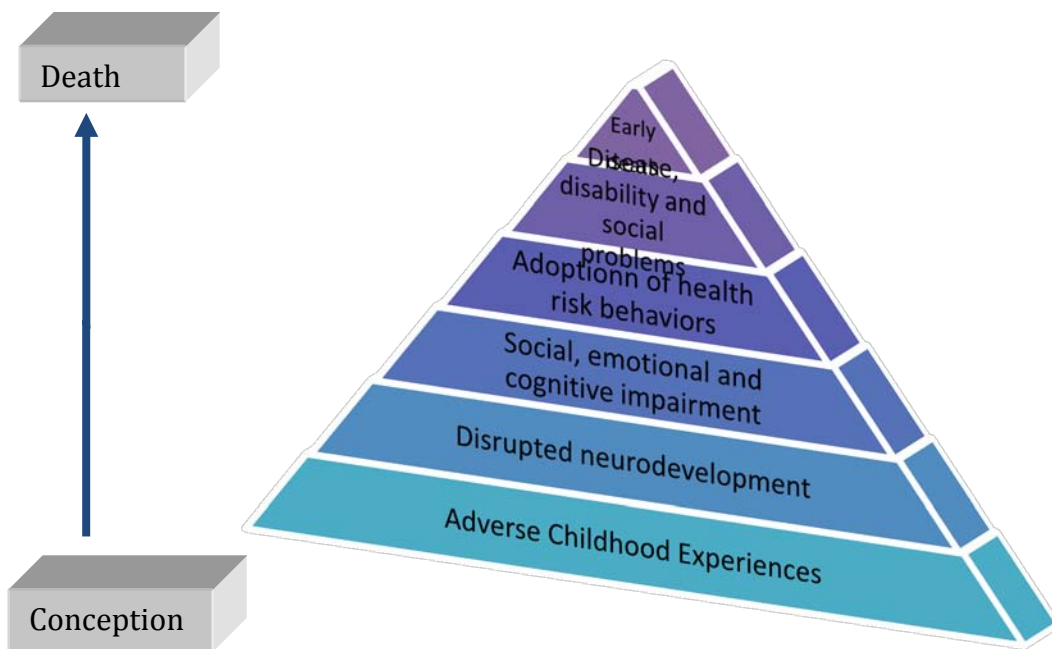
<p><b>Physical health consequences:</b></p> <ul style="list-style-type: none"> <li>- Abdominal/thoracic injuries</li> <li>- Brain injuries</li> <li>- Bruises and welts</li> <li>- Burns and scalds</li> <li>- Central nervous system injuries</li> <li>- Disability</li> <li>- Fractures</li> <li>- Lacerations and abrasions</li> <li>- Ocular damage</li> </ul>	<p><b>Psychological and behavioral consequences:</b></p> <ul style="list-style-type: none"> <li>- Alcohol and drug abuse</li> <li>- Cognitive impairment</li> <li>- Delinquent, violent and other risk-taking behaviors</li> <li>- Depression and anxiety</li> <li>- Developmental delays</li> <li>- Eating and sleep disorders</li> <li>- Feelings of shame and guilt</li> <li>- Hyperactivity</li> <li>- Poor relationships</li> <li>- Poor school performance</li> <li>- Poor self-esteem</li> <li>- Post-traumatic stress disorder</li> <li>- Psychosomatic disorders</li> <li>- Suicidal behavior and self-harm</li> </ul>
<p><b>Long term health consequences:</b></p> <ul style="list-style-type: none"> <li>- Cancer</li> <li>- Chronic lung disease</li> <li>- Fibromyalgia</li> <li>- Irritable bowel syndrome</li> <li>- Ischemic heart disease</li> <li>- Liver disease</li> <li>- Reproductive health problems such as infertility</li> </ul>	<p><b>Sexual health consequences:</b></p> <ul style="list-style-type: none"> <li>- Reproductive health problems</li> <li>- Sexual dysfunction</li> <li>- Sexually transmitted diseases, including HIV/AIDS</li> <li>- Unwanted pregnancy</li> </ul>

### ***3.1.3 The impact of multiple abuse categories***

In the last decades the interest has shifted from analyzing the impact of single type of abuse to the analysis of the impact of multiple abuse categories. As previous stated, usually individuals experience simultaneously multiple abuse types. ACE methodology facilitates the analysis of the impact of multiple abuse categories (Figure 1). Most often, physical abuse in childhood, witnessing domestic violence and substance abuse of a family member appear simultaneously with other types of abuse such as physical neglect, and psychological abuse and neglect. Therefore, when analyzing child maltreatment it is necessary to evaluate the exposure to multiple types of abuse.

Previous studies based on ACE methodology showed that several abuse categories (physical abuse and neglect, psychological abuse and neglect, sexual abuse) co-occur with several household dysfunctions (domestic violence, substance abuse by a family member, mental illness, suicide attempts or criminal behavior of a family member). Moreover, using the same methodology, several studies indicated that there is a relationship between exposure to multiple ACEs categories and health risk behaviors (smoking, substance abuse,

risk sexual health behaviors, suicide attempts), and also between ACEs and several health complaints or health problems (chronic liver or heart dysfunctions, headaches, depression etc.). For example, these studies could indicate that the basic causes of addictions are to be found in our personal histories. Also, in line with the argument stated earlier, studies using ACE methodology confirm that sustained stress in childhood results in overproduction of cortisol, with profound, lifelong impacts on the brain and the body. As the number of ACE increase, the risk for health problems such as: chronic obstructive pulmonary disease (COPD), ischemic heart disease (IHD), liver disease, and fetal death also increase. Also, as the number of ACE increase, the risk for engaging in the following health risk behaviors increases: alcoholism and alcohol abuse, illicit drug use, risk for intimate partner violence, multiple sexual partners, sexually transmitted diseases (STDs), smoking, unintended pregnancies, early initiation of smoking, early initiation of sexual activity, and adolescent pregnancy. Also, the exposure to ACE increases the risk of having depression (as young adults, but also in late adulthood) and suicide attempts and suicidal ideation. The exposure to adverse childhood experiences was also associated with low health-related quality of life. (25, 26, 27).



**Figure 1. Mechanism by which Childhood Adverse Experiences influence health and well-being through the life span**



### ***3.1.4 Economic costs***

Besides the social and health impact, the abuse against children has a considerable economic impact as shown by:

- direct medical costs;
- school drop-outs;
- unemployment; and
- necessary financial investments for prevention and intervention programs.

Abuse during childhood is highly associated with low academic achievement, high school drop-out rates and school absenteeism. Moreover, the economic pressure is enhanced by the entire indirect costs associated with experience of violence: low productivity, disability, low quality of life, and early death (2).

All these studies indicate that the prevalence of adverse childhood experiences and their long-term effects are clearly a major determinant of the health and social well-being of the entire population from each country. In this context, it is important to investigate these relationships within the Romanian population. Considering the previous reported high prevalence of abuse and maltreatment directed towards the children, the high prevalence of domestic violence or high violence rates among children it is important to investigate the interrelatedness between these categories and also their impact on health and engagement in risky behaviors in adulthood.

## 4. Ecological model of risk and protective factors for child maltreatment

Interpersonal violence cannot be explained by a single factor, but is the result of the interaction of individual, relational, social, cultural and environmental factors. The ecological model proposed by Bronfenbrenner (1979) offers the appropriate theoretical framework for explaining the interplay between risk and protective factors (Figure 2) (28). It is important to identify risk and protective factors associated with child maltreatment and abuse because they offer the necessary data for designing interventions which target specific vulnerable groups.

The ecological theory regards child maltreatment as a socio-psychological phenomenon determined by multiply forces at work: the individual system (ontogenic development) and the family system (micro-system), as well as the community (meso-system) and the culture (macro-system) in which both the child and the family are embedded (29).

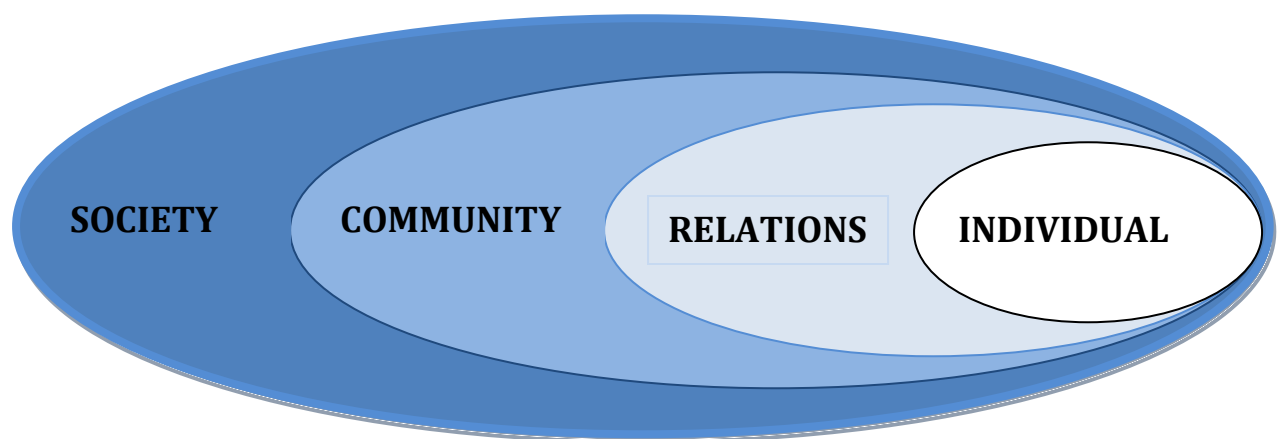


Figure 2. Ecological model describing the risk factors for child maltreatment

### 4.1 Risk factors

#### 4.1.1 Individual risk factors.

The first level of the model deals with a range of factors related to individual functioning which might foster violent manifestations or violence victimization (age, gender, special individual characteristics). Vulnerability towards violent treatments it is directly dependent upon children's age: more serious outcomes are expected for younger children. Gender is another important factor. Studies indicate that particular types of abuse are more prevalent among girls (infanticide, sexual abuse, educational and physical neglect) or boys

(physical abuse or corporal punishment). Special individual characteristics such as physical or mental handicap, premature birth, or having a twin sibling increases the chance of experiencing physical abuse or neglect. Moreover psychological or behavioral characteristics like hyperactivity, impulsivity, reduced behavioral control, attention problems, negative emotionality, or difficult temperament can be important risk factors for being either a victim of violence, or an abuser towards peers (2).

#### ***4.1.2 Relational level risk factors***

Certain relational characteristics associated with parents and family can influence individuals' risk for both perpetrating and being victim of abuse. For example, abusive parents tend to have a low social-economic status, to be separated and unemployed, and to have lower educational attainment. Previous research shows that single mothers have three times higher chances to use harsh disciplinary methods and abuse, compared with mothers who are in a relationship. Also, abusive parents tend to have low self-esteem, low impulse control, mental health problems and antisocial behavioral manifestations. Parents who neglect their children present also difficulties in planning major life events like marriage, having babies or finding a work place. Moreover, an instable and over-populated family environment, or domestic violence episodes within the family also represent important risk factors for child maltreatment. Previous experiences of abuse, parental stress, social isolation or the loss of income (or low socio-economic status) can also be considered important risk factors.

#### ***4.1.3 Community risk factors***

These factors are related to the settings where the social relationships are embedded. The most important factors at this level are: unemployment, poverty and social capital. Social capital is an indicator of cohesion and solidarity among community members. Children who live in a community with a low social capital have a higher chance of experiencing abuse and neglect. Also, easy access to alcohol or other addictive substances, and inadequate local policies can also be specific risk factors.

#### ***4.1.4 Societal risk factors***

Certain underlying conditions of society can have an influence on child maltreatment. Specific factors for this level of analysis in Romania might be: traditional norms that encourage corporal punishments, economic inequalities, and current national policies for child and women protection.

### **4.2. Protective factors**

Besides the aforementioned risk factors there are also factors that might play a protective role against childhood maltreatment. These factors include (12):

- child related factors: easy temperament, high cognitive abilities (e.g. intelligence)
- secure attachment of the infant to an adult family member;
- high levels of paternal care during childhood;
- lack of associating with delinquent or substance-abusing peers;
- a warm and supportive relationship with a non-offending parent;
- a lack of abuse-related stress;
- the existence of a peer social support network (especially for teen-agers); and
- the existence of a social support network inside the community.

## 5. Methodology

The present research aims at investigating the prevalence of adverse childhood experiences among Romanian university students, and its possible associations with the engaging in health risk behaviors (e.g., alcohol and drug consumption, smoking, sexual risk behaviors) and/or medical conditions. Our study used a CDC /WHO methodology (1)).

