



World Health  
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and associated health-risk  
behaviours in university  
students from the Republic  
of Moldova







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BY:

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# ABSTRACT

This survey of adverse childhood experiences (ACEs) was undertaken with 1534 university students aged 18–27 years from 14 universities in the Republic of Moldova. Students completed a self-report questionnaire on whether they had experienced ACEs, defined as both child maltreatment and household dysfunction, during the first 18 years of their life. The study shows that most respondents (59.6%) encountered one or more ACEs during the first 18 years and 12.5% reported four or more. The most frequently reported types of negative childhood events were corporal punishment (20.2%), emotional abuse (15.1%) and emotional neglect (13%). The most prevalent types of household dysfunction identified were in the form of parental divorce or separation (19.5%), the presence of a family member who abused alcohol (14.9%) and witnessing the mother being treated violently (13.1%). The association between experiencing ACEs and adopting risky health behaviours was strong. The risks of self-harm, drug and alcohol use, and smoking increased substantially in students with four or more ACEs. The study suggests there is a need for intersectoral action to prevent child maltreatment and other ACEs from occurring.

## Keywords

**CHILD ABUSE – PREVENTION AND CONTROL, CHILD NEGLECT, HEALTH RISK BEHAVIOUR, VIOLENCE – PREVENTION AND CONTROL, HEALTH SURVEY, REPUBLIC OF MOLDOVA**

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# Foreword

*Child maltreatment is the product of social, cultural, economic and biological factors and occurs in all societies and countries in the WHO European Region. It is a leading cause of health inequality and social injustice, with the socioeconomically disadvantaged more at risk. Most child abuse and neglect occurs in the community and commonly are associated with other adversity in households where there is dysfunction. These other types of adverse childhood experiences include witnessing parental violence, parental separation, or where a household member has a mental illness, drug or alcohol problem or may have been incarcerated. Such adverse childhood experiences may affect child development and lead to health-harming behaviours (such as smoking, alcohol and drug misuse, and self-harm), mental illness, physical inactivity, noncommunicable diseases and early death.*

*Adverse childhood experiences are thus grave public health and societal problems with far-reaching consequences for the mental and physical health of children and for societal development. The consequences of such adversity may affect people throughout the life-course, resulting in high societal costs. A healthy start to life without maltreatment and adversity in childhood is a mainstay of the actions required to reduce inequity in Europe and achieve the goals of Health 2020. In response to the public health and societal burden of child maltreatment, Member States of the WHO European Region have endorsed Investing in children: the European child maltreatment prevention action plan 2015–2020. The importance of stopping violence and adversity in children has also been prioritized in the 2030 Agenda for Sustainable Development and is reflected in the adoption of Sustainable Development Goal target 16.2, which calls for the end to all violence against children.*

*WHO has worked with several Member States to demonstrate the scale of the problem of child maltreatment and other adversity in childhood through a series of surveys of adverse childhood experiences in young people. This report on Adverse childhood experiences and associated health-risk behaviours in university students from the Republic of Moldova has contributed to the growing evidence base in Europe. It has confirmed that the prevalence of child maltreatment and adversity in childhood is also high in the Republic of Moldova. We at the WHO Regional Office for Europe hope that this report will stimulate debate on the importance of strengthening the policy response and investing in programmes for the prevention of maltreatment and other adversity in childhood in order to assure a healthy start in life.*

## **Gauden Galea**

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

# Executive summary

Violence against children is a serious public health problem for the Republic of Moldova. In response, a series of comprehensive child protection and violence prevention policies, along with interventions, has been developed and implemented. This has been facilitated through the creation of an interagency cooperation mechanism, the adoption of the Law on the Police and Status of the Police Office and the Child Protection Strategy in 2016, and the protection of child rights involved in criminal procedures through the Criminal Procedure Code.

A few studies evaluating the prevalence of different forms of violence among children and young people have been conducted in the Republic of Moldova in recent years. None, however, has examined the relationship between exposure to adverse childhood experiences (ACEs) (such as emotional, physical or sexual abuse and neglect, and household dysfunction) and subsequent engagement in risky health behaviours. As such, an ACE study was conducted in the Republic of Moldova to measure the prevalence of ACEs and assess the association between them and subsequent risky health behaviour.

The study aimed to determine the prevalence of ACEs and their influence on health behaviours by collecting data on ACEs encountered during the first 18 years of life among university-based students in the Republic of Moldova. The data were used to identify risk factors for risky health behaviours and establish ACEs' impact on them.

The study used the methodology recommended by WHO and the Centers for Disease Control and Prevention, which assesses the following aspects through a self-report questionnaire: experiencing different forms of childhood maltreatment; household dysfunctions; current involvement in risky behaviours; and current health problems.

The study was a cross-sectional, retrospective self-report study. The questionnaire was distributed to a sample of 1678 students in 14 higher education institutions in the Republic of Moldova, with 1534 of the collected questionnaires being validated (a response rate of 91%). Of the validated questionnaires, 598 (39%) were completed by males and 936 (61%) by females. The age range of the students was 18–27 years, with an average age of 20.6 years.

Results show that most respondents (59.6%) reported experiencing one or more ACEs during the first 18 years of life. A significant proportion (12.5%) experienced four or more. The most frequently reported types of negative childhood events were corporal punishment (20.2%), emotional abuse (15.1%) and emotional neglect (13%). The most prevalent types of household dysfunction identified were in the form of parental divorce or separation (19.5%), the presence of a family member who abused alcohol (14.9%) and witnessing the mother being treated violently (13.1%).

Data analysis showed that risky health behaviours are more frequently seen in young people who have been subjected to ACEs than in those who have not had such experiences, and that the risky health behaviours increase proportionally with the number of experiences. Respondents who indicated four or more ACEs are the group who report most risky health behaviours. Multiple ACEs (four and above), when compared to no ACEs experienced, increases the likely risk of using drugs (odds ratio (OR) 20), running away from home (OR 11.8), attempting suicide (OR 9.5) and smoking (OR 1.8)

The study shows that the prevalence of child maltreatment and other ACEs in the Republic of Moldova is high, and supports previous research findings which indicate that exposure to ACEs contributes to risky health behaviour, which in turn can result in increased public health problems. Given this, prevention and early intervention are recommended to decrease the prevalence of child maltreatment and subsequent risky health behaviours and morbidity in adult life.





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# INTRODUCTION

# Introduction

Child maltreatment, whether sexual, physical or emotional abuse or neglect, is a hidden form of violence that has an unacceptably high prevalence in the WHO European Region (1). It is one of the more serious forms of adverse childhood experiences (ACEs) and often occurs alongside other ACEs (such as parental violence, separation, or a household member with mental illness, incarceration, alcohol or drug misuse). It is linked to a higher likelihood of violence and health-harming behaviours in later life, leading to poorer physical, mental and reproductive health and social outcomes (2,3).

Research shows that evidence-based programming can prevent child maltreatment and other ACEs (1). International organizations and Member States of the WHO European Region have until recently focused mainly on protection, involving the justice and social sectors, and not prevention. WHO has emphasized the importance of public health leadership in promoting prevention (4).

Evidence shows that prevalence is unacceptably high in the 53 countries of the WHO European Region. The *World report on violence and health* defines child maltreatment as physical, sexual or emotional abuse, and/or deprivation and neglect (4). Child abuse, if severe, can lead to homicide, and although homicide rates in children under 15 years appear relatively low at about 850 deaths each year, deaths are the tip of the iceberg (1): reports suggest that the prevalence of child maltreatment is much higher. Prevalence in the European Region ranges from 9.6% for sexual abuse, to 22.9% for physical abuse, to 29.1% for mental abuse, suggesting that tens of millions of children are abused before the age of 18 years (1).

The lack of safe and nurturing relationships in childhood is thought adversely to affect neurodevelopmental change and, in turn, a child's emotional, cognitive and behavioural development (3). ACEs are linked to a propensity for increased violence later in life and health-harming behaviours, such as alcohol and drug misuse, tobacco use, obesity, physical inactivity, depression and self-harm, leading to poor health outcomes, including those due to increased noncommunicable diseases and psychiatric disorders (2). The scale, risks, consequences, evidence-base for preventive action and policy options are summarized in the *European report on preventing child maltreatment* (1).

In view of concern about the scale and consequences of child maltreatment, all 53 Member States of the WHO Regional Committee for Europe gave unanimous support to resolution EUR/RC64/R6 on investing in children: the European child and adolescent health strategy 2015–2020 and the European child maltreatment prevention action plan 2015–2020 (5). This calls on the health sector to provide leadership in coordinating an intersectoral prevention response focusing on improved surveillance, developing a comprehensive national action plan for prevention and ensuring more widespread implementation of prevention programmes. This survey of ACEs in the Republic of Moldova contributes to fulfilling one of the objectives of the plan, on making child maltreatment more visible.

Due to low reporting rates, evidence to date on the scale of child maltreatment in the Republic of Moldova is limited. Domestic violence is traditionally accepted, and takes place mostly within the privacy of people's homes. It is not perceived as a violation of human rights, but rather as a private matter. Corporal punishment as a means of disciplining children is often considered to be a parental right; it is perceived as a natural demonstration of authority and represents a measure that does not require time or special knowledge, but which produces an immediate effect – a child who was beaten would immediately do what he or she is told (3,6,7).

Child protection is a priority area for the Republic of Moldova. The ratification of the United Nations Convention on the Rights of the Child committed state authorities to ensuring the observance of the rights of all children, promoting policies that contribute to children's and families' welfare, and guaranteeing the continuity and sustainability of reforms in this area, with the aim of offering protection and improving the quality of children's lives (8). As a result, comprehensive child health protection policies have been developed and implemented. The Government of the Republic of Moldova approved the national strategy and action plan on reform of the residential child-care system for 2007–2012 in 2007, which aim to reduce the number of children placed in residential care by 50% and reorganize all residential institutions. The Government has made joint efforts, with support from donors and nongovernmental organizations, to implement residential child-care system reform (7).

A coherent gatekeeping mechanism, embodied in the Commission for the Protection of the Child in Difficulty, has been established to prevent the separation of children from their families and contribute to the accountability of local and territorial authorities. The Law on Special Protection of Children at Risk and Children Separated from their Parents was adopted in 2013 and has since served as a guide for all institutions and professionals working in child care. Minimum quality standards for alternative child care services have been adjusted to the United Nations guidelines for the alternative care of children (9).

Measures to oppose violence against children improved with the creation of the interagency cooperation mechanism, the adoption of the Law on the Police and Status of the Police Officer, and the adoption of the child protection strategy in 2014 and its action plan in 2016 (10,11), while the rights of the child involved in criminal procedures were protected by procedural guarantees in the Criminal Procedure Code (6,12).

A few studies evaluating the prevalence of different forms of violence among children and young people have been conducted in the country (6,12), but none has examined the relationship between exposure to ACEs (such as emotional, physical or sexual abuse, and household dysfunction) and subsequent engagement in risky health behaviours.

The Adverse Childhood Experiences (ACE) Study is one of the largest investigations ever conducted to assess associations between childhood maltreatment and later-life health and well-being. The landmark ACE Study was conducted by the Centers for Disease Control and Prevention in collaboration with Kaiser Permanente's Health Appraisal Clinic (2,13,14). The methodology has been used in many countries, including in the European Region. It has a special focus on evaluation of the association between ACEs – maltreatment (sexual, physical and emotional abuse, and physical and emotional neglect) and household dysfunction (violence between parents, parental separation or divorce, or living with a household member who has substance misuse, mental illness or incarceration) – and health-risk behaviours in young adults (15–20).

A survey of ACEs based on a methodology recommended by the Centers for Disease Control and Prevention (3,14) and WHO (3) was carried out to assess the association among ACEs, health-risk behaviours and health problems in young people in the Republic of Moldova.

## ▶ AIMS

The study aimed to determine the prevalence of ACEs and their influence on health behaviours and problems by collecting data on adverse experiences (family abuse, neglect and dysfunctions) during the first 18 years of life of young university students in the Republic of Moldova. It sought to analyse the association between exposure to ACEs and involvement in risk behaviours and health problems in young adulthood.

## ▶ MAIN OBJECTIVES

### THE MAIN OBJECTIVES OF THE STUDY WERE TO:

- investigate the prevalence of different forms of child maltreatment experienced during the first 18 years of life;
- study the prevalence of a dysfunctional family environment during the first 18 years of life;
- identify risk factors associated with exposure to adverse experiences during the first 18 years of life;
- assess the relationship between exposure to these ACEs during childhood and involvement in various risky behaviours during young adulthood;
- explore the connection between exposure to various adverse experiences and general, mental and sexual–reproductive health problems reported in young adulthood; and
- propose recommendations for the development of national programmes and strategies for the prevention of maltreatment during childhood.

A stylized graphic of a flashlight. The flashlight's handle is a light blue-grey color and extends from the right edge of the frame. The flashlight's head is also light blue-grey and is angled towards the left. A bright teal beam of light emanates from the lens, widening as it moves to the left. The word "METHODS" is written in white, bold, uppercase letters within the teal beam. A short white horizontal line is positioned above the word. The background is a solid dark blue color.

# METHODS

# 2

## Methods

The study used the methodology recommended by WHO (3) and the Centers for Disease Control and Prevention (2,3,13,14), assessing the following aspects through a self-report questionnaire: experiencing different forms of childhood abuse; household dysfunctions; current involvement in risky behaviours; and current health problems. The Adverse Childhood Experience Questionnaire was chosen because it produces data on temporally separated events relatively quickly and is a proven methodology with validated tools. It has been used widely in European settings.

### ► TARGET POPULATION

Following the methodology of previous ACE studies (15,16), university students between the ages of 18 and 24 years in the Republic of Moldova were identified as the target population.