### 5.1 Aim, objectives and scope of the study

The aim of this study was to report on the prevalence of adverse childhood experiences and health problems among Romanian university students. Applying the recommendations of the WHO/CDC methodology the following aspects were measured: child abuse and neglect (physical abuse and neglect, psychological abuse and neglect, and corporal punishments), household dysfunctions, health risk behaviors (smoking, alcohol and illicit drug use, sexual risk behaviors, running away from home), and several health complaints.

The following specific study objectives were defined:

- to investigate the prevalence of exposure to different types of abuse and neglect during childhood;
- to investigate the prevalence of exposure to household dysfunctions during childhood;
- to identify risk factors associated with the exposure to adverse childhood experiences;
- to assess the impact of multiple types of maltreatment on health risk behaviors;
- to assess the interrelationship between the exposure to adverse experiences during childhood and health complaints in adulthood; and
- to propose national preventive measures and policy guidelines against childhood abuse.

### 5.2 For whom is this research intended

The violence against children is a systemic social problem. A large proportion of child maltreatment is never reported to the authorities and the victims suffer in silence.

Using a retrospective approach, this study offers an epidemiologic view of the child maltreatment and their impact on mental and somatic health among Romanian university students. Moreover, by identifying several risk and protective factors, this study will offer important guidelines for public health specialists in order to develop evidence-based prevention and intervention programs at different levels (individual, group or community) and different sectors (school, health, community service). Also, this study will offer important relevant information for bringing new insights about new appropriate national

legal measures for preventing childhood abuse and neglect. The results from this study might provide support to:

- public health specialists;
- policy makers at national level (educational, parental, social or health promotion);
- program planners at national and local level who develop violence prevention and intervention programs (especially, child maltreatment and domestic violence programs);
- government and non-government organizations who activate in child development domain;
- mental health practitioners; and
- general public.

### **5.3 Research design**

The study we conducted uses a descriptive cross-sectional design. Data were collected from a national level representative sample of Romanian university students, therefore the study conclusions can be generalized for the entire population of students in Romania. Also, using a representative sample offered us the possibility of making comparisons between different subcategories in our sample. Particularly, we used gender as a criterion variable and data are presented comparing males and females' reports on ACEs in Romania.

### **5.4 Research instruments**

The Adverse Childhood Experiences (ACE) questionnaires were used for this study. These questionnaires were developed by the Center for Disease Control and Prevention (Atlanta) in 1997, ([www.cdc.gov/nccdphp/ace](http://www.cdc.gov/nccdphp/ace)) and include *Family Health Questionnaire* and *Physical Health Appraisal Questionnaire*, both with separate versions for men and women. The questionnaires were translated from English to Romanian and backwards. The translation and retroversion were made by different translators. The translation differences were discussed by the research team and the first draft of our questionnaires was tested in pilot study.

#### **5.4.1 Family Health Questionnaire**

*Family Health Questionnaire* consists of 68 items examining various types of *child maltreatment* (physical abuse and neglect, psychological abuse and neglect, sexual abuse), *household dysfunctions* (alcohol abuse, mental illness in the family, mother treated violently, parental divorce) and *engagement in health risk behaviors* (e.g. smoking, alcohol and drugs consumption, suicidal attempts, and sexual risk behaviors). Most of the items are introduced with the phrase: '*While you were growing up, during your first 18 years of life, ...*' (Annex 1).

#### **5.4.2. Physical Health Appraisal**

*Physical Health Appraisal Questionnaire* has questions on the respondent's self-rated health, and items asking about a history of: ischemic heart disease (including heart attack or use of nitro-glycerin for chest pain during exertion); any cancer; stroke; chronic bronchitis, asthma or emphysema (chronic obstructive pulmonary disease); diabetes; hepatitis or jaundice; any skeletal fractures (as a proxy for risk of unintentional injuries); chronic headaches, back pain or abdominal pain.

#### **5.5 Pilot study**

In order to verify the content and the form of the questionnaires, the application procedure, and the occurrence of possible emotional reactions towards the items, the questionnaires were initially distributed to a small group of participants (N=48: 21 men; 27 women). The participants were asked to mark the items that they do not understand and the items which are not phrased acceptable. A group of mental health professionals and persons from our target population were asked to provide information about the degree of cultural acceptability of the items. After the analysis of the information gathered in this phase, we made several changes regarding the phrasing of some items. No items were excluded or included.

#### **5.6 Procedure**

The research was conducted in seven developmental regions of Romania between May-June 2012. The study was coordinated by a group of experts from the Department of Psychology in Babeş-Bolyai University, Cluj Napoca, Romania. Data were collected by 15 field researchers, selected from among the staff of departments of psychology and pedagogy of the universities included in the study. An intensive training about the scope of the study, methodology and ethical constraints was offered to the field researchers. Two experts from the research team supervised the activity. For the purpose of this research, a document with a description of study rational, ethical aspects and methodology was submitted to the Ministry of National Education. Subsequently, the selected universities were contacted.

#### **5.7 Ethical aspects**

The research protocol was approved by the Ethical Board of Babeş-Bolyai University. Information letters about the purpose and study methodology, and informed consent was sent to all the universities from our sample.

The ethical issues were an important component of the research. The field researchers were thoroughly trained to respect all the ethical aspects of the study protocol in all phases

(presentation of the aims of the study, assurance of the anonymity of the participants, acceptance of withdrawal from the study, data collection).

Before starting to answer the questionnaires, participants were informed about the rationale and nature of the study and it was emphasized that their participation was voluntary and that they could withdraw any time during the study. Also, after the participants have signed the informed consent they were announced that if they have any emotional discomfort after they read the questionnaires' items, the research team will provide a list with mental health practitioners from their city to whom they could address.

Special attention was given to the anonymity of the participants and the confidentiality of the data collected. After finishing answering the questions, each participant was instructed to introduced the questionnaire in an envelope and to seal it. Students filled up the questionnaires in the classrooms, before or after a course. They were also informed that they could withdraw at any time during the study without offering any other explanation.

## 5.8 Sampling

A stratified sampling was used in order to increase the sample's representativeness. The study sample was stratified according to two variables: development region (in Romania there are eight development regions<sup>1</sup>) and type of the city (according to the number of inhabitants there three types of cities: between 30.000-99.999 inhabitants, between 100.000-200.000 inhabitants and over 200.000 inhabitants). Also, we included only the cities which have a university. We excluded all higher education institutions which did not have official accreditation from the Ministry of National Education.

The number of participants in each stratum (24 stratum) was estimated by taking into account the number of recorded students from higher education institutions from a specific city in a specific region (from 8 development regions- Figure 3). For each stratum, one or two higher education institutions (universities) were selected. From each university included in the study there was a random selection of participants from bachelor and master programs. The number of participants included in the sample was calculated by taking into account the number of students registered in all study years, and the prevalence rate of people from general population who are attending university in Romania (17-26%). The questionnaires were going to be completed by students who attended courses or

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The **development regions of Romania** refer to the eight regional divisions created in Romania in 1998 in order to better coordinate regional development as Romania progressed towards accession to the European Union. The development regions correspond to NUTS II-level divisions in European Union member states. Despite becoming increasingly significant in regional development projects, Romania's development regions do not actually have an administrative status and do not have a legislative or executive council or government. Rather, they serve a function for allocating European Union PHARE funds for regional development, as well as for collection of regional statistics.



seminars on the day of data collection. We sent around 2500 questionnaires to the partner universities.

The final sample consisted of **2088 participants** from **17 Romanian universities**: three universities from Bucharest region (N=511), three universities from the Central region (N=136), three universities from North-East region (N=345), four universities from North-West region (N=593), two universities from West region (N=312), one university from South-East (N=141) and one university from South-West (N=50).<sup>2</sup> In order to verify if the quality of the selected sample, the sample structure was compared to target population structure as it was presented in national statistics from 2011. According to these results, our research sample is a representative sample for young adults' student population with an error of +/- 2.5 %.

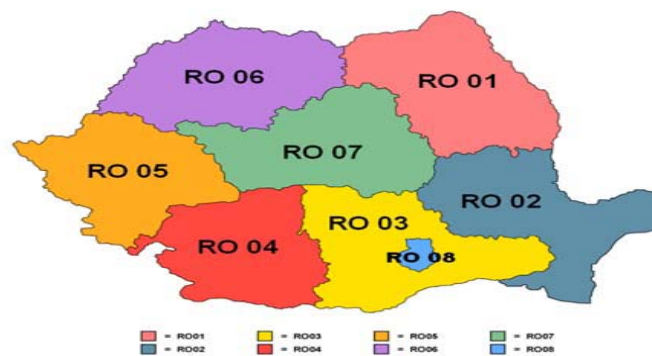


Figure 3. A map of Romanian developmental regions

## 5.9 Response rate

For the ACE Study in Romania, a total number of 2337 questionnaires were completed in 17 universities. All universities which were initially selected agreed to participate in the study. The absence of refusal could be due to the high collaboration quality and good communication between universities, but also to the high rates of responsiveness from universities boards, and their general interest in students' physical and mental health status.

At individual level, the initial rate of student response was 94.88% (the acceptance percentage is significantly higher than values we have registered in previous studies). The participants either refused to participate (by not signing the informed consent) or they had a passive refusal (they accepted to participate in the study, but they returned a blank

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<sup>2</sup> Given the cultural, social-economical similarities between the S-W, S-E and S regions, and also the high rates of student mobility, the percentage of the students from the South region was relocated to the neighbor regions: South West, South East and Bucharest.

questionnaire). After we unsealed the envelopes, and we put aside the blank questionnaires, the real participation rate was **92.29%** (N=2273). From the total number of students who refused to participate in the study (N=190), 108 were male and 82 were female. Besides the direct and indirect refusal, other 185 questionnaires were excluded because of the missing information (e.g. demographical data, abuse items etc.)

## **5.10 Data analysis**

Data input was done by using SPSS 20 program. Two trained students have introduced all the data. In the next phase, 10% of the data was re-verified by two independent specialists. The error rate was less than 3%, and most of the errors consisted in writing two answers instead of one in each field. Those artifacts were identified and they were corrected. The final sample which was included in the analysis contained **2088 participants**.

The following statistical methods were used: descriptive statistical indicators (mean, standard deviation, statistical inferential tests- chi squared); parametric and nonparametric correlations; logistic regression analysis adjusted for gender, age and parental educational level. Statistical significance was set at  $p < 0.05$  for all analysis. We used the following cut-off points for the variables included in the study: in case of dichotomous variables we included in the analysis only the affirmative answers and for the variables measured on a 1 to 5 Likert scale we included in analysis all the answers which indicated a frequency of *sometimes, often, and very often* or *sometimes true, often true and very often true* (11,30).

The prevalence of adverse childhood experiences, health risk behaviors and health complaints was calculated by using relative frequencies. The association between adverse childhood experiences and risk behavior engagement or between childhood experiences and health complaints was estimated by using odds-ratio analysis. Logistical regression analysis was employed to statistically control for potential confounding variables (such as age, gender and parental educational level) when analyzing the relationship between exposure to ACE and risk behaviors or health complaints. The confidence interval was set at 95%. The relative frequencies of the Romanian Report represent valid percents. They were computed based only on those who gave a response to a specific question of the questionnaire. Missing response for the all the items included in the questionnaire has a mean  $m = 6.95\%$  ( $SD = 14.88\%$ ).

## 6. Results

### 6.1 Socio-demographic characteristics of respondents

The sample included in the study was formed by 2088 participants of which 64.3% were female, and 35.7% were male (Table 2). This gender difference from our sample is similar with the existing gender difference in the distribution of student population in Romania (with the exception of technical universities). Also, this gender difference reflects students' participation on courses in the day they were asked to answer ACEs questionnaires. The mean age of respondents was 24.51 years old ( $SD=\pm 7.09$ ). The majority of students come from families where both parents are currently working (74.8% of mothers are employed, 80.7% of fathers are employed) and their parents have a high-school diploma (41% of mothers, 34.7% of fathers) or university diploma (22.8% of mothers, 25.1% of fathers) (Table 3).

**Table 2. Socio-demographical characteristics of respondents**

Sex	N	%	Mean age	Standard deviation
Male	745	35.7	23.53	5.23
Female	1343	64.3	25.05	7.88
Total	2088	100.0	24.51	7.09

The participants' age range was between 18 and 65 years. For males the age range was situated between 18 and 57 years, and for female participants between 18 and 65 years. Specifically, 79.4% of participants had an age range between 18-25, 7% of participants had an age range between 26-30 and 13.6% of participants had more than 30 years old.

**Table 3. Professional and education status of parents**

Employment status		Male		Female		Total	
		N	%	N	%	N	%
<b>Mother</b>	Employed	569	77.4	978	73.3	1547	74.8
	Unemployed	166	22.6	356	26.7	522	25.2
<b>Father</b>	Employed	582	79.8	1052	81.1	1634	80.7
	Unemployed	147	20.2	245	18.9	392	19.3
<b>Parents' educational status</b>							
<b>Mother</b>	Mandatory education (8 grades)	55	7.4	156	11.7	211	10.1
	Vocational schools	118	15.9	230	17.2	348	16.7
	Unfinished high-school	36	4.9	84	6.3	120	5.8
	High-school	315	42.5	538	40.2	853	41.0
	Unfinished university studies	33	4.4	41	3.1	74	3.6
	University studies	185	24.9	290	21.7	475	22.8
<b>Father</b>	Mandatory education (8 grades)	48	6.5	116	8.7	164	7.9

Vocational schools	182	24.5	336	25.2	518	24.9
Unfinished high-school	25	3.4	39	2.9	64	3.1
High-school	243	32.7	477	35.7	720	34.7
Unfinished university studies	35	4.7	54	4.0	89	4.3
University studies	209	28.2	313	23.4	522	25.1

## 6.2 History of exposure to adverse childhood experiences

### 6.2.1 Physical abuse

Even if childhood is defined by the need of children to be nurtured and protected by adults, children physical abuse has a high prevalence worldwide. They are exposed to a wide range of practices, from hitting, kicking, spanking, shaking, biting, and burning, to poisoning or choking.

In the present study, physical abuse was measured by two items which reflected to situations where they have been grabbed, shackled or they were thrown something at, and situations where they have been hit so hard that they had marks, or were injured. We included in the analysis answers which indicated a frequency of *sometimes, often and very often*. A high percentage of our respondents were exposed to physical abuse during their first 18 years (27.5% of males and 26.6% females). We did not identify gender differences. Table 4 presents the frequency of exposure to each type of physical abuse, by gender. The females compared to males reported higher prevalence for situations in which they were hit hardly (6.8% vs. 5.3%), and males reported frequently that they were pushed, grabbed, slapped (19.9% vs. 18.4%).

**Table 4. Exposure to physical violence by type and gender (*sometimes, often and very often*)**

Type of physical abuse	Male		Female		Total	
	N	%	N	%	N	%
Pushed, grabbed or threw something at you	146	19.9	244	18.4	390	18.9
Hit you so hard that you had marks or were injured	39	5.3	90	6.8	129	6.2
<b>Physical abuse- TOTAL</b>	200	27.5	351	26.6	551	26.9

### 6.2.2 Physical (corporal) punishment

Corporal punishment is defined by the Committee of the Rights of the Child as *'any punishment in which physical force is used and intended to cause some degree of pain or*

*discomfort, however light' (1) (p.64).* Most often these acts are used as disciplinary strategies by parents.

In this study, we measured the frequency and intensity with which parents have used corporal punishment as disciplinary method during childhood. Only the answers which indicated at least a frequency of *a few times per year, many times per year* or *many times per week*, and at least a medium intensity (*medium, quite hard and very hard*) were included in analysis. More than one third of all respondents were exposed to physical punishment during their 18 years of life (Table 5). There were significant differences between males and females, with males reporting higher prevalence for this type of abuse (42.4% vs. 34.4%). Also, males reported significantly more than females that they were spanked with at least moderate intensity during childhood.

**Table 5. Exposure to corporal punishment during the first 18 years**

Corporal punishment	Male		Female		Total	
	N	%	N	%	N	%
Frequency (at least a few times per year)*	316	42.4	462	34.4	779	37.1
Intensity (at least moderate)*	297	39.9	392	29.2	689	32.9

\* $p < 0.05$

Spanking was last experienced as a corporal punishment in early teen-ager period for most of the respondents (55.6% of males and 42.9% of females). But, this disciplinary practice was reported by a large number of respondents during their late adolescence period, when 32.2% of males and 38.5% of women reported that they were last spanked (Table 6).

**Table 6. Distribution of students by gender and age when they were last spanked**

Age when they were last spanked	Male		Female	
	N	%	N	%
1-5 years	-	-	12	2.8
6-10 years	37	12.2	68	15.9
11-15 years	169	55.6	184	42.9
Over 16 years	98	32.2	165	38.5

### 6.2.3 Psychological abuse and neglect

All abuses involve psychological harm. Mental health specialists identified that children can be exposed to psychological (emotional) abuse and psychological neglect. In this study, psychological abuse was measured by two items: (i) the frequency by which a parent or an adult who lived in the house has made him/her afraid that they could be hurt; (ii) if he/she has been insulted or swore at.

Data showed that 23.6% of respondents had been exposed to at least one category of psychological abuse during their first 18 years of life (Table 7.). Females reported significantly higher prevalence than males (24.9% vs. 21.3%). Besides this, 22.9% of participants have been threatened to be hit (23.7% of males and 22.3% of females). Also, 16.4% of female participants indicated that they have been called names like ugly or lazy, and 15.7% of them considered that they were emotionally abused.

**Table 7. Exposure to psychological abuse by type and gender (sometimes, often and very often)**

Psychological abuse	Male		Female		Total	
	N	%	N	%	N	%
Swore at you, insulted you, or put you down	142	19.2	300	22.5	442	21.3
Made you afraid that you might be physically hurt	79	10.8	176	13.2	255	12.3
<b>Exposure to psychological abuse- TOTAL</b>	<b>156</b>	<b>21.3</b>	<b>332</b>	<b>24.9</b>	<b>488</b>	<b>23.6</b>

Psychological neglect is characterized by caregivers' attitudes and behaviors of ignoring the child and his/her emotional and psychological needs. Living in an environment where there is a lot of hostility, anger and negative emotionality showed towards the child, could have a negative impact on his development. 26.3% of participants reported they have been exposed to at least one type of emotional neglect. There was a significant difference ( $p < 0.05$ ), females have reported significantly higher prevalence for this type of abuse (28.9% of females vs. 21.9% of males). Females reported similar values for both types of psychological neglect (20% and 20.2%). In males' case, 16.7% reported that they thought that their parents did not want him and 13.9% reported that there was in his family someone who hated him (Table 8).

**Table 8. Exposure to psychological neglect by type and gender (sometimes, often and very often)**

Psychological neglect	Male		Female		Total	
	N	%	N	%	N	%
Someone in your family hated you *	103	13.9	267	20.0	370	17.8
Parents wished you would never been born *	123	16.7	268	20.2	391	18.9
<b>Exposure to psychological neglect- TOTAL*</b>	<b>162</b>	<b>21.9</b>	<b>386</b>	<b>28.9</b>	<b>548</b>	<b>26.3</b>

\* $p < 0.05$

### 6.2.4 Physical neglect

Physical neglect is a particular type of adverse childhood experience. In this situation, the caregiver (parent or legal tutor) fails to meet child's needs for nurturing, food, clothes or medical help, when they have the means, knowledge or access to services to do so. From

our sample, 18.5% reported that they were exposed to physical neglect during their first 18 years (Table 9). Males reported significantly more often these situations (22% vs. 16.6%) than females. type of physical neglect was the lack of food/not enough to eat (19.2% of males and 15.2% of females).

**Table 9. Physical neglect by type and gender (*sometimes, often and very often*)**

Physical neglect	Male		Female		Total	
	N	%	N	%	N	%
Had to wear dirty clothes*	48	6.5	44	3.3	92	4.4
Did not have enough food*	142	19.2	202	15.2	344	16.6
<b>Exposure to physical neglect- TOTAL*</b>	<b>163</b>	<b>22.0</b>	<b>222</b>	<b>16.6</b>	<b>385</b>	<b>18.5</b>

\* $p < 0.05$

### 6.2.5 Sexual abuse

In general, 9% of students experienced some kind of sexual abuse during their first 18 years (Table 10). Females reported significantly more often this type of abuse ( $p < 0.05$ ).

The most frequent type of sexual abuse was touching/ fondling their own body in a sexual way, 7.6% of students reported it. There was a significant difference between two genders, females reported significantly more often this situation ( $p < 0.05$ ). The attempt of an adult of having sexual intercourse was reported by 3.6% of students. Also, 2.7% if students have reported that they had sexual intercourse with an adult during their first 18 years (3.4% of males vs. 2.3% of females). The mean age of the victims when the abuse first happened was situated between 13.39 – 14.22 years old, and the mean age when the last happened was situated between 15.43 – 16.23 years old. For both cases, the lowest age corresponds to situations where the abuser tried to touch their body in a sexual way, and the highest age corresponds to situations where the abuser tried to have sexual intercourse with the victim. In most of the cases, the abuse happened against their will, the disagreement level varied between 23.9% (for sexual intercourse) and 67.1% (for situations where their body was touched in a sexual way). Overall the all sexual abuse types, for females in more than 90% of cases the abuser was a male, and for males in more than 80% of cases was a female. For those students who were sexually abused, in most of the cases, they trusted the abuser (42.1% of female and 22.4 of male), he/she was a stranger (for 33.6% of female and 21.8% of male), or he/she was a family friend who did not live in the same house (for 27.7% of female and 17.2% of male).



**Table 10. Exposure to different types of sexual abuse by gender**

Type o sexual abuse	Male		Female		Total	
	N	%	N	%	N	%
Touch/ fondle your body in a sexual way *	31	4.4	119	9.4	150	7.6
Have you touch the other persons' body in a sexual way	26	3.7	33	2.6	59	3.0
Attempt to have any type of sexual intercourse	25	3.5	45	3.6	70	3.6
Sexual intercourse	24	3.4	29	2.3	53	2.7
<b>Exposure to sexual abuse- at least one type*</b>	<b>40</b>	<b>5.6</b>	<b>138</b>	<b>10.9</b>	<b>178</b>	<b>9.0</b>

\*p<0.05

For female students (Table 11) the relationship with the abuser was a close one, 18.8% of the reporting that the abuser was someone who was supposed to take care of them; a family member who did not live in the house (for 15.5%), or a family member who lived in the house (14.5%).

**Table 11. Relationship with the abuser**

Type of relationship	Male		Female		Total	
	N	%	N	%	N	%
Family member who lived in the house	2	2.3	17	14.5	19	9.3
Person who lived in the house	-	-	10	8.9	10	8.9
Family member who didn't lived in the house	-	-	17	15.5	17	15.5
Family friend who didn't lived in the house	15	17.2	31	27.7	46	23.1
A stranger	19	21.8	38	33.6	57	28.5
Someone who was taking care of you	4	4.7	21	18.8	25	12.6
Someone who you trusted	19	22.4	48	42.1	67	33.7

Most often, the methods of involvement in sexual behaviors used by the abuser (Table 12) were: trickery (for 42.5% of female and 7.1% of male), physical force (for 31.3% of female and 3.4% of male), or threats (for 12.5% of female and 2.3% of male).

Some of the participants have been exposed to sexual abuse by their peers. Most frequently this involved being touched by the abuser (9.1% of participants), or they were forced to have sexual intercourse with the abuser (0.3 of males and 14.2% of females). Females reported significantly more often all situations described in Table 13.



**Table 12. The methods of involvement in sexual behaviors used by the abuser**

The methods of involvement in sexual behaviors	Male		Female		Total	
	N	%	N	%	N	%
Trickery/ verbal persuasion	6	7.1	48	42.5	54	27.3
Given alcohol or drugs	2	2.4	4	3.6	6	3.1
Threats to harm	2	2.3	14	12.5	16	8.1
Physically forced	3	3.4	35	31.3	38	19.1

**Table 13. Exposure to sexual abuse by peers**

Sexual abuse by peers	Male		Female		Total	
	N	%	N	%	N	%
Forced/threaten with harm in order to have sexual contact *	2	0.3	46	3.5	48	2.4
Touching their sexual parts *	2	0.3	28	14.2	30	9.1
Sexual intercourse *	2	1.3	16	6.5	18	4.5

\* $p < 0.05$

### 6.3 Household dysfunctions

Witnessing episodes in which the mother is treated violently can be a traumatic event for a child (24,25). Our study shows that 17.4% of the participants had witnessed domestic violence in the form of mothers being treated violently (Table 14.). Females reported significantly more often witnessing this type of abuse ( $p < 0.05$ ). The most common situation was seeing their mothers being slapped, pushed or having something thrown at (for 15.2% of respondents). Female respondents indicated more often than males that they assisted to these kinds of situations (16.7% of females and 12.4% of males). Also, seeing situations (sometimes/often/very often) when mother was repeatedly hit for several minutes was reported by 9.7% of respondents. Females reported significantly more often witnessing this also (10.9% of females vs. 7.6% of males).

Most often household dysfunctions are due to one of the following situations: alcoholism or drugs consumption, mental illness, or criminal behavior of one or more family members. Also, parents' divorce or separation can be included in this category. In our sample (Table 15), the most reported household dysfunction was alcohol abuse by a family member (21.9% of participants). Females reported significantly more often this situation (23.6 of females vs. 18.9% of males).