In the 2016/2017 academic year, 74 700 university students were spread across 18 public and 12 private higher education institutions. Twenty-six of the universities are in Chisinau (the capital city) and the other four in the Balti municipality, Comrat, Taraclia and Cahul town. Eighty per cent of the students represented in higher education attend public institutions and 41.7% of university students received budget funding for the 2016/2017 academic year. The sampling strategy has been described elsewhere (15).

### ► QUESTIONNAIRE DESIGN

The questionnaire, based on ACE Family Health History Questionnaires and Health Appraisal Questionnaires (3,13), contained 68 items on:

- different types of abuse suffered during the first 18 years of life (physical, psychological and sexual abuse, and physical and psychological neglect);
- dysfunctions that may appear at family-functioning level (such as substance misuse, mental disorders, delinquent behaviour, violence against the mother and divorce of parents);
- involvement in risk behaviours (for example, smoking, alcohol and drug use, inactivity, suicide attempt, more than one sexual partner and early pregnancy); and
- current health problems related to general health (such as asthma and hypertension).

The study questionnaire was piloted in two languages (Russian and Romanian) with 25 university student volunteers (15 females and 10 males) aged 18–25 years. Ten had been raised in urban areas and 15 in rural. The pilot trial showed that the questionnaire was easily understandable. Unclear questions were adjusted at this point. Based on feedback on the sensitive nature of the questions and the likelihood of non-responses, the study sample size was increased by 15% to 1650. Only one questionnaire with designated male and female sections was designed, as had been done in previous studies (21), to increase the efficiency of implementation and reduce cost.

## ► QUESTIONNAIRE IMPLEMENTATION

The study received ethical approval from the Ethics Committee of the State University of Medicine and Pharmacy “Nicolae Testemitanu”. Contact information for local psychological services from youth-friendly health centres was added to the end of each questionnaire due to the sensitive nature of the questions.

Stratified random probability sampling according to geographical zone, gender, faculty and year of study was conducted. All public universities with an enrolment rate of higher than 85% were included and two of the private universities were randomly selected. Each specialty faculty and each year of study in the given faculty was included in the survey. At least 20 students from each of these groups were randomly selected for the questionnaire.

The anonymous questionnaire, in Russian and Romanian, was implemented by a team of trained researchers. Participation was voluntary and participants could stop at any point. All questionnaires were collected in sealed envelopes by researchers, ensuring confidentiality.

The questionnaire survey was conducted with a sample of 1678 students in 14 higher education institutions in the Republic of Moldova (11 in Chisinau (central geographical zone), one in Balti municipality (north geographical zone), Comrat and Cahul (south geographical zone), and two private universities. Table 1 provides a detailed breakdown of how many questionnaires were collected from each institution. Of the 18 public institutions, six declined the invitation to participate.

*Table 1. Higher education institutions involved in ACE study in Republic of Moldova, 2016*

Higher education institutions	Collected and validated questionnaires
Academy of Economic Studies of Moldova	263
Technical University of Moldova	305
Moldova State University	203
Agrarian State University of Moldova	146
"Nicolae Testimetanu" State University of Medicine and Pharmacy	110
Academy of Music, Theatre and Fine Arts	22
State University of Physical Education and Sport	35
"Ion Creanga" Pedagogical State University	87
Tiraspol State University	63
Cooperative–Commercial University of Moldova	39
University of European Political and Economic Studies	35
"Alecu Russo" State University of Balti	97
"Bogdan Petriceicu Hasdeu" State University of Cahul	71
Comrat State University	58

## ► ANALYSIS

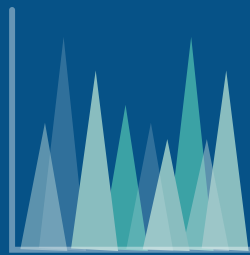
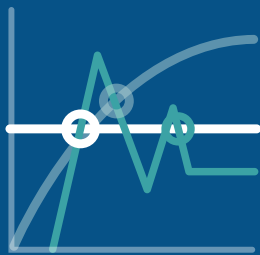
Data were analysed using IBM SPSS Statistics, Version 13 (*Chicago (IL): SPSS Inc.*). Statistical analysis was considered significant at the  $p < 0.05$  level.

Estimates of the prevalence of ACEs and risk behaviours were based on calculations of relative frequencies. The degree of association between the ACE and risk behaviours was estimated on the basis of odds ratio (OR). Logistic regression analysis was used to estimate the relationship of ACEs with other variables to control for demographic characteristics. Using a confidence interval of 95%, association coefficients from the logistic regression analysis were used to estimate demographic values at population level.





# RESULTS



# 3

## Results

### ► SAMPLE CHARACTERISTICS

Table 2 summarizes the characteristics of participants who completed questionnaires. The final sample comprised 1534 validated questionnaires, of which 936 (61%) were from females and 598 (39%) from males. The gender distribution in the study sample is almost the same as that found in higher education institutions in the Republic of Moldova. The difference of representativeness between the two sexes also reflects attendance at courses on the day of distribution and completion of the ACE questionnaires.

Table 2. Characteristics of participants

		Sex				Total	
		Male		Female		Count	%
		Count	%	Count	%		
<b>Total</b>		<b>598</b>	<b>39</b>	<b>936</b>	<b>61</b>	<b>1534</b>	<b>100</b>
Age groups	18–19 years	152	25.4	238	25.4	390	25.4
	20–21 years	270	45.2	460	49.1	730	47.6
	22 + years	176	29.4	238	25.4	414	27
<b>Total</b>		<b>598</b>	<b>100</b>	<b>936</b>	<b>100</b>	<b>1534</b>	<b>100</b>
Status	Married	20	3.3	77	8.2	97	6.3
	Unmarried, but lives with partner	62	10.4	145	15.5	207	13.5
	Widow	6	1	5	0.5	11	0.7
	Separated	22	3.7	30	3.2	52	3.4
	Divorced	3	0.5	5	0.5	8	0.5
	Single	485	81.1	674	72	1,159	75.6
<b>Total</b>		<b>598</b>	<b>100</b>	<b>936</b>	<b>100</b>	<b>1,534</b>	<b>100</b>
Education level: mother	Low	162	28.8	307	34	469	32
	Medium	187	33.3	313	34.6	500	34.1
	High	213	37.9	284	31.4	497	33.9
<b>Total</b>		<b>562</b>	<b>100</b>	<b>904</b>	<b>100</b>	<b>1,466</b>	<b>100</b>
Education level: father	Low	204	37.6	357	41.7	561	40.1
	Medium	171	31.5	288	33.6	459	32.8
	High	167	30.8	212	24.7	379	27.1
<b>Total</b>		<b>542</b>	<b>100</b>	<b>857</b>	<b>100</b>	<b>1,399</b>	<b>100</b>

		Sex				Total			
		Male		Female		Count		%	
		Count	%	Count	%				
Employment status: mother	Employed	379	66.6	612	68.1	991	67.5		
	Unemployed	190	33.4	287	31.9	477	32.5		
Total		569	100	899	100	1.468	100		
Employment status: father	Employed	340	65	540	65.9	880	65.6		
	Unemployed	183	35	279	34.1	462	34.4		
Total		523	100	819	100	1.342	100		
Area where you lived during the first 18 years of life	Rural/village	310	54.7	538	58.8	848	57.2		
	Urban/small town	151	26.6	208	22.7	359	24.2		
	Municipalities/ Chisinau or Balti	106	18.7	169	18.5	275	18.6		
Total		567	100	915	100	1.482	100		

The average age of participants in the study was 20.6 years (*standard deviation 1.4*), and the age range was between 18 and 27 years; 95.5% of respondents were in 19–24 years age group. Most participants were single, Moldovan, and came from families in which both parents were employed and mothers generally had attained a higher level of education than fathers.