**Table 14. Exposure to domestic violence by type and gender (sometimes/often/very often)**

Type of physical abused experienced my mother	Male		Female		Total	
	N	%	N	%	N	%
Push, grab , slap or throw something at her *	91	12.4	222	16.7	313	15.2
Kick, bite, hit her with a fist, or hit her with something hard *	40	5.5	128	9.8	168	8.2
Repeatedly hit her over at least a few minutes *	55	7.6	142	10.9	197	9.7
Threaten her with a knife or gun , or use a knife or gun to hurt her	29	4.0	56	4.3	85	4.2
<b>Mother treated violently *</b>	<b>110</b>	<b>15.0</b>	<b>249</b>	<b>18.7</b>	<b>359</b>	<b>17.4</b>

\*p<0.05

Witnessing their parents' divorce was also very prevalent, 15.6% of participants indicating this situation. Males and females have reported similar prevalence (15.7% of females vs. 15.4% of males). On the other hand, males reported significantly more often (p<0.05) situations when they have run away from home (8.1% of males vs. 3.9% of females), and females reported significantly more often that they previous had suicide attempts (5.4% of females vs. 2.2% of males). Females reported significantly more often that there is in their family a person who had a mental illness (15% of females and 3.5% of males). Drug consumption by a family member had a low prevalence, only 2.1% of participants reporting this situation; 4.8% of participants indicated that one of their family member have had a suicide attempt.

**Table 15. Exposure to household dysfunctions**

	Male		Female		Total	
	N	%	N	%	N	%
Drug consumption by a FM	20	2.7	24	1.8	44	2.1
Alcohol misuse by a FM *	140	18.9	315	23.6	455	21.9
Mental illness in the family *	67	9.1	201	15.0	268	12.9
FM in prison	26	3.5	30	2.2	56	2.7
Separated/divorced parents	114	15.4	211	15.7	325	15.6
Living in a foster home	5	.7	4	.3	9	.4
Suicide attempts by a FM	24	3.2	75	5.6	99	4.8

\*p<0.05

#### 6.4 Number of adverse childhood experiences- ACE score

According to CDC/ WHO methodology, different types of abuse and family dysfunctions can be included in adverse childhood experiences category. Most frequently, Romanian students were exposed to the following ACE categories: physical abuse (26.9%); psychological neglect (26.3%); psychological abuse (23.6%); alcohol misuse by a family

member/FM (21.6%); mother treated violently (16.5%) and physical neglect (16.5%). We have identified several gender differences. Males were significantly more exposed to physical neglect. On the other hand, females were significantly more exposed to psychological neglect, sexual abuse; alcohol misuse by family member; mental illness in the family, and domestic violence (Table 16.).

**Table 16. Exposure to abuse and household dysfunction by gender**

	Male		Female		Total	
	N	%	N	%	N	%
<b>Type of abuse</b>						
Physical abuse	200	27.5	351	26.6	551	26.9
Psychological abuse	156	21.3	332	24.9	488	23.6
Sexual abuse *	40	5.6	138	10.9	178	9.0
Physical neglect*	163	22.0	222	16.6	385	16.5
Psychological neglect *	162	21.9	386	28.9	548	26.3
<b>Household dysfunction</b>						
Illicit drug use by a FM	20	2.7	24	1.8	44	2.1
Alcohol misuse by a FM *	140	18.9	315	23.6	455	21.9
Mental illness in the family *	67	9.1	201	15.0	268	12.9
FM in prison	26	3.5	30	2.2	56	2.7
Mother treated violently *	110	15.0	249	18.7	359	17.4
Separated/divorced parents	114	15.4	211	15.7	325	15.6
Suicide attempts by a FM	24	3.2	75	5.6	99	4.8

**\*p<0.05**

The categories of adverse childhood experiences can be grouped together and form ACE score which reflects the level of exposure to these types of events (Table 17). About one third of the participants (35.5%) have not been exposed to any ACE category. More than 64% of participants have been exposed to at least one ACE category (64.4% of males and 65.5% of females). One ACE category was experienced by 25.9% of females and 19.8% of males. The experience of any two categories of ACEs occurring together was common for 25.9% of males and 19.8% of females. Any three categories of ACEs were experienced by 9.3% of males and 9.5% of females. Four or more ACEs categories were experienced by 15.2% of males and 20.1% of females.

**Table 17. ACE score by gender**

Gender	Number of ACEs											
	0		1		2		3		≥ 4		Experience at least ONE abuse category	
	N	%	N	%	N	%	N	%	N	%	N	%
<b>Male</b>	265	35.6	193	25.9	105	14.1	69	9.3	113	15.2	480	64.4
<b>Female</b>	477	35.5	267	19.8	201	15.0	128	9.5	270	20.1	866	65.5
<b>Total</b>	742	35.5	460	22.0	306	14.6	197	9.4	383	18.3	1346	64.95

Table 18 presents the relationships between the exposure to different abuse categories and household dysfunctions, emphasizing how many of the participants who have been exposed to one ACE category have been exposed to other ACEs categories.

**Table 18. Relationships between different ACE categories**

Exposure to first ACE category	N*	Physical abuse	Psychological abuse	Sexual abuse	Physical neglect	Psychological neglect	Illicit drug use by a FM	Alcohol misuse by a FM	Mental illness in the family	Mother treated violently	FM in prison	Divorced parents
<i>Number and percent (%) of exposure to other abuse categories</i>												
Physical abuse	551		356 (73%)	82 (46.6%)	167 (44.8%)	269 (49.9%)	17 (38.6%)	201 (45.2%)	122 (46.4%)	208 (59.3%)	28 (50%)	132 (41.5%)
Psychological abuse	488	356 (64.6%)		75 (42.4%)	169 (44.6%)	285 (52.4%)	19 (43.2%)	203 (44.9%)	130 (48.9%)	202 (56.6%)	27 (48.2%)	136 (42.4%)
Sexual abuse	178	82 (15.4%)	75 (16.2%)		57 (16%)	90 (17.2%)	8 (18.6%)	67 (15.5%)	52 (20.4%)	55 (16.4%)	10 (19.2%)	44 (14.1%)
Physical neglect	398	167 (30.3%)	169 (34.6%)	57 (32%)		205 (37.4%)	18 (40.9%)	142 (31.3%)	92 (34.5%)	127 (35.4%)	22 (39.3%)	105 (32.3%)
Psychological neglect	548	269 (48.8%)	285 (58.4%)	90 (50.6%)	205 (53.4%)		19 (43.2%)	179 (39.3%)	133 (49.8%)	162 (45.1%)	22 (39.3%)	136 (42%)
Illicit drug use by a FM	44	17 (3.1%)	19 (3.9%)	8 (4.5%)	18 (4.7%)	19 (3.5%)		16 (3.5%)	15 (5.6%)	14 (3.9%)	4 (7.1%)	11 (3.4%)
Alcohol misuse by a FM	455	201 (36.6%)	203 (41.9%)	67 (37.6%)	142 (37%)	179 (32.8%)	16 (36.4%)		113 (42.3%)	199 (55.4%)	21 (37.5%)	123 (38.1%)
Mental illness in the family	268	122 (22.1%)	130 (26.6%)	52 (29.4%)	92 (24.1%)	133 (24.4%)	15 (34.1%)	113 (24.9%)		89 (24.8%)	19 (33.9%)	89 (27.4%)
Mother treated violently	359	208 (37.9%)	202 (41.6%)	55 (30.9%)	127 (33.2%)	162 (29.7%)	14 (31.8%)	199 (43.9%)	89 (33.5%)		23 (41.1%)	124 (38.8%)
FM in prison	56	28 (5.1%)	27 (5.5%)	10 (5.6%)	22 (5.8%)	22 (4%)	4 (9.1%)	21 (4.6%)	19 (7.1%)	23 (6.4%)		15 (4.6%)
Divorced parents	325	132 (24%)	136 (27.9%)	44 (24.7%)	105 (27.5%)	136 (24.9%)	11 (25%)	123 (27.2%)	89 (33.3%)	124 (34.6%)	15 (26.8%)	

\* The number of participants exposed to first category. For example, among 551 participants who were physically abused, 356 (73%) have also experienced psychological abuse.

## 6.5 Witnessing violence in the community during childhood

Aside from the violence they experience in their homes, children can be exposed to violent acts in the community where they live on. Most of the participants (77.4%) have reported that they have witnessed at least one episode of violence in their community during their childhood (Table 19). They were exposed more frequently to situations where someone was beaten up (83.6% of males and 73.9% of females) or they saw a person being threaten with a knife or a gun (28.8% of males and 22.9% of females). In all these situations, males reported more frequently witnessing community violence episodes.

**Table 19. Witnessing community violence by gender and type**

	Male		Female		Total	
	N	%	N	%	N	%
<b>Witnessing community violence (at least one category from the ones described below)</b>	<b>610</b>	<b>81.9</b>	<b>1011</b>	<b>75.3</b>	<b>1624</b>	<b>77.4</b>
See or hear someone being beaten up in real life	603	83.6	979	73.9	1585	77.4
See or hear someone being stabbed or shot in real life	174	24.2	295	22.2	469	22.9
See or hear someone being threatened with a knife or gun in real life	207	28.8	302	22.9	509	24.9

## 6.6 Physical fighting and bullying victimization

In this study we have evaluated the frequency to which participants have been involved as victims in bullying incidents and in fighting during their first 18 years (Table 20). Overall, 39.2% of participants have reported they have been bullied. There was a significant gender difference ( $p < 0.05$ ), males reported this situation more frequently (46.3% of males vs. 35.5% of females). There was also a significant gender difference in the involvement in physical fighting (22.5% of males vs. 5.8% of females). Female respondents reported significant more situations in which they were made fun because of the way they looked (28.7% of females vs. 7.8% of males). Both genders reported similar prevalence for situations in which they were left out of activities on purpose (18.1% of males and 20.7% of females), or situations in which they were made fun of by the use of sexual jokes (13.8% of males and 11.6% of females). There was a significant gender difference ( $p < 0.05$ ) between males and females in the involvement in physical fighting, 65% of males and 19.6% of females reported being involved in these kind of behaviors.

**Table 20. Frequency of involvement in physical fighting and bullying victimization**

	Male		Female		Total	
	N	%	N	%	N	%
How often have you been bullied *	335	46.2	469	35.5	804	39.2
How often have you been involved in physical fighting *	471	65.2	256	19.6	729	35.8

\*p<0.05

Table 21 presents the relationships between exposure to adverse childhood experiences inside the family and the exposure to violence in the community where they lived. The odds of being bullied, or being involved in physical fighting, or witnessing violence in the community increased as the number of exposure to ACEs categories increased. The strongest relationship was between being bullied and the exposure to ACEs, where the exposure to four or more ACEs categories increased 6 times the odds of being bullied.

**Table 21. Interrelatedness between being bullied, physical fighting, witnessing violence in the community and ACE**

ACE categories						
		0 (N=742)	1 (N=460)	2 (N=306)	3 (N=197)	>= 4 (N=383)
<b>Being bullied</b>	%	23.8	37.3	42.8	48.5	63.9
	OR (95% CI)		<b>1.809</b> 1.393-2.347*	<b>2.387</b> 1.782 - 3.199*	<b>3.032</b> 2.172-4.233*	<b>6.078</b> 4.59 - 8.035*
<b>Physical fighting</b>	%	25.6	37.3	41.4	44.1	45
	OR (95% CI)		<b>1.635</b> 1.221-2.189*	<b>2.570</b> 1.842-3.587*	<b>2.845</b> 1.947-4.156*	<b>3.457</b> 2.533 -4.718*
<b>Witnessing violence in the community</b>	%	72.1	78	82.3	84.1	88.9
	OR (95% CI)		1.306 .987-1.729	<b>1.818</b> 1.284-2.573*	<b>2.024</b> 1.329-3.082*	<b>3.393</b> 2.328-4.946*

\*Odds ratios adjusted for gender, age and parental education level (p<0.05)

OR- odds ratio; CI- confidence interval

## **6.7 Health risk behaviors**

The health behaviors taken into consideration in this study were: smoking, alcohol abuse and drug consumption, sexual risk behaviors, suicide attempts, running away from home and the lack of physical activity. The results indicate that 32.5% of participants were currently smoking; 5.3% drink alcohol; 13.5% are currently taking drugs; 27.1% have had premature sexual activity; 4.2% had suicide attempts, 5.4% had run away from home, and 32.5% do not do enough physical activity.

### ***6.7.1. Cigarette smoking***

Among the currently smoking participants, 36.4% were males and 30.2% were females (Table 22). This gender difference is maintained for the situations where the participants had smoked more than 100 cigarettes until present (46.5% of males and 37.7% of females). Male participants started to smoke around 16 years of age and the female participants started smoking around the age of 18 years old. During their childhood, for 57.4% of participants father was a smoker, and for 28.6% of cases mother was a smoker. For these situations there was no significant difference between the two genders.

### ***6.7.2. Alcohol consumption***

The prevalence of alcohol consumption (Table 22) indicates that there is a significant difference between to genders ( $p < 0.05$ ), males reporting significantly more often this behavior (10.6% of males and 2.3% of females). The frequent alcohol consumption indicator includes only the answers of participants who indicated that they have been drinking 4 or more drinks in three different days in the previous month. The age of first drink is different for males and females: males started to drink alcohol around the age of 15 years, and females started smoking around the age of 17 years. Males reported significantly more often the situations where they have driven after they drank (6.6% of males vs. 0.9% of females). For 21.9% of participants there was a person in their family who was abusing alcohol. Also, 6.6% participants reported that they had problems because of their alcohol use. Males reported significantly more often the existence of these problems ( $p < 0.05$ ). Only 0.4% of respondents reported that they consider themselves alcoholics.

### ***6.7.3 Illicit drug use***

Males reported significantly more often consuming illicit drugs than females (19.8% of males vs. 9.9% of females) (Table 22). This difference is maintained for occasional and frequent drug abuse (more than 10 times), 17.3% of males and 4% of females reporting it. Also, 4.8% of males and 1.6% of females reported that they had problems caused by drug consumption. Overall, 0.8% of respondents consider that they were drug addicts at some



point in their lives. Only, 0.6% of respondents used injected street drugs (0.8% of males vs. 0.4% of females). 2.1% of respondents have lived with someone who was using street drugs.

**Table 22. Smoking cigarettes, alcohol consumption and sexual health risk behaviors**

	Male		Female		Total	
	N	%	N	%	N	%
Currently smoking*	268	36.4	398	30.2	669	32.5
Smoked more than 100 cigarettes in their entire life	346	46.5	498	37.7	847	40.9
The age they started smoking (m/sd)	16.78 years	2.556	18.02 years	3.114	17.51 years	2.959
Father smoking	427	57.3	776	57.8	1205	57.4
Mother smoking	204	27.4	396	29.7	600	28.9
<b>Alcohol consumption</b>						
Currently using alcohol*	69	10.6	25	2.3	94	5.3
Drink alcohol and drive	35	6.6	9	0.9	44	2.9
Living with someone who was alcoholic	140	18.9	315	23.6	455	21.9
Age when started drinking (m/sd)	15.42	2.872	17.89	3.275	16.90	3.344
Problems because of their use of alcohol*	12.7	93	44	3.3	137	6.6
Consider themselves alcoholics	3	0.4	3	0.4	8	0.4
<b>Illicit drug use</b>						
Illicit drug use*	147	19.8	132	9.9	280	13.5
Age of first illicit drug consumption	18.82	2.73	18.57	2.57	18.71	2.65
Problems with drug use*	24	4.8	11	1.6	35	2.9
1 - 2 times	52	15.3	62	11.1	115	12.7
3 - 10 times	30	8.8	37	6.6	67	7.4
More than 10 times*	59	17.3	23	4	82	9.1
Consider that they were drug addicts*	9	1.8	1	0.1	10	0.8
Used injected street drugs	4	0.8	3	0.4	7	0.6
Living with someone who used drugs	20	2.7	24	1.8	44	2.1

\*p<0.05

#### 6.7.4. Sexual health risk behaviors

Overall (Table 23), males reported earlier initiation of their sexual activity (16 years old for males and 18 old for females). More than two thirds from male participants (75.7%) indicated that they had sexual intercourse with more than three partners in their life, and almost one third (31.2%) reported that they had sexual intercourse with more than three partners in last year. One third of female participants (35.5%) indicated that they had more than three partners in their life, and only 4% reported that they had sexual intercourse with more than three partners in last year. 8.6% of female respondents reported that they have had an early pregnancy, and more than half of them (53.8%) indicated that their first pregnancy was not planned.

**Table 23. Sexual health risk behaviors**

	Male		Female		Total	
	N	%	N	%	N	%
Age at first intercourse ( <i>m/sd</i> )	16.70	2.060	18.47	2.228	17.83	2.328
Early sexual activity*	302	49.8	154	14.2	458	27.1
Number of sexual partners (>=3)	417	75.7	359	35.5	778	49.3
Number of sexual partners in the last year (>=3)	173	31.2	34	4	207	14.7
Age of first pregnancy ( <i>m/sd</i> )	-	-	23.35	4.166	23.35	4.166
Early pregnancy	-	-	22	8.6	22	8.6
Unintended first pregnancy	-	-	141	53.8	141	53.8

\* $p < 0.05$

#### 6.7.5. Suicide attempts

Overall (Table 6.7.3.), 4.2% of respondents reported they have had a suicide attempt in the past (2.2% of males vs. 5.4 of females). The mean age of the first suicide attempt was 15 years old, and the mean age for the last suicide attempt was 17 years old. Overall, the participants who indicated having suicides attempts reported an average of about two attempts by the time they participated in our survey. In 22.9% of situation, the suicide attempts resulted in injuries that required medical care. Only 7.6% of the participants were under the supervision of a mental health specialist (6% of males and 8.6% of females).

### 6.7.6. Running away from home

Overall, 5.4% of respondents indicated that they have run away from home in their first 18 years of life. There was a significant difference between the two genders, males reporting significantly more often than females this kind of situations (Table 6.7.3.).

### 6.7.7. Sedentary behavior

Two thirds of respondents (67.5%) did not engage enough physical activity - according to the norms proposed by WHO (Table 24). Also, there was a significant difference between genders; females reported significantly lower levels of involvement in physical activity compared to male respondents (58.5% of males vs. 72.5% of females).

**Table 24. Suicide attempts, mental health problems, running away from home and sedentary behaviors**

	Male		Female		Total	
	N	%	N	%	N	%
Suicide attempts*	16	2.2	71	5.4	87	4.2
Been under the care of a mental health specialist*	43	6.0	110	8.6	153	7.6
Running away from home *	60	8.1	52	3.9	112	5.4
30 minutes of vigorous physical activity 6 days per week *	436	58.5	974	72.5	1418	67.5

\* $p < 0.05$

## 6.8 The interrelatedness of ACEs (childhood abuse and neglect, household dysfunction) and health-risk behaviors

The most prevalent health risk behaviors in our sample were: multiple sexual partners during their life time (49.3% of participants), smoking (32.5% of participants), early sexual intercourse (27.1% of participants) and illicit drug consumption (13.5% of participants).

Table 25 presents the relationships between different categories of adverse childhood experiences and later involvement in different types of health risk behaviors among young students, with adjusted relative odds health risk behaviors by type of adverse childhood exposure. If a participant was exposed to one ACEs category, the probability of exposure to health risk behaviors increased significantly. Therefore, the participants who have been physically abused during childhood were 5.29 times more likely to attempt suicide; were 3.76 times more likely to run away from home or they were 2.38 times more likely to use illicit drugs. The exposure to psychological abuse increased 8.61 times the odds to attempt suicide, it increased 4.75 times the odds of running away from home or it increased 2.15 times the odds of using illicit drugs. Those persons exposed to sexual abuse during

childhood were 4.11 times more likely to drive their car after drinking, they were 3.56 times more likely to attempt suicide, and also they were more likely to engage in early sexual intercourse, to run away from home or to abuse alcohol. Exposure to physical neglect increased 3.6 times the chances to attempt suicide and 1.56 times the chance of using illicit drugs. Emotional/ psychological neglect increased 7.37 times the chance to attempt suicide; increased 4 times the odds of running away from home or it increased 3.16 times the odds of unintended pregnancy. Those persons who were exposed to a family member who abused drugs were 4.53 times more likely to use illicit drugs, were 5.84 times more likely to run away from home and 3.24 more likely to smoke at an early age. Moreover, alcohol abuse by a family member increased the chance of illicit drug consumption and increased the chance to have a suicide attempt. Living with a family member who has a mental illness doubled the chance of early smoking initiation, also doubled the chance of illicit drug use and increased by 6.74 times the chance of having suicide attempts. Witnessing violent treatment of the mother increased 1.64 times the chance of illicit drug use, and increased 3.16 times the chance to have suicide attempts. Participants who had in their family a person who was imprisoned were 4.32 times more likely to smoke at an early age, they were 6.22 more likely to run away from home, they were 6.30 more likely to have suicide attempts, and they were 2.33 times more likely to use illicit drugs. Parental separation or divorce doubles the chance of illicit drug use and triples the chance of having suicide attempts. Overall, these results indicate that the exposure to adverse experiences during childhood increase the chances of engaging in a wide range of health risk behavior in their late adolescence and young adulthood.

Table 26 presents the prevalence and relative odds for involvement in health risk behaviors by the number of ACEs, adjusted for age and gender. The most important relationship indicates that as a person is exposed to a multiple ACEs categories, the chance of smoking increased significantly. Thus, if a person is exposed to four or more ACEs categories, the chance of illicit drug use increases by 5.62 times (OR=5.63, 95% CI=3.73-8.48). The probability of smoking is 1.45 times higher as the person is exposed to any one ACEs category (OR=1.45, 95% CI=1.12-1.87). Having multiple sexual partners was found to be 1.83 times more likely as the number of ACEs reached three (OR=1.83, 95% CI=1.23-2.71). Attempted suicide was found to be 4.76 times more likely as the number of ACEs reached four or more (OR=4.76, 95% CI=3.69-6.15).

**Table 25. Prevalence and adjusted relative odds of health risk behaviors by type of ACE**

ACE category	Smoker		Early smoking ≤15 years		Alcohol use		Drink-driving		Illicit drug use		Early sex ≤16 years		Multiple sexual partners >3		Early pregnancy ≤18 years		Suicide attempts		Run away from home	
	N=669	32.5%	N=180	20.5%	N=94	5.3%	N=44	2.9%	N=280	13.5%	N=458	27.1%	N=778	49.3%	N=22	8.6%	N=87	4.2%	N=112	5.4%
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Physical abuse	1.052	.849 1.303	<b>1.541</b>	<b>1.074</b> <b>2.210*</b>	1.177	.737 1.880	1.054	.537 2.072	<b>2.381</b>	<b>1.808</b> <b>3.135*</b>	.992	.758 1.299	<b>1.323</b>	<b>1.036</b> <b>1.689*</b>	1.624	.630 4.181	<b>5.297</b>	<b>3.336</b> <b>8.411*</b>	<b>3.767</b>	<b>2.513-</b> <b>5.648*</b>
Psychological abuse	.957	.764 1.198	<b>1.489</b>	<b>1.020</b> <b>2.173*</b>	.926	.546 1.571	1.109	.541 2.272	<b>2.150</b>	<b>1.617</b> <b>2.860*</b>	.983	.740 1.306	1.255	.976 1.613	.774	.272 2.202	<b>8.614</b>	<b>5.322</b> <b>13.942*</b>	<b>4.756</b>	<b>3.173-</b> <b>7.130*</b>
Sexual abuse	1.016	.722 1.431	1.462	.818 2.612	<b>2.125</b>	<b>1.069</b> <b>4.225*</b>	<b>4.113</b>	<b>1.746</b> <b>9.688*</b>	<b>2.023</b>	<b>1.324</b> <b>3.091*</b>	<b>2.287</b>	<b>1.517</b> <b>3.450*</b>	<b>1.703</b>	<b>1.170</b> <b>2.480*</b>	1.544	.499 4.776	<b>3.560</b>	<b>2.068</b> <b>6.129*</b>	<b>2.636</b>	<b>1.505-</b> <b>4.617*</b>
Physical neglect	1.006	.786 1.287	1.459	.971 2.191	.986	.572 1.699	.474	.182 1.234	<b>1.567</b>	<b>1.140</b> <b>2.154*</b>	.938	.689 1.276	1.242	.938 1.644	1.843	.608 5.587	<b>3.605</b>	<b>2.286</b> <b>5.684*</b>	<b>2.431</b>	<b>1.589-</b> <b>3.722*</b>
Psychological neglect	<b>1.258</b>	<b>1.017</b> <b>1.557*</b>	1.184	.815 1.720	.998	.602 1.653	1.294	.645 2.597	<b>1.974</b>	<b>1.490</b> <b>2.617*</b>	1.185	.903 1.555	<b>1.617</b>	<b>1.265</b> <b>2.068*</b>	<b>3.163</b>	<b>1.174</b> <b>8.523*</b>	<b>7.374</b>	<b>4.536</b> <b>11.988*</b>	<b>4.002</b>	<b>2.671-</b> <b>5.997*</b>
Illicit drug use by FM	.978	.509 1.879	<b>3.247</b>	<b>1.399</b> <b>7.535*</b>	1.167	.270 5.051	2.632	.579 11.975	<b>4.536</b>	<b>2.373</b> <b>8.671*</b>	1.819	.916 3.614	1.724	.840 3.540	.000	.000	1.953	.585 6.524	<b>5.845</b>	<b>2.771-</b> <b>12.32*</b>
Alcohol use by a FM	.922	.728 1.167	.917	.603 1.393	.785	.439 1.405	.648	.265 1.582	<b>1.633</b>	<b>1.197</b> <b>2.226*</b>	.963	.714 1.299	1.181	.908 1.535	.598	.210 1.706	<b>2.072</b>	<b>1.302</b> <b>3.300*</b>	<b>2.58</b>	<b>1.695-</b> <b>6.343*</b>
Mental illness in the family	1.335	1.014 1.759	<b>2.211</b>	<b>1.415</b> <b>3.454*</b>	1.533	.835 2.814	1.589	.679 3.720	<b>2.581</b>	<b>1.837</b> <b>3.627*</b>	2.087	<b>1.487</b> <b>2.927*</b>	<b>1.892</b>	<b>1.384</b> <b>2.585*</b>	2.109	.722 6.157	<b>6.749</b>	<b>4.294</b> <b>10.609*</b>	<b>4.078</b>	<b>2.622-</b> <b>6.343*</b>
Mother treated violently	1.203	.938 1.544	1.053	.678 1.635	.780	.403 1.511	.729	.276 1.927	<b>1.641</b>	<b>1.172</b> <b>2.299*</b>	1.136	.828 1.558	<b>1.332</b>	<b>1.008</b> <b>1.762*</b>	1.177	.449 3.086	<b>3.169</b>	<b>2.000</b> <b>5.020*</b>	<b>3.21</b>	<b>2.093-</b> <b>4.921*</b>
FM in prison	1.595	.899 2.829	<b>4.320</b>	<b>1.909</b> <b>9.774*</b>	1.883	.636 5.575	1.562	.346 7.051	<b>2.334</b>	<b>1.146</b> <b>4.754*</b>	1.820	.922 3.591	1.078	.539 2.158	.000	.000	<b>6.302</b>	<b>2.894</b> <b>13.721*</b>	<b>6.227</b>	<b>3.115-</b> <b>12.45*</b>
Parental divorce or separation	1.539	<b>1.196</b> <b>1.979*</b>	1.491	.993 2.240	1.276	.732 2.224	1.155	.522 2.557	<b>2.094</b>	<b>1.533</b> <b>2.860*</b>	<b>1.468</b>	<b>1.084</b> <b>1.988*</b>	<b>1.751</b>	<b>1.311</b> <b>2.339*</b>	1.007	.252 4.021	<b>3.109</b>	<b>1.933</b> <b>5.000*</b>	<b>2.962</b>	<b>1.929-</b> <b>4.458*</b>