## ► EXPOSURE TO ACEs

Table 3 summarizes the number of students and prevalence of ACEs reported in the first 18 years. These data are provided separately for males and females, and together.

*Table 3. Prevalence (%) of ACEs reported in the first 18 years of life by gender*

Adverse experience category	Prevalence in males % (number)	Prevalence in females % (number)	Total % (number)
Physical abuse	11.6 (65)	11.6 (65)	11.6 (65)
Corporal punishment	24.7 (141)	24.7 (141)	24.7 (141)
Physical neglect	8.2 (47)	8.2 (47)	8.2 (47)
Emotional abuse	12.3 (69)	12.3 (69)	12.3 (69)
Emotional neglect	11.5(65)	11.5(65)	11.5(65)
Sexual abuse	3.2 (19)	3.2 (19)	3.2 (19)
Illegal drug use	5.8 (34)	5.8 (34)	5.8 (34)
Alcohol abuse	13.1 (77)	13.1 (77)	13.1 (77)
Mental disorder	5.3 (31)	5.3 (31)	5.3 (31)
Abused mother	9.6 (52)	9.6 (52)	9.6 (52)
Family member imprisoned	5.3 (31)	5.3 (31)	5.3 (31)
Divorced parents	17.3 (102)	17.3 (102)	17.3 (102)
0 ACEs	37.6 (204)	37.6 (204)	37.6 (204)
1 ACE	31.3 (170)	31.3 (170)	31.3 (170)
2 ACEs	12 (65)	12 (65)	12 (65)
3 ACEs	7.9 (43)	7.9 (43)	7.9 (43)
4 + ACEs	11.2 (61)	11.2 (61)	11.2 (61)

### Physical abuse and neglect

Over one in 10 university students reported having experienced physical abuse before the age of 18. Students from families with higher education levels were less likely to report physical abuse. When asked the earliest age at which they could recall being physically abused, most indicated that the abuse tended to start early, at around 3 years old, and continued until 18. Approximately 7% experienced physical neglect, which was least frequent among those from large cities whose parents had a higher education level.

## Corporal punishment

The prevalence of corporal punishment experienced during their first 18 years was 20%, almost twice that of reported physical abuse.

## Emotional abuse and neglect

Every seventh individual reported being exposed to emotional or psychological abuse. The prevalence of emotional abuse decreased with higher parental education level and was more frequent in rural areas. Approximately 13% reported having experienced emotional neglect during the first 18 years. Again, this was least prevalent among those from large cities whose parents had a higher education level.

## Sexual abuse

Four per cent recalled being exposed to one or more forms of sexual abuse during the first 18 years, including being subjected to sexual contact or being forced to touch themselves in a sexual manner. In most cases of sexual abuse, the aggressor was a trusted person known to the victim or family (a family member, family friend, carer or other trusted individual). Cases were also reported as being repetitive in nature, with four repetitions on average of the sexually abusive action.

## Household dysfunction

The study assessed the prevalence of a range of major household dysfunctions, such as the use of illicit drugs, alcohol abuse, the presence of a mentally ill family member, a mother subjected to abuse, family members in prison and divorced parents.

The most frequently indicated dysfunction encountered was the divorce or separation of parents (affecting about one fifth), followed closely by living with someone who abuses alcohol and a mother who is subjected to abuse. Fewer than 5% of participants indicated living in a household with a mentally ill family member, a member in prison or a member using illicit drugs.

## ACEs in males versus females

There was no significant difference between males and females in exposure to physical abuse, but males were significantly more likely to have experienced corporal punishment. Females were more likely to report experiencing emotional abuse and forced sexual contact.

## ► ASSOCIATION BETWEEN ACEs

Table 4 displays the associations between different forms of ACEs. Physical abuse and presence of a mental illness in a member of the household were most highly associated with emotional abuse. Similarly, physical neglect was most highly associated with emotional neglect.

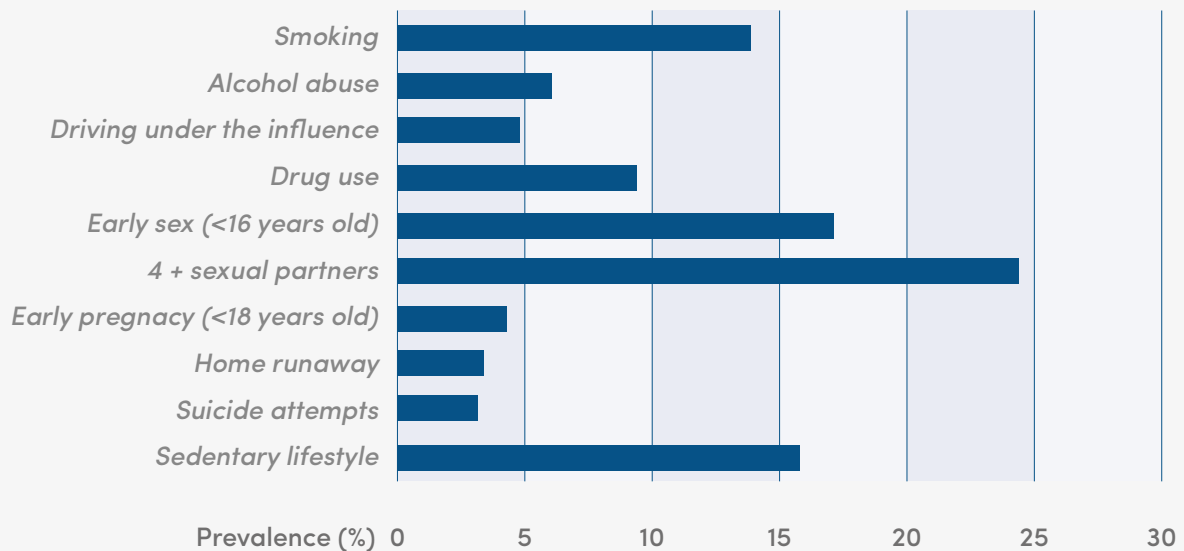
Table 4. Associations between multiple ACE categories: number of people and prevalence (%) of exposure to multiple ACE categories

ACE category	No other ACE	Physical abuse	Emotional abuse	Emotional neglect	Sexual abuse	Physical neglect	Substance abuse in family	Mental illness in family	Abused mother	Family member in prison	Divorced parents
Physical abuse	177		116 (66)	61 (34)	25 (14)	34 (19)	65 (37)	32 (18)	71 (40)	26 (15)	48 (27)
Emotional abuse	221	116 (52)		68 (31)	23 (10)	36 (16)	79 (36)	47 (21)	80 (36)	32 (14)	70 (32)
Emotional negle	191	61 (32)	68 (36)		17 (9)	51 (27)	61 (32)	38 (20)	60 (31)	20 (10)	51 (27)
Sexual abuse	59	25 (42)	23 (39)	17 (29)		8 (14)	22 (37)	14 (24)	16 (27)	9 (15)	13 (22)
Physical neglect	109	34 (31)	36 (33)	51 (47)	8 (7)		35 (32)	19 (17)	38 (35)	22 (20)	38 (35)
Substance abuse in family	252	65 (26)	79 (31)	61 (24)	22 (9)	35 (14)		52 (21)	98 (39)	36 (14)	78 (31)
Mental illness in family	108	32 (30)	47 (44)	38 (35)	14 (13)	19 (18)	52 (48)		42 (38)	23 (21)	53 (49)
Abused mother	183	71 (39)	80 (44)	30 (16)	16 (9)	38 (21)	98 (54)	42 (23)		34 (19)	71 (39)
Family member in prison	79	26 (33)	32 (41)	20 (25)	9 (11)	22 (28)	36 (46)	23 (29)	34 (43)		34 (43)
Divorced parents	296	48 (16)	70 (24)	51 (17)	13 (4)	38 (13)	78 (26)	53 (18)	71 (24)	31 (10)	

## ► RISKY HEALTH BEHAVIOURS AND ACEs

Current risky health behaviours of the students were documented, and Fig. 1 summarizes the prevalence rates of these behaviours across the sample population. Table 5 provides the odds ratios of the ACE categories and the risky health behaviours.

*Fig. 1. Prevalence of risky health behaviours among students sampled*



### Risky health behaviour prevalence in males and females

The prevalence of smoking was four times higher in males than in females; males also smoked on average three more cigarettes per day. This trend holds when examining alcohol consumption, where every tenth male indicated he had consumed four or more glasses of alcohol on at least three days in the last month. Males also tended to begin drinking at an earlier age than females. Again, this male–female trend holds when examining drug use, where four times more males had engaged in drug use.

Males generally were younger than females at the time of first sexual intercourse. There was a significant gap in the reported prevalence of engaging in early sex (under the age of 16 years), with approximately 35% of males and only 6% of females reportedly engaging in early sex. Males also reported, on average, three times as many sexual partners as females.

### Smoking and ACEs

Smoking was one of the most commonly reported risky health behaviours, with almost 14% of participants reporting that they smoked at least seven cigarettes a day on average. Smoking was reported most among those from small towns whose parents had higher educational attainment. Analysis indicated that most ACEs increased the risk of engaging in smoking compared to no ACEs. The likelihood of smoking was also significantly determined by the presence of a family drug user (OR 4.7,  $p < 0.001$ ), the presence of a mental illness in the family (OR 2.5,  $p < 0.001$ ) and physical neglect (OR 2.32,  $p < 0.001$ ).

Table 5. Odds ratios (OR) and 95% confidence intervals of risky health behaviours after exposure to different type of ACE

ACE category	Smoking			Alcohol consumption			Driving under the influence			Drug use			Suicide attempt			Home runaway			Early pregnancy (up to 18 years old)			Early sex (up to 16 years old)			Sexual partners (4+)		
	N=207	13.9%		N=89	6%		N=74	4.8%		N=138	9.3%		N=45	3.1%		N=52	3.4%		N=8	0.9%		N=234	15.3%		N=233	15.2%	
	OR	95%CI	P	OR	95%CI	P	OR	95%CI	P	OR	95%CI	P	OR	95%CI	P	OR	95%CI	P	OR	95%CI	P	OR	95%CI	P	OR	95%CI	P
Physical abuse	1.59	1.05 2.40	<0.05	1.62	1.15 2.28	0.36	2.79	1.55 5.06	<0.001	2.79	1.80 4.26	<0.001	4.52	2.34 8.72	<0.001	4.59	2.51 8.40	<0.001	3.8	0.72 20.19	0.11	1.03	.67 1.60	0.89	1.17	0.76 1.79	0.48
Emotional abuse	1.37	0.92 2.02	0.12	1.22	0.89 1.69	0.83	1.6	0.90 2.83	0.49	1.60	1.01 2.47	0.04	3.13	1.61 6.07	<0.001	5.44	3.04 9.73	<0.001	10	1.78 56.15	<0.01	1.01	.67 1.51	0.97	1.17	0.79 1.74	0.44
Sexual abuse	1.00	0.47 2.13	0.99	1.15	0.64 2.05	0.38	5.63	2.21 14.3	<0.01	5.63	1.54 5.55	<0.001	2.55	0.88 7.39	0.07	4.20	1.81 9.75	<0.001	1.95	0.18 21.54	0.59	1.51	.78 2.95	0.22	0.72	0.31 1.65	0.43
Physical neglect	2.32	1.45 3.72	<0.001	1.65	1.07 2.53	0.17	2.43	1.23 4.81	<0.01	2.43	1.35 3.99	<0.01	3.93	1.89 8.19	<0.001	4.63	2.39 8.97	<0.001	6.83	0.85 58.02	0.05	1.11	.65 1.89	0.72	1.85	1.11 3.06	0.02
Emotional neglect	1.86	1.26 2.75	<0.01	1.35	0.95 1.90	0.84	3.67	2.11 6.37	<0.001	3.67	1.22 3.03	<0.01	5.98	3.25 11.01	<0.001	3.48	1.91 6.35	<0.001	3.7	0.70 19.68	0.11	0.94	.61 1.46	0.78	0.93	0.60 1.45	0.76
Drug use in the family	4.70	2.48 8.92	<0.001	3.27	1.75 6.12	<0.01	3.68	1.5 8.6	<0.001	3.68	5.25 18.46	<0.001	7.29	3.05 17.47	<0.001	11.67	5.51 24.69	<0.001	6.30	1.26 31.47	0.40	2.41	1.17 4.96	0.01	3.74	1.75 7.97	<0.001
Alcohol abuse in the family	1.13	0.76 1.68	0.56	1.22	0.89 1.68	0.13	1.62	0.97 1.25	<0.01	1.62	1.31 3.04	<0.001	5.67	3.08 10.45	<0.001	5.60	3.17 9.91	<0.001	6.30	1.6 31.47	0.01	0.88	.58 1.33	0.55	1.29	0.87 1.91	0.21
Mental illness in the family	2.49	1.47 4.21	<0.001	1.53	0.94 2.48	0.46	2.17	1.16 4.06	<0.01	2.17	1.16 4.06	<0.01	3.66	1.58 8.50	<0.001	9.03	4.71 17.32	<0.001	4.38	0.90 21.34	0.44	1.40	.77 2.55	0.27	1.28	0.70 2.34	0.42
Domestic violence	1.35	0.88 2.06	0.16	1.42	1.00 1.99	0.09	1.62	1.00 2.64	<0.01	1.62	1.00 2.64	<0.05	6.06	3.27 11.22	<0.001	4.89	2.67 8.96	<0.001	2.15	0.1 14.94	0.44	0.77	.49 1.21	0.26	0.95	0.61 1.47	0.81
Family member in prison	1.59	0.85 2.97	0.14	2.52	1.52 4.18	<0.001	3.18	1.74 5.83	<0.001	3.18	1.74 5.83	<0.001	6.41	2.94 13.99	<0.001	7.08	3.45 14.56	<0.001	3.25	0.49 21.77	0.13	2.72	1.47 5.03	<0.001	3.12	1.61 6.06	<0.001
Divorced parents	1.19	0.83 1.70	0.348	0.97	0.72 1.31	.237	0.95	0.61 1.48	0.147	0.95	0.61 1.48	0.81	2.16	1.14 4.07	<0.001	5.66	3.22 9.94	<0.001	2.31	0.50 10.67	0.29	1.53	1.08 2.16	<0.05	1.29	0.90 1.84	0.16