\*Odds ratios adjusted for gender, age and parental educational level (p<0.05)

OR- odds ratio; CI- confidence interval

**Table 26. Prevalence and odds of health risk behaviors by the number of ACEs**

ACE categories						
		0 (N=742)	1 (N=460)	2 (N=306)	3 (N=197)	>= 4 (N=383)
Smoker	%	29.1	36.9	33.8	33.2	32.5
	OR (95% CI)		1.451 1.124-1.873*	1.269 .943-1.706	1.254 .890-1.767	1.308 .992-1.724
Early smoking ≤15 years	%	18.1	18.8	19.4	19	27.3
	OR (95% CI)		.978 .603-1.586	1.146 .661-1.989	1.114 .586-2.118	1.921 1.202-3.071*
Alcohol use	%	5.2	5.6	5.6	4.7	5.4
	OR (95% CI)		.885 .495-1.583	1.136 .594-2.173	.895 .398-2.015	1.272 .677-2.390
Drink-driving	%	2.7	2.7	3.8	3.6	2.6
	OR (95% CI)		.939 .386-2.283	1.780 .726-4.365	1.620 .548-4.792	1.415 .552-3.628
Illicit drug use	%	6.2	14.5	17.6	16.9	21.3
	OR (95% CI)		2.404 1.591-3.633*	3.690 2.386-5.707*	3.429 2.086-5.638*	5.627 3.730-8.487*
Early sex ≤16 years	%	25.3	29.9	30.2	28	24.1
	OR (95% CI)		1.118 .806-1.552	1.437 .988-2.092	1.337 .867-2.061	1.320 .929-1.875
Multiple sexual partners >3	%	44.2	53.2	47.1	55	52
	OR (95% CI)		1.338 .981-1.824	1.259 .892-1.777	1.830 1.234-2.714*	1.918 1.401-2.625*
Early pregnancy ≤18 years	%	3.4	4.8	14.6	10	14
	OR (95% CI)		1.592 .241-10.525	4.902 1.101-21.818*	2.122 .382-11.778	3.259 .776-13.683
Suicide attempts	%	0.1	1.1	4.7	5.6	14.7
	OR (95% CI)		-	1.868 1.428-2.443*	2.376 1.737-3.24*	4.766 3.693-6.151*

\*Odds ratios adjusted for gender, age and parental educational level (p<0.05)

OR- odds ratio; CI- confidence interval

## 6.9 The interrelatedness of ACEs and health status

The sample included in this study was formed by young adults. The most important health complaints they indicated were: back pain (39.9%); sleeping problems (37.5%); headaches (32.2%); skin problems (25.9%); depression (25.2%) and high blood pressure (21.8%). Also, 17.9% of respondents reported that they had a poor health status (10.9% of males and 21.5% of females), and 20.7% of respondents reported that they had high stress level (12.4% of males and 25.3% of females). There was a significant difference between the two genders, females reporting more often health complaints (Table 27).

**Table 27. Participants self-related health status**

Health complaints	Male		Female		Total	
	N	%	N	%	N	%
Asthma	45	6.3	77	5.9	122	6.0
TB	19	2.7	23	1.8	42	2.1
High blood pressure	155	21.5	290	21.9	446	21.8
Skin problems*	119	16.6	407	31.0	527	25.9
Indigestion *	89	12.4	320	24.3	409	20.1
Constipation*	79	11.0	394	29.8	473	23.1
Frequent diarrhea	65	9.0	91	6.9	156	7.7
Gastric ulcer*	15	2.1	64	4.8	79	3.9
Gallstones, gallbladder problems	24	3.3	90	6.8	114	5.6
Yellow jaundice, hepatitis, or any liver trouble	24	3.3	65	4.9	89	4.4
Headaches *	132	18.3	527	39.9	660	32.2
Back pain *	207	28.9	606	45.8	815	39.9
Problems with urinary tract*	34	4.7	229	17.3	263	12.8
Sexually transmitted infections*	17	2.4	65	4.9	82	4.0
Sleep problems*	221	30.6	546	41.2	768	37.5
Depression*	117	16.2	399	30.2	517	25.2
Poor health*	78	10.9	286	21.5	364	17.8
High level of stress *	89	12.4	335	25.3	424	20.7

\*p<0.05

Missing courses due to health problems are common situations. Overall, 58.3% of participants indicated that they did not miss any course because of stress or depression in the last 30 days, and 66.1% did not miss any class because of the physical health problems (Table 28). On the other hand, 6.1% of participants reported that they had more than 10 absences due to stress or depression (6.3% of males and 6.1% of females), and 1.8% of participants reported that they had more than 10 absences due to poor health (1.6% of males and 1.9% of females).

**Table 28. Course absences due to health problems**

Course absences in the last 30 days		Male		Female		Total	
		N	%	N	%	N	%
Stress/ Depression	No absence	416	60.6	702	57.0	1119	58.3
	Between 1 -10 absences	228	33.2	455	36.9	683	35.6
	More than 10 absence	43	6.3	75	6.1	118	6.1
Poor health	No absence	507	73.4	770	62.0	1278	66.1
	Between 1 -10 absences	173	25.0	448	36.1	621	32.1
	More than 10 absence	11	1.6	23	1.9	34	1.8

Previous studies indicate that exposure to adverse experiences during childhood have a negative impact on physical and mental health in short and long term. Thus, the prevalence of health complaints among students' population by the number of ACEs categories were calculated (Table 29). The odds of young adults to have health problems as a consequence of exposure to adverse experiences during childhood were higher for the following: asthma, TB, skin problems, constipation, diarrhea, ulcer, liver problems, headaches, back pains, venereal disease, sleeping problems and depression. The odds of having most of these health problems were higher as the number of ACEs increased. The chance of having asthma was 2.17 times higher as the number of ACEs reached two, and 3.54 times higher as the number of ACEs reached four or more. The chance of having skin problems OR (1.37-2.47) increased as the exposure to ACEs categories was higher. Having back pain was more likely OR (1.52- 2.01) as the exposure to ACEs categories increased. Sleep problems in young adulthood had a higher chance of happening OR (1.68-3.32) as the exposure to ACEs categories increased. Having depression was 1.9 times more likely as the person was exposed to one ACE category, and it increased at 6.33 times as the number of ACEs reached four and more (OR=6.33, 95% CI=6.64-8.65). The chance of having sexually transmitted infections was found to be 3.85 times more likely (OR=3.85, 95% CI=2.13-6.97) as the number of ACEs reached four or more categories.



**Table 29. Prevalence and odds of health complaints by the number of ACEs**

Number of ACEs categories		0 (N=744)	1 (N=460)	2 (N=306)	3 (N=197)	>= 4 (N=383)
<b>Asthma</b>	%	3.3	5.6	6.9	7.8	10.1
	<i>OR (95% CI)</i>		1.705 .959-3.032	2.176 1.180-4.013*	2.437 1.250-4.750*	3.454 2.023-5.896*
<b>TB</b>	%	1.4	0.9	2.7	5.2	2.7
	<i>OR (95% CI)</i>		.624 .194-2.006	2.093 .815-5.374	3.845 1.572-9.406*	2.029 .832-4.946
<b>High blood pressure</b>	%	18	21.9	21.5	19.5	30.3
	<i>OR (95% CI)</i>		1.289 .959-1.732	1.290 .921-1.809	1.094 .732-1.637	1.918 1.427-2.578*
<b>Skin problems</b>	%	18.9	23.5	28.9	29.4	38.1
	<i>OR (95% CI)</i>		1.382 1.030-1.854*	1.723 1.250-2.375*	1.797 1.245-2.593*	2.477 1.856-3.304*
<b>Indigestion</b>	%	16.6	18.6	20	21.5	27.7
	<i>OR (95% CI)</i>		1.206 .882-1.649	1.232 .866-1.753	1.365 .917-2.031	1.783 1.312-2.423*
<b>Constipation</b>	%	18.1	22.8	28.7	23.6	28.7
	<i>OR (95% CI)</i>		1.466 1.087-1.978*	1.795 1.295-2.490*	1.402 .949-2.069*	1.655 1.221-2.242*
<b>Diarrhea</b>	%	5.4	8.1	6.8	8.2	12
	<i>OR (95% CI)</i>		1.483 .923-2.384	1.237 .701-2.183	1.523 .830-2.794	2.221 1.404-3.514*
<b>Gastric ulcer</b>	%	3.1	1.8	5.7	3.6	6.4
	<i>OR (95% CI)</i>		.576 .255-1.303	1.838 .963-3.508	1.139 .480-2.704	2.004 1.111-3.613*
<b>Gallstones, gallbladder problems</b>	%	5	4	8.8	3.6	7.2
	<i>OR (95% CI)</i>		.809 .449-1.458	1.892 1.100-3.254*	.704 .305-1.627	1.461 .860-2.483
<b>Yellow jaundice, hepatitis, or any liver trouble</b>	%	3.2	3.6	4.4	4.1	7.7
	<i>OR (95% CI)</i>		1.265 .648-2.470	1.658 .812-3.386	1.422 .614-3.291	2.732 1.510-4.943*
<b>Headaches</b>	%	26.3	31.5	36.7	32.8	40.8
	<i>OR (95% CI)</i>		1.417 1.082-1.855*	1.680 1.245-2.268*	1.377 .969-1.957	1.824 1.386-2.401*

<b>Back pain</b>	%	31.7	<b>40.3</b>	<b>41.8</b>	<b>46.7</b>	<b>50.3</b>
	<i>OR (95% CI)</i>		<b>1.525</b> <b>1.185-1.962*</b>	<b>1.577</b> <b>1.186-2.098*</b>	<b>1.878</b> <b>1.354-2.605*</b>	<b>2.015</b> <b>1.549-2.621*</b>
<b>Problems with urinary tract</b>	%	9.2	9.4	<b>14.7</b>	<b>16.4</b>	<b>20.7</b>
	<i>OR (95% CI)</i>		1.165 .769-1.765	<b>1.864</b> <b>1.226-2.834*</b>	<b>2.021</b> <b>1.267-3.223*</b>	<b>2.557</b> <b>1.770-3.694*</b>
<b>Venereal diseases</b>	%	2.5	2.5	4	3.6	9
	<i>OR (95% CI)</i>		1.023 .477-2.191	1.647 .781-3.472	1.436 .590-3.495	<b>3.857</b> <b>2.133-6.977*</b>
<b>Sleep problems</b>	%	26	<b>35.6</b>	<b>43.7</b>	<b>42.8</b>	<b>54.4</b>
	<i>OR (95% CI)</i>		<b>1.628</b> <b>1.256-2.111*</b>	<b>2.226</b> <b>1.668-2.971*</b>	<b>2.121</b> <b>1.520-2.961*</b>	<b>3.323</b> <b>2.539-4.350*</b>
<b>Depression</b>	%	12.3	<b>19.9</b>	<b>28.8</b>	<b>40.5</b>	<b>45.8</b>
	<i>OR (95% CI)</i>		<b>1.907</b> <b>1.372-2.650*</b>	<b>3.000</b> <b>2.127-4.231*</b>	<b>5.198</b> <b>3.586-7.536*</b>	<b>6.337</b> <b>4.643-8.650*</b>
<b>Poor health</b>	%	10.2	14.3	21.5	21.2	31.2
	<i>OR (95% CI)</i>	-	<b>1.552</b> <b>1.084-2.223</b>	<b>2.411</b> <b>1.665-3.492</b>	<b>2.366</b> <b>1.547-3.620</b>	<b>3.736</b> <b>2.683-5.203</b>
<b>High stress</b>	%	14.3	17.4	23.7	22.8	32.2
	<i>OR (95% CI)</i>	-	1.358 .981-1.881	<b>1.861</b> <b>1.317-2.628</b>	<b>1.798</b> <b>1.207-2.680</b>	<b>2.717</b> <b>1.995-3.699</b>

\*Odds ratios adjusted for gender, age and parental educational level (p<0.05)

OR- odds ratio; CI- confidence interval

## 7. Discussion

This study aimed to investigate the prevalence of ACEs during the first 18 years of life for a Romanian young adults' sample, and their association with the involvement in different types of health behaviors and health problems in young adulthood. The target population for this study was Romanian university students. This population is not representative for all Romanian young adults' population. According to European statistics, 17% of Romanian young adults have a university degree (EuroActiv, 2009).

The exposure to violence affects not only the children, but has also a negative impact on their family, friends and entire community. Its effects are measurable by the high rates of death incidents for this population, by the high psychological and somatic health problems, by the increased hospitalization and disability incidence, but also by a reduced quality of life (1).

The results of this study indicate that physical abuse is the most common type of abuse in our sample. More than one quarter of the participants (26.9%) reported this type of abuse. These results are similar with the WHO Romanian violence 2002 (2). The most common type of physical abuse is the situation where the respondent has been pushed, grabbed or thrown something at (for 18.9% of respondents). There was no significant difference in our sample between the two genders for any type of physical abuse even though the international data show that gender differences are common for physical abuse (31). Most studies show that boys tend to be more often victims of physical abuse, according to medically attended injuries and hospital admissions (32, 33, 34).

The present results indicate that corporal punishment it is wide spread among Romanian family as a disciplinary strategy, though the reported prevalence is lower compared to other eastern European countries (e.g. Macedonia) (11). More than one third of respondents indicated that they were exposed to corporal punishment during their childhood. The last time their parents used this disciplinary strategy, most of the respondents were in adolescents or late adolescents (more than 16 years old). These results are similar with previous ones and indicate that during adolescence, and late adolescence, there is an escalation of violence towards children (1). Even if the adults use corporal punishment as a disciplinary strategy, its effect on children's behavior is not always the expected one, and most often, children do not know why they are being punished for. This type of disciplinary strategies does not promote behavioral self-regulation or self-discipline in children, and most of them change their behavior because of fear and not because they want to or understand what they have done wrong (2). An UNICEF report (2002) indicate that 75% of children admit that spanking is not a solution

for the problems that appear at home, and that they would like to know why they are being punished for.

Regarding the prevalence of psychological abuse and neglect, 23.6% of students were exposed to at least one category of psychological abuse, and 26.3% were exposed to at least one category of psychological neglect. Females reported significantly more often the exposure to both kinds of abuse. This gender difference can be explained by the fact that children can perceive differently their parents insults, threats or negative emotions directed towards them. In this type of situations, boys are more prone to develop a higher tolerance compared to girls. In general, individuals who experience psychological abuse are more likely to develop chronic health conditions or mental health problems (e.g. depression, alcoholism or drug addiction). Most often, these types of abuse are attributable to inappropriate parenting (authoritarian parenting), to parents' substance abuse (or substance abuse by one of the parents), or to parents depression, suicidal attempts, poor social skills, lack of empathy or stress. (2)

Sexual abuse during childhood was experienced by 9% of students. The present results are similar with the data reported by Clarke (2002), when 9.3% of Romanian children reported that they were sexually abused. Females reported significantly more often this type of abuse ( $p < 0.05$ ). The results presented in this type of retrospective studies can vary as a function of the sexual abuse definition used. Thus, when the definition emphasizes on forced character of the abuse or on rape, only 1% of males (35) and 0.9% of females (36) indicate that they experienced a sexual abuse, but when researcher use wide conceptualization of sexual abuse 19% of males and 45% of females report that they were sexually abused during their childhood (37). In this study, the authors used a wide conceptualization of sexual abuse. Most often, the abuser was someone who the respondent trusted (for 42.1% of females, and 22.4% of males), or a stranger or family member who was not living in the house. The methods of involvement in sexual behaviors most often used by the abuser were trickery, verbal persuasion or physical force. In this context, the abuser took advantage of their victim's vulnerability and incapacity to oppose. Several studies show that between 14%, and 56% of females and up to 25% of males have been sexually abused by family members or stepparents (38). There are cases when children don't report sexual abuse because they are afraid that nobody will believe them, that their family will consider them responsible, and that they would be rejected, or that they would bring shame to their family. Both girls and boys have high vulnerability for being sexually abused, but the latest international studies indicate that girls have a higher vulnerability for sexual abuse and violence (39).

Physical neglect is an important factor associated with poor health and mortality in children. In this study, significantly more males reported that they were physically neglected during their childhood (22% vs. 16.6%). Most often, the respondents reported that they did not have enough food. The present results are similar with other data from South-Eastern Europe countries (11). This trend is not the same in poor countries or third world countries (e.g. India or Nepal) where girls experience significantly more often physical neglect (less food or lower levels of attendance to medical care).

The most important risk factors for experiencing almost any type of abuse during childhood are the exposure to several household dysfunctions. In this study we measured the following household dysfunctions: violent treatment of the mother, drug consumption and alcohol abuse by one family member, mental illness, family member committing serious crime or family member committing suicide. Constant exposure of children to family abuse can have a significantly negative impact on their development, health or well-being. In the present study, 17.4% of the students have been exposed to episodes where their mothers were treated violently. Females reported significantly more often these situations. Carlson (2000) show that the children who witness family violence are 15 times more likely to be physically abused or neglected compared to children from general population. In this context, witnessing how one of their parents is constant humiliated or physically hurt (the mother in most of the cases) can produce emotional trauma. Also, these children live with a permanent fear and anxiety, and have a greater chance for having substance abuse problems, to have impaired cognitive functioning, or to academic problems. Overall, 21.9% of students reported that they lived with someone who was abusing alcohol. Dube et. al. (2002) show that growing up with a person who is abusing alcohol is associated with later alcohol abuse and also with high depression levels in adulthood. Moreover, in the context of the present study, living with a person who is abusing alcohol significantly increased the likelihood for all the others ACE categories, result which is similar with previous findings (40). The other most prevalent household dysfunctions in our sample were having a person with mental illness in the family (for 12.9% of participants) and parent's divorce (15.6%). On the other hand we analyzed the exposure to other dysfunctional situations that could have occurred while participants were growing up. Most frequently, respondents did not have someone in their family to make them feel important (12.2%) or they indicated that their family members did not feel close to each other (11%). Only 4.8% of respondents indicated that they did not have in their family who could take them to the doctor if they needed it.

The present data on the retrospective involvement in physical fighting and bullying victimization during childhood are similar with results from HBSC survey (8). More than one third of participants reported they were involved in physical fighting are they have

been bullied during their childhood. This fact draws attention about the amplitude of school violence problem in Romanian schools. Moreover, more than two thirds of students reported that they have witnessed violent events in their community. Most often, they reported seeing or hearing episodes in which someone was beaten up. Overall, the exposure to ACE categories significantly increased the chance for the participants to get involved in physical fighting, to get bullied, or to witness violence episodes in their community.

According to our study, the most prevalent health risk behaviors are: multiple sex partners (49.3% of participants had more the 3 sexual partners in their lifetime), smoking (32.5%), early sexual activity (27.1%), early smoking (20.5%) and illicit drug use (13.5%). Males reported significantly more often the involvement in all risk behaviors. Thus, male participants indicated that they had their first intercourse at an earlier age. This trend is similar with HBSC 2010 results, where 48% of the 15 years old boys reported that they had sexual intercourse. Also, our data show that males had more sexual partners than females in the last year, but also in their lifetime. These results are similar with other studies which investigated gender differences in sexual behavior. The analysis of the relationship between exposure to different ACE categories and involvement in risk behaviors showed that the experience of sexual abuse increases the chances of having early sexual activity (OR=2.28) and multiple sexual partners (OR=1.7). Also, the general trends shows that chance of involvement in several health risk behaviors increases as the participants were exposed to their parent's divorce, or as they reported having a person with mental disorder in their family.

Smoking is one of the most important risk factor associated with morbidity and mortality worldwide which can be prevented. One third of the participants from our sample were currently smokers. Usually, this behavior starts in adolescence and continues to adulthood. The same trend was present in this study where, both males and females, reported that they started smoking in their late adolescence. Males reported starting smoking significantly earlier than females. This gender difference was previously identified in the HBSC 2010 report – which also showed that the prevalence of the boys smoking behavior was higher as among the participants a lower social-economic status (6,7). In our study, results indicate that the chance of smoking increases as the respondents were exposed to psychological neglect (OR=1.25), and to parents' divorce or separation (OR=1.53). The chance of early smoking is higher for the respondents who were exposed to physical abuse, psychological abuse, living with someone who uses illicit drugs, has mental health problems, or committed serious crimes. These results are similar with other international findings which emphasize the association between living in dysfunctional family environment and smoking, or early smoking (8).

Illicit drug use has a high prevalence in the present study (13.5%). Male participants indicated significantly more often the fact that they have used street drugs. Most often this behavior was an occasional one for both genders (12.7% of students), but male participants indicated in a higher rate that they used illicit drugs for more than 10 times (17.3%). The chance of using illicit drugs is higher as the respondent was exposed to any ACE category.

Our study showed that the exposure to adverse childhood experiences have high prevalence in the Romanian students population, 64.95% of respondents indicating that they have been exposed to at least one ACE category. One quarter of respondents were exposed to three ACE categories. These results are similar with other international findings. In Macedonia, 64% of students were exposed to at least one ACE category (6). This study shows that there is a graded relationship between the numbers of adverse childhood experiences (multiple forms of child abuse and neglect and household dysfunctions) and self-reports on health risk behavior. Thus, the experience of one ACE category increased the chance for illicit drug use (OR=2.4), and smoking (OR=1.45). The exposure to any two types of ACEs increased the chance for illicit drug use, early pregnancy, or suicide attempts. Similarly, the exposure to three or more ACE categories increased the chance for early smoking initiation, illicit drug use, early pregnancy, or suicide attempts.

Generally, participants did not indicate that they had a lot of health problems. Due to the relative youthfulness of the respondents, many of the health problems assessed in this study may have not yet developed. Therefore, if measured again in 10 or 20 years, the prevalence of these problems could increase and would perhaps show even stronger relationship with the ACE score. The most frequent health complaints present were back pain, headaches, sleep problems, depression, diarrhea, skin problems or high blood pressure. We identified a gender difference: females reported significantly more often health problems. The analysis of inter-relatedness between exposure to ACE and multiple health complaints indicated that as a person was exposed to a higher number of ACEs, the chance of having health problems increased significantly. This relationship was present for more than half of the health complaints that were measured. Generally, the exposure to adverse experiences in childhood is associated with higher stress and depression, but also with higher rates of involvement in health risk behaviors like smoking, alcohol abuse and drug use, or excessive eating (40). Moreover, the long term effects of abuse are evident by their negative impact on life expectancy and the quality of life (2).



## 8. Conclusions

The present study used CDC/WHO methodology and aimed to investigate the prevalence of exposure to several adverse experiences during childhood and their relationship with health risk behaviors and health status. The study sample consisted of 2088 Romanian university students.