## Alcohol abuse and ACEs

Two thirds of participants indicated they had consumed alcohol (beer, wine, cocktails or hard liquor) in the last month. Almost 5% reported having driven a car under the influence of alcohol, and one in seven had lived with someone who abused alcohol. As with smoking, alcohol use was mostly reported by students from small towns whose parents had higher educational attainment. The highest ACE risk factor was the presence of a drug user in the family (OR 3.27,  $p < 0.01$ ) and a member of the family being in prison (OR 2.51,  $p < 0.001$ ). Analysis also indicated that ACEs increase the likelihood of engaging in risky behaviour while under the influence of alcohol, such as driving. ►

## Drug use and ACEs

Every tenth individual reported using drugs. A quarter reported experimental drug use, while most had had three or more episodes of drug use. In general, participants were older when they first tried drugs than when they first tried smoking or alcohol. Students who used drugs generally had parents with higher educational attainment and grew up in large cities. All ACEs, excluding parental divorce, significantly increased the risk of drug use in later life. The highest risk factor was the presence of a drug user in the family, which increases the risk of drug use by 9.85.

## Risky sexual behaviour and ACEs

Most respondents – two thirds – engaged in sexual activity. Fewer than 5% indicated that their first experience of sexual intercourse was forced, and approximately 17% engaged in early sexual activity (under the age of 16 years). Students from large cities with parents of higher educational attainment tended to engage in sex at an earlier age. The ACEs which most increased the risk of engaging in early sexual behaviour were having a family member in prison (OR 2.7,  $p < 0.001$ ), the presence of a drug user in the family (OR 2.41,  $p < 0.001$ ), emotional neglect (OR 2.41,  $p < 0.05$ ) and parental divorce (OR 1.53,  $p < 0.05$ ).

Over 20% indicated having more than four sexual partners to date. Most ACEs did not increase the risk of having multiple sexual partners, but again, having a drug user in the family (OR 3.74,  $p < 0.001$ ) and a family member in prison (OR 2.7,  $p < 0.001$ ) had the greatest impact on risk.

Eight (0.9%) of the female respondents reported experiencing an early pregnancy (under the age of 18). Twice as many early pregnancies were indicated in females from urban areas. All females who reported an early pregnancy indicated at least one ACE. Females exposed to emotional abuse had a 10 times higher risk of experiencing an early pregnancy (OR 10,  $p < 0.01$ ). The next highest risks came from having experienced physical neglect (OR 6.8,  $p < 0.05$ ) and the presence of a family member who abused alcohol (OR 6.3,  $p < 0.05$ ). It is noted that as only eight cases of early pregnancy were reported, these findings have limitations.

## Home runaway and ACEs

Just under 4% of respondents reported having run away from home for more than one day within the first 18 years of life, with those from large cities engaging in this behaviour twice as often. All of the ACEs significantly increased the risks of running away from home ( $p < 0.001$ ), with the greatest risk coming from the presence of drug use (OR 11.7,  $p < 0.001$ ) and mental illness (OR 9.0,  $p < 0.001$ ) in the family.

## Attempted suicide and ACEs

It was found that approximately 3% of the study population had attempted suicide, with the highest prevalence rate (37.5%) among individuals who had experienced parental divorce.

Almost all types of ACE significantly increased the risk of attempted suicide. The presence of a drug user in the family (OR 7.3), a family member in prison (OR 6.4), domestic violence in the family (OR 6.1), emotional neglect (OR 5.9) and alcohol abuse in the family (OR 5.7) all significantly increased the risk of attempted suicide ( $p < 0.001$ ).

## ► RISKY HEALTH BEHAVIOURS AND EXPOSURE TO MULTIPLE ACEs

Table 6 provides a summary of the relationship between the risk of engaging in risky health behaviours and exposure to an increasing number of ACEs. The analysis shows a clear relationship between the number of ACEs experienced and subsequent engagement in risky health behaviours. Those who have experienced any one ACE are at more risk of engaging in risky healthy behaviours, and the risk grows proportionally with the more ACEs to which the person is exposed. These are adjusted for gender, age and parental education.

Risk behaviours		0 ACEs (N=571)	1 ACE (N=367)	2 ACEs (N=192)	3 ACEs (N=105)	4 or more ACEs (N=177)	p
Smoking	%	10.9	16.1	13.2	15.7	20.9	<0.001
	OR		1.26	0.94	1.16	1.78	
	(95% CI)		0.90–1.75	0.60–1.47	0.67 – 2.03	1.19–2.66	
Alcohol consumption	%	22.3	29.5	27.1	29	33.3	<0.001
	OR		1.2	1.02	1.13	1.4	
	(95% CI)		0.91–1.57	0.71–1.45	0.72–1.76	1.01–2.02	
Driving under the influence	%	10.7	19.1	9.8	18.8	32.1	<0.001
	OR		1.15	0.48	1.098	2.83	
	(95% CI)		0.67–1.99	0.20–1.15	0.44–2.76	1.65–4.83	
Injecting drug use	%	0.2	0.7	–	–	5.6	<0.001
	OR		0.69			20.06	
	(95% CI)		0.15–3.20	7.5	21.2	5.26–76.52	
Drug use	%	4.6	10.6	0.76	2.9	17.7	<0.001
	OR		1.2	0.43–1.36	1.73–4.87	2.41	
	(95% CI)		0.80–1.78	2.7	3	1.55–3.72	
Suicide attempt	%	1.1	2	0.83	0.95	14	<0.001
	OR		0.55	0.32–2.14	0.29–3.13	9.55	
	(95% CI)		0.24–1.24	2.6	4.8	5.19–17.57	

Risk behaviours		0 ACEs (N=571)	1 ACE (N=367)	2 ACEs (N=192)	3 ACEs (N=105)	4 or more ACEs (N=177)	p
Home runaway	%	1.2	1.4	2.6	4.8	16.9	<0.001
	OR		0.31	0.69	1.4	11.75	
	(95% CI)		0.12–0.80	0.27–1.77	0.54–3.59	6.61–20.91	
Early sex (< 16 years)	%	17.6	26.9	24.4	31.6	23.3	<0.82
	OR		1.4	1.13	1.66	1.05	
	(95% CI)		1.00–1.92	0.73–1.74	1.0–2.75	0.68–1.62	
4+ sexual partners	%	20.9	26.9	23	31.5	27	<0.72
	OR		1.2	0.91	1.48	1.18	
	(95% CI)		0.86–1.68	0.58–1.43	0.88–2.48	0.76–1.81	
Early pregnancy (< 18 years)	%	0	7.7	16.7	50	33.3	<0.11
	OR		0.36	1.06	7.8	3.6	
	(95% CI)		0.04–3.22	0.11–10.48	1.23–49.68	0.68–19.16	

Respondents who reported three, four and more ACEs presented the highest potential risk for risky health behaviours. Most strikingly, the number of ACEs increased the likelihood of drug use (OR 20 in those with four or more ACEs compared to those with none), running away from home (OR 11.75 to four or more ACEs) and attempted suicide (OR 9.54 to four or more ACEs).

## ► HEALTH PROBLEMS AND ACEs

Secondary analysis was done to examine the relationship between general health conditions and ACEs. Overall, there appeared to be a significant increase ( $p < 0.05$ ) in reporting poor health in those exposed to four or more ACEs compared to those with none (OR 3.6). The prevalence of a range of general health problems (such as asthma, hypertension, skin disorders, metabolic changes, urinary tract problems, irritable bowel syndrome, frequent headaches, frequent back pain and diabetes) also increased as the number of ACEs increased. Additional detailed data that may contribute to the development of these conditions were not collected (for instance, type 1 diabetes is genetic, and ACEs would have little influence on its development), so this analysis is not reported here. Self-reported mental health problems, and drug and problem alcohol use increased with the number of ACEs (Table 7).

Table 7. Relationships between number of ACEs and a range of self-reported mental health

Health problems		0 ACEs (N=571)	1 ACE (N=367)	2 ACEs (N=192)	3 ACEs (N=105)	4 or more ACEs (N=177)	p
Depression	%	21.7	27.8	33.9	41.9	48.3	<0.001
	OR		0.92	1.29	1.85	2.6	
	(95% CI)		0.71–1.20	0.94–1.79	1.23–2.77	1.89–3.58	
Do you think you are alcoholic?	%	0.9	1.1	1.1	2	6.3	<0.001
	OR		0.6	0.6	1.2	6.54	
	(95% CI)		0.20–1.77	0.14–2.58	0.28–5.19	2.88–14.84	
Problems with illicit drug use	%	0.7	1.4	1.1	1	6.9	<0.001
	OR		0.75	0.58	0.54	7.26	
	(95% CI)		0.28–2.02	0.14–2.47	0.07–4.0	3.26–16.18	
You panic	%	20	20.7	22.2	25.7	39.2	<0.001
	OR		0.83	0.94	1.16	2.43	
	(95% CI)		0.62–1.10	0.65–1.36	0.74–1.83	1.75–3.39	
Sleep problems	%	31.5	35.5	36.5	40	51.7	<0.001
	OR		0.97	1.02	1.19	2.08	
	(95% CI)		0.75–1.24	0.74–1.40	0.80–1.79	1.51–2.85	
Anxiety/nervous problems	%	17	22.6	34.4	35.2	45.5	<0.001
	OR		0.83	1.69	1.69	2.9	
	(95% CI)		0.63–1.10	1.22–2.34	1.11–2.58	2.10–4.01	



**DISCUSSION**

# 4

## Discussion

This study presents useful data on the prevalence of child maltreatment in the Republic of Moldova. It shows that most of the university student respondents (59.6%) encountered one or more adverse experiences during the first 18 years of life, and 12.5% reported four or more ACEs. The most frequently reported types of negative childhood events were the use of corporal punishment as disciplinary action (20.2%), emotional abuse (15.1%) and emotional neglect (13%). The most prevalent types of household dysfunction identified were in the form of parental divorce or separation (19.5%), the presence of a family member who abused alcohol (14.9%) and witnessing the mother being treated violently (13.1%). While some male-to-female distinctions were identified, they were not deemed as significant contributors to overall risk of ACEs; rather, they seemed to predispose young people to particular types of ACEs. Males were more likely to experience corporal punishment, while females were more likely to experience emotional abuse or neglect.

Despite its retrospective nature, this study has shown that child maltreatment and other ACEs, as reported by young adults with an average age of 20.6 years, are common. The results also confirm that ACEs are strongly associated with health-harming behaviours that have far-reaching mental and physical health consequences. Other studies have demonstrated the association between ACEs and the development of noncommunicable diseases and mental ill health, as well as an increased propensity for being a victim or perpetrator of violence (22,23).

The mental health of children and young adults has been a cause of recent concern in the Republic of Moldova, and noncommunicable diseases are also a health priority in the country.

It is evident from the results that engagement in risky health behaviours is more prevalent among young people who have been exposed to at least one ACE, with risk increasing proportionally with an increase in ACE exposure. Participants who reported upwards of three ACEs had the greatest risk of engaging in risky health behaviours, particularly drug and alcohol use, smoking, running away from home and attempted suicide, which would also impact on whether victims achieved their full educational and developmental potential. Preventing ACEs can therefore reduce mental and physical ill health and connected costs.

This study is one of the first to show the high prevalence of child maltreatment and other ACEs in the Republic of Moldova, and the first to show the strong association with health-harming behaviours. It therefore contributes to describing the scale of the problem, as required by the European child maltreatment prevention action plan (24). Its evidence contributes to advocacy efforts to improve governance frameworks and mount an intersectoral response to stop violence against children, as required by the United Nations Sustainable Development Goal target 16.2 (25,26).

The evidence base of interventions that could be used to protect children from violence and other adversity is large, and is summarized in the *European report on preventing child maltreatment* (1) and a supporting handbook (27). The United Nations Convention on the Rights of the Child (8) requires all Member States to offer effective child protection, giving paramount importance to the rights and best interests of children under the age of 18 years. Sustainable Development Goal target 16.2 calls for ending abuse, exploitation, trafficking and all forms of violence against, and torture of, children. In addition, WHO adopted the *Global plan of action to strengthen the role of the health sector within a multisectoral response to address interpersonal violence, in particular against women and girls, and against children* (28) in 2016. The Minsk Declaration on the Life-course Approach in the

Context of Health 2020 highlights the importance of investing in early childhood development and promoting safe, stable and nurturing relationships to prevent ACEs and maximize developmental potential, with improved health and social outcomes as adults (29). The Global Partnership to End Violence against Children promotes the use of *INSPIRE: seven strategies for ending violence against children* to prevent and respond to violence against children (30).