The findings are similar with previous research that showed that child maltreatment and abuse have a high prevalence in Romania. Moreover, exposure to different adverse childhood experiences categories is highly associated with a risky lifestyle and several health problems.

Physical abuse and neglect, and psychological abuse and neglect were the most frequent reported forms of childhood experiences. An important gender difference emerged: females reported significantly more often the exposure to psychological abuse and neglect. For physical abuse, data did not reveal any gender difference. Corporal punishment was reported as a wide spread disciplinary strategy, males indicating significantly more often than females that they were exposed to such violent treatments.

Almost one tenth from our participants reported that they have been sexually abused during their childhood, with significant higher prevalence for females. Most frequently, the abuser was a person whom the victim trusted, and he/she mostly used verbal trickery, persuasion, or physical constraint as methods of involvement.

The most frequent household dysfunctions identified were: alcohol use by a family member, violent treatment of the mother, parents' divorce or separation, and mental illness of one of the family member.

Data showed that most often participants were exposed concomitantly to several abuse categories and household dysfunctions. More than two thirds of the respondents experienced physical and psychological abuse at the same time. Those who have been exposed to physical abuse have been concomitantly exposed to other types of abuse also (39% to 60% of respondents who were exposed to physical abuse have reported the exposure to other abuse types). The trend is also similar for psychological abuse and neglect. More than half of respondents reported that they had been lived with someone who was abusing alcohol, and that they had been witnessing episodes of domestic abuse. Alcohol abuse was frequently associated with physical abuse and neglect, psychological abuse and neglect, sexual abuse, mental illness of a family member, and parental divorce or separation. Violent treatment of the mother was frequently associated with psychological abuse, alcohol abuse by a family member, parental divorce or situations where family member committed a serious crime. All the present data confirm the findings of previous



research which indicate that most often children are exposed to multiple abuse categories instead of singular one (42). One aspect often considered by studies analyzing the impact of adverse childhood experiences on adult's health and social functioning is the time span in which these adversities occurred. This variable was not measured for the present study.

Besides the exposure to different types of abuse in their families, an important part of the participants were exposed to violence in their school or their community. More than one third of the participants have been involved in physical fighting during their childhood, or they have been bullied. Also, more than three thirds of the participants have witnessed violence episodes in their community – most often in the form of seeing someone while he or she was being beaten up. The chance of being bullied, of involving in physical fighting, or of witnessing community violence increased as the participant was exposed to a higher number of ACEs. These findings emphasize the systemic development of violence.

The most frequent health risk behaviors reported were: risk sexual behaviors, smoking and illicit drug consumption. As the exposure to ACEs increased it also increased the chance for early smoking, illicit drug use, multiple sex partners, unwanted pregnancies and suicide attempts. Even if the odds ratio analysis for the association between ACEs and alcohol consumption, drink and drive behavior, and early sex life was not significant, we could find some associations between specific abuse type and these health risk behaviors. These results confirm that the exposure to a higher number of ACEs is associated with the involvement in health risk behaviors in adolescence and young adulthood.

The main health problems of respondents were back pain, sleep problems, headaches, depression, skin problems, irritable bowel syndrome, and high blood pressure. Some of the previous health complaints can be integrated in larger psycho-somatic/somatisation disorders. The fact that we identified low prevalence for chronic conditions like diabetes, gastric ulcer or other severe medical conditions is due to the fact that our sample consisted of young adults (mean age=24.51). In the same time, one quarter of respondents indicated that they have a high level stress and have a poor health.

The interrelatedness analysis between the number of ACEs and present health problems showed that the exposure to a higher number of adverse childhood experience increases the risk of having health problems in adulthood.

### **8.1. Limitations of the study**

The results of this study are subject to certain limitations. Firstly, they cannot be generalized for the entire population of young adults in Romania. As we previous stated, only about 17% of the young adults in Romania attend university. Given the selection criteria of the sample, it is possible that the socio-economic status of our respondents is

higher compared to the general population of young adults. In consequence, it is likely that the prevalence of abuse and maltreatment in the general population of young adults to be even higher. Nonetheless, the results can be generalized for the young students population in Romania.

Secondly, the study is based on self-reported data, increasing the chance of social desirable answers. Considering the sensitive issues addressed by this study, we can assume that some forms of abuse might have been under-reported, even if the confidentiality and anonymity of the data was strongly and repeatedly emphasized.

Thirdly, we used a retrospective design, which might facilitate the occurrence of re-actualization biases, such as reporting the most recent events, or the most severe events. Moreover, adults might tend to minimize the recollection of traumatic events such as corporal punishment, or emotional neglect. One way to overcome these weaknesses is to use longitudinal designs. On the other hand, given the sensitive topics under question, collecting this kind of data from children brings important ethical issues to consider, and retrospective designs appear still to be the better option.

Fourthly, from the data we collected it is not clear whether there was only one abused child or more in the family. Recent data from Great Britain (34) shows that physical, sexual, or psychological abuse it is not targeted upon a single child in the family, and that, most often, all of the children of a family are victims of abuse at some point. Moreover, fights between parents, and parental stress have been associated with the abuse of all siblings. We did not collect data on this matter.

Fifthly, we cannot draw any causal inferences about the exposure to adverse experiences during childhood and the involvement in health risk or poor health in adulthood. The present results indicate only the likelihood of associations between these events. The approach where self-report data is corroborated with direct observation (e.g. school records, medical records) by using a longitudinal design is the best approach when aiming to identify causal mechanisms in this research domain. Even if a longitudinal approach is difficult to implement because of the high financial and human resources investment, the scientific community, health practitioners and authorities have to join their forces in order to gather the best data and to stop any type of child abuse or maltreatment.

## 9. Recommendations

The results of our study point to the fact that exposure to abuse and neglect during the period of childhood represents a major risk factor for subsequent involvement in risk behaviors, as well as for the development of medical and mental health problems. The prevention of such phenomenon implies not only diminishing children's exposure to suffering, but also reducing the probability of occurrence of negative consequences on the short, medium, and long term, arising as social, educational and health problems.

Preventing and eradicating the phenomenon of child abuse is not a simple process, with quick solutions and immediate effect. Despite this fact, there are numerous empirical, evidence-based strategies indicating that child maltreatment can be prevented. Fighting against this phenomenon requires a complex process, a systemic approach according to the ecological model of abuse, as well as multi-sector participation and support.

Drawing on the results of our study and on the recommendations made by the World Health Organization, a series of recommendations may be formulated, which could and should be constantly and systematically implemented in Romania.

- **Prioritizing prevention.** *Accredited institutions and non-governmental organizations should sustain the development and implementation of national or local prevention programs addressing risk factors of child maltreatment.* Ideally, mass-media, politicians, civil society should all be partners in the process of preventing child abuse and neglect. **Primary prevention programs** aim at hindering any factors that might facilitate abusive behaviors to appear, starting from cultural norms regarding the methods employed to educate and discipline children, to alcohol consumption and unwanted pregnancy, as well as identifying and reinforcing protective factors. In the case of this type of prevention, scientific literature offers data on the effectiveness of different types of evidence-based intervention, such as parenting education programs, regular home visits programs for families at risk for violent episodes, or multi-component programs that combine home visits with parenting programs adapted for different developmental periods, educational programs on the prevention of head injuries in children, educational programs concerning sexual abuse, preventing bullying in school, or programs sensitizing the public opinion on the effects of corporal punishment on children. **Secondary prevention programs** aim at implementing measures addressing the needs of groups and individuals at risk for violent manifestations. The present study provides data on the relationship between the exposure to a series of family dysfunctions, and the risk of being subjected to abuse. In this context, preventive

efforts need to be placed on children living in family environments where drugs or excess alcohol are consumed, where violent acts take place between parents/partners, where a parent suffers from mental illness, or has recorded suicide attempts or imprisonment history. This category could include activities such as addiction therapy, psychotherapy and pharmacotherapy for psychiatric pathologies, impulse control counselling and aggressive behaviours, offering parental training to parents displaying low ability to relate and educate their children, as well as educating children to identify risk situations, to promptly withdraw from such contexts and ask for help and protection. The main institutions having the capacity and expertise needed for offering such services are hospitals, including emergency units, social work and child protection divisions, counselling and psychotherapy centres.

**Tertiary prevention programs** aim at offering childcare and recovery services for those already exposed to abuse and neglect, as well as counselling for behavioural change to the abuser. In some cases, it proves compulsory to displace the child from the abusive environment in order to protect him.

- **Developing a national and regional monitoring system for child maltreatment.** In order to develop effective strategies fit for the existing situation in our country, it is necessary to periodically collect data on the types of abuse children are being exposed to, on the circumstances in which such events occur, the population at risk, the associated risk factors and the trends of growth or reduction over time of the phenomenon. This study is a starting point in the evaluation of these aspects, but future effort needs to be directed towards creating a unique way of reporting the situations where children are victims of abuse, a system easily accessible to all professionals who come in contact with the child and its family (doctors, psychologists, social workers, policemen, teachers etc.). Such system would offer a more complex overview of the case.
- **Encouraging future research evaluating risk factors, causes, consequences, costs and prevention methods effective against child and adolescent abuse and neglect.** The ACE study offers an epidemiological image of the phenomenon of child abuse and neglect. Initiating prospective longitudinal studies may offer a wider perspective on this phenomenon.
- One of the national or local priorities is **the evaluation of the effectiveness of already existing national programs and current legislation** regulating the prevention of violence against children, of domestic violence and of school violence.

Recent statistics show that the prevalence of violent manifestations towards children or among children is still high. The health sector, together with other governmental and non-governmental institutions have the capacity and expertise needed to become involved as a main actor in promoting the national plan and monitoring the activities in order to accomplish the four objectives undertaken:

1. Raising awareness of the population, generally, and of professionals, specifically, in order to prevent and announce the cases of child abuse, neglect and exploitation, including sexual exploitation, labour exploitation, child trafficking, illegal migration, domestic violence and other forms of violence applied to children.
2. Improving, developing and diversifying interventions and networks providing specialized services for the rehabilitation and social reinsertion of children victims of abuse, neglect and exploitation.
3. Ensuring a coherent legal and institutional framework for preventing and opposing child abuse, neglect and exploitation, including sexual exploitation for commercial purposes, labour exploitation, child trafficking, illegal migration, torture, cruel, inhuman or degrading punishment, and other forms of violence applied to children.
4. Harmonizing and developing professional training and instruction systems for responding to current demands in the field of preventing and opposing violence against children.

Prevention programs opposing violent behaviours against children, regardless of their type (primary, secondary or tertiary) and level of action (individual, family, meso- and macro-social), need to be reflected into a significant reduction of such phenomenon in Romania.

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# ANNEX 1

## A1.1 Maltreatment by category

- **Physical abuse**

Questions: *Did a parent or other adult in the household...*

- sometimes, often or very often push, grab or slap you?
- sometimes, often or very often hit you so hard that you had marks or were injured?

- **Corporal punishment**

Question: *How often were you spanked (as a form of discipline)?*

- sometimes, often or very often spanked (as a form of discipline).

- **Emotional abuse**

Questions: *Did a parent or other adult in the household...*

- often or very often swear at, insult or put you down?
- sometimes, often or very often act in a way that made you afraid that you would be physically hurt?

- **Emotional neglect**

Questions:

- *Did you ever not feel loved?*
- *Did you rarely, sometimes, often or very often think your parents wished you had never been born?*
- *Did you rarely, sometimes, often or very often feel that someone in your family hated you?*

- **Sexual abuse**

Questions: *Did an adult or older relative, family friend or stranger at least five years older...*

- *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?*
- *actually have any type of sexual intercourse with you?*

- **Physical neglect**

Questions:

- *Did you ever have to wear dirty clothes?*
- *Did you sometimes, often or very often not have enough to eat, even when there was enough food?*

## A1.2 Household dysfunction by category

- **Substance abuse**

Questions: *Did you...*

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

- **Mental illness**

Questions:

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

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

Questions: *Was your mother or stepmother...*

- *sometimes, often or very often pushed, grabbed or slapped or did she have things thrown at her?*
- *sometimes, often or very often kicked, beaten, hit with a fist, or with a hard object?*
- *ever hit repeatedly, for a period of at least a few minutes?*
- *ever threatened with or hurt by a knife or gun?*

- **Criminal behavior in household**

- *Did a household member ever go to prison?*
- *Did anyone in your household ever commit a serious crime?*

- **Parental separation or divorce**

- *Were your parents ever separated or divorced?*

## A1.3 Health risk behavior by category:

Questions on:

- smoking
- physical inactivity
- depression
- suicide attempts
- alcoholism
- drug use
- risky sexual behavior

#### The WHO Regional Office for Europe

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

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