The findings provide strong support for investing in interventions aimed at tackling multiple ACE risk factors simultaneously. It is evident that while one ACE poses a risk for subsequent risky health behaviour, multiple ACEs present considerably more risk: as such, attempting to prevent any one ACE in isolation is likely to have more limited impact. This is further supported by the finding that several ACEs strongly associate with one another, demonstrating that it is unlikely that they occur in isolation in the first place; prevention of one does not necessarily mean an individual will not experience the other (1,30).

## ► LIMITATIONS AND FUTURE WORK

The study targeted exclusively university students, so the sample did not include employed or unemployed young adults, nor the general population. This means that the study reflects only the situation regarding childhood experiences among university students. ACEs and their associated risky health behaviours are nevertheless found to be high in this relatively privileged population, suggesting that a population-based survey should be conducted to confirm the level of ACEs, associated health-harming behaviours, and increased risks of developing mental illness and being a perpetrator and victim of violence and noncommunicable diseases, as reported elsewhere (2,22).

The study design did not investigate parental migration, which may result in absence of one or both parents and/or co-supervision by relatives. This socioeconomic phenomenon is significant in the Republic of Moldova and may cause increased risks of ACEs. Future research should measure this factor to investigate any impact on exposure to ACEs and risk behaviours.

The study is based on self-reports by respondents, which raises the risk of collecting socially desirable responses. Given this study's specificity, it can be assumed that a tendency towards underreporting some forms of abuse, such as sexual contact, was evident, despite assurances on the anonymity of respondents.

The small number of cases of early pregnancy in the sample did not allow broader analysis of its correlation with childhood experiences with a high degree of statistical significance. This would require raising the sample numbers or applying the collection methodology to households, which in turn could decrease the degree of sincerity of respondents.

The retrospective nature of the self-assessment of adverse experiences encountered by the respondents during their childhood may induce the possibility of recall bias, such as reporting the latest or most severe events. The filter for the analysis and assessment of these types of experiences in childhood may be different in older adulthood. This limit could be overcome by gathering long-term data from childhood in the form of longitudinal cohort studies, but such approaches face cost and ethical challenges.

This cross-sectional study cannot lead to clear conclusions about direct causality between ACE categories, risky health behaviours and subsequent health problems. The results indicate only the likelihood of association between these events. Triangulation of self-reported data on the experience of abuse with those from direct observation (in medical services and schools, for instance) and a prospective longitudinal study of the medium- and long-term effects of various types of abuse would reveal more direct evidence of causality.

Such studies are very costly and their delivery requires joint interdisciplinary efforts, but the increase in odds with increased number of ACEs makes a strong argument for causality, as does the wealth of European and international literature that supports the findings from this survey (15,17–20,22,23,31).

## ► THE WAY FORWARD

This study provides evidence that child maltreatment and subsequent risky health behaviour is a serious public health problem in the Republic of Moldova. Early intervention and prevention of child maltreatment, as well as actions to enhance family functionality, have been recommended by *Investing in children: the European child maltreatment prevention action plan* to reduce the prevalence of child maltreatment and the consequent risk behaviours and morbidity in adulthood (24).

It is evident from the data that preventing ACEs cannot be approached in isolation. Several angles must be taken to combat the occurrence of ACEs efficiently, requiring the participation of multiple partners across varying sectors to ensure the greatest effects (1,27,30).

The best results can be obtained through comprehensive whole-of-society approaches on violence prevention that take a life-course approach and cut across the four levels of the ecological model (societal, community, family and individual), as proposed in the *World report on violence and health* (4). Comprehensive approaches to violence prevention require that legislative frameworks and social and cultural norms that inadvertently support the use of violence in disciplinary action and as a means of resolving conflict be tackled (1). Such legislation exists in the Republic of Moldova, but its enforcement is lacking, and active efforts need to be made to tackle social norms. Violence-prevention programmes must focus on sustainable interventions with the education sector, such as including the prevention component as a mandatory aspect of preschool and school health education programmes, and also focus on violence-free schools.

Steps also need to be taken to improve family communication and train parents on the benefits of positive parenting and warm nurturing relationships through childhood (27,30). Effective parenting programmes, adapted to the Moldovan context, should be introduced and implemented, specifically targeting dysfunction in families at risk of violence to build intrafamilial capacity to resolve conflict in non-violent ways. Development programmes focused on parental skills should be part of gender education, beginning in preschool and continuing through the life-course. Steps should also be taken to strengthen intersectoral cooperation among the social, health-care, education and justice sectors to support varying types of families through positive social integration and child education. Legislative and governance frameworks are required to enable collaboration and the sharing of data and resources among sectors. Studies from other countries have shown that the costs of child maltreatment may be around 1–2% of a country's gross domestic product, and that these costs fall on all sectors of society (1,32).

The data also demonstrate the need for continued efforts to support the provision of comprehensive, multidisciplinary youth health services that offer individualized approaches to health problems, particularly considering the presence of exposure to ACEs.

Given the extensive nature of the problem of child maltreatment and subsequent risky health behaviours, continuous capacity-building of relevant systems, especially for people working directly with children (such as teachers, social workers, the police and medical professionals), is required to develop appropriate guidelines for early identification and prevention of child maltreatment and other ACEs. Steps must also be taken to deliver appropriate action once maltreatment has been identified to ensure individuals receive the



best child-centred care, legal expertise and rehabilitation possible. Health systems' capacities need to be strengthened to detect and respond to child maltreatment and other ACEs, and forthcoming guidelines from WHO will serve as a helpful tool.

Last, the findings from this study make clear that there is a need for ongoing monitoring of the prevalence of child maltreatment and ACEs and evaluation of relevant interventions. Several country-specific issues, such as the influence of parental migration on subsequent health behaviours of children, need to be examined in more depth.

The policy priority to stop violence against children is present in the Sustainable Development Goals target 16.2, adopted by world leaders in September 2015 at an historic United Nations Summit (25). The aim of *Investing in children: the European child maltreatment prevention action plan 2015–2020* is to prevent child maltreatment in whatever form, whether sexual, physical or mental abuse, or neglect (24). This survey in the Republic of Moldova contributes to fulfilling one of the objectives of the action plan, which is to make the problem of child maltreatment more visible.

The study highlights the relationship between the occurrence of ACEs and risky health behaviours and ill health. Its findings argue strongly for investment in prevention and early and effective responses once maltreatment is discovered. There is a strong evidence base for preventing and responding to maltreatment and other ACEs. Stakeholders in the Republic of Moldova should take stock of the current situation, strengthen national policy and implement a coordinated intersectoral preventive and care response.

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