Childhood Abuse, Household Dysfunction and the Risk of Attempting Suicide in a National Sample of Secondary School and University Students

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Abstract

OBJECTIVES: One of the main objectives of this paper is to analyze the associations between childhood abuse, household dysfunction and the risk of attempting suicide among young adolescents in the country.

METHOD: A representative sample consisted of total 1277 students (58.6% female and 41.6% male), aged 18 and above in year four of 664 secondary school and 613 first- and second-year university students. The data were obtained using Adverse Childhood Experiences Study Questionnaires (Family Health History Questionnaire) for collecting information on child maltreatment, household dysfunction and other socio-behavioural factors, applying WHO/CDC-recommended methodology. Statistical significance was set up at p<0.05.

RESULTS: Emotional neglect, physical abuse and physical neglect were the most frequent abusive experiences students had. Overall, suicide attempts were reported by 3.1% of respondents (4.7% by females and 0.8% by males). Those respondents who had been emotionally abused were almost three times as likely to attempt suicide, physical abuse almost doubles the chances of attempting suicide, substance abuse in the family increased the chances 2.3 times for attempting suicide, violent treatment of the mother almost quadrupled them for attempted suicide, having a family member who had been in prison increased the odds of almost 3.5 times for attempting suicide. Attempted suicide was found to be 1.5 times more likely as the number of ACEs reached 3 and 3.4 times more likely as the number of adverse childhood experiences reached four or more.

CONCLUSION: Identifying and treating children, adolescents and young adults who have been affected by adverse childhood experiences may have substantial value in our evolving efforts to prevent suicide.

Introduction

Each year, about 4 million adolescents worldwide attempt suicide [1]. The immediacy of the developmental stress, potential abuse and household dysfunction are common risk factors. These experiences are not easily elaborated by adolescents which at certain points may make appear the suicide to be the only solution.

An expanding body of research suggest that childhood trauma and adverse life experiences can lead to negative health outcomes, including substance abuse, depressive disorder, and attempted suicide among adolescents and adults [1, 2]. Childhood sexual and physical abuse has been associated with suicide attempts [3-6]. In the last decades growing body of evidence suggests the relationship between multiple childhood trauma and the risk for suicide attempt, such as abuse, witnessing domestic violence, and other forms of household dysfunction which are highly interrelated [7] and have a graded relationship to numerous health and social problems [7, 8].

The data used in this article is an integral part of the data collected for more comprehensive project.
“Survey of adverse childhood experiences (ACE) among young people”. The study has been conducted 2010. Implementation of the study was enabled with technical and financial support by the World Health Organization in collaboration with the University Clinic of Psychiatry, Medical Faculty in Skopje.

We examined the relationship of 10 adverse childhood experiences (childhood abuse [emotional, physical and sexual] witnessing domestic violence, parental separation or divorce, and living with substance abusive, mentally ill or criminal household members) to the adolescent risk of suicide attempts in a sample of students in Republic of Macedonia. We also examined the relationship between the number of adverse childhood experiences (ACES) and suicide attempts during childhood and adolescence.

Methods

The Adverse childhood experience study among students in secondary schools and universities in the Republic of Macedonia is collaboration between WHO Department of Violence and Injury Prevention through the WHO Country office in Skopje and University Clinic of Psychiatry, Medical Faculty, Skopje. The overall objective was to assess the impact of numerous ACEs on a variety of health behaviours and outcomes among adolescent population age 18-21. The ACE study was approved by the Ministry of Education and Science of the Republic of Macedonia and its review boards. Potential participants were given Informed Consents forms that accompanied the ACE study questionnaire and told them that their participation was voluntary, and that their answers were confidential.

Numerous articles and publications from ACE study have shown a strong graded relationship between the number of ACEs, multiple risk factors for leading causes of death in the US [7] and priority health and social problems such as smoking, sexually transmitted diseases, unwanted pregnancies, and alcohol problems [7, 8].

The instrument – ACE Questionnaires

The questionnaires that we used in the study were developed by the US Centers for Disease Control and Prevention and Kaiser Permanente in 1997, and include the Family Health History and Physical Health Appraisal questionnaires for collecting information on childhood maltreatment, household dysfunction and other socio-behavioural factors [9]. The questionnaires were translated into Macedonian and Albanian and a cognitive testing was done according to the usual procedure. A pilot study was performed on a sample of 60 students (28 females and 22 males) from the secondary school of medicine in Skopje and further corrections of the translation and language was made, taking into consideration the comprehension of the questionnaire for our target group/s and its cultural acceptability.

All the respondents completed a standardised questionnaire - Family Health History (a male and female version), without applying Physical Health Appraisal questionnaire, because the target population were adolescents and young adults, which usually are a healthy population group in terms of physical health. The questionnaire consists of 68 questions examining various types of child maltreatment, childhood adversities rooted in household dysfunctions, and other risk factors. All the questions are introduced with the phrase “While you were growing up, during your first 18 years of life,...” Students’ questionnaires were filled out anonymously. Survey procedures were designed to protect student privacy by allowing voluntary and anonymous participation and possibility to withdraw their participation at any time of the research.

Definitions of adverse childhood experiences

Among adverse childhood experiences US Centers for Disease Control and Prevention defined: experiences of emotional abuse, physical abuse, sexual abuse, emotional neglect and physical neglect, and experiences of household dysfunction such as: living with a family member who is mentally ill, alcoholic or illicit drug user, incarcerated or criminal, and experiences of domestic violence.

Emotional abuse was determined from answers to 2 questions: “Often or very often parent or other adult in the household swore at, insulted or put you down” and “Often or very often a parent or other adult in the household acted in a way that made you afraid that you would be physically hurt. Emotional neglect was determined from answers to 3 questions: “Never felt loved”, “Rarely, sometimes, often or very often thought parents wished you had never been born” and, “Rarely, sometimes, often or very often you felt that someone in your family hated you”. Physical abuse was described by 2 questions: “Often or very often a parent or other adult in the household pushed, grabbed or slapped you” and “Sometimes, often or very often a parent or other adult in the household hit you so hard that you had marks or were injured.” Sexual abuse was described by 4 questions: “During the first 18 years of life did an adult or older relative, family friend or stranger at least 5 years older (1) touch or fondle your body in a sexual way, (2) made you touch their body in a sexual way, (3) attempt to have any type of sexual intercourse with you, (4) Actually have any type of sexual intercourse with you?” A “Yes” response to any of these 4 questions was considered as sexual abuse. Physical neglect was determined from answers to 3 questions: “Rarely, sometimes, often or very often you had to wear dirty clothes “there was never someone to take you to a
doctor if you needed it”, “Sometimes, often or very
often you didn’t have enough to eat, even when there
was enough food?” Household dysfunction was
described by substance abuse by a family member,
asked by two questions weather respondents during
their childhood lived with a problem drinker or
alcoholic, or with anyone who used street drugs; by
a family member suffering from mental illness, asked by
two questions if they lived with someone depressed or
mentally ill, or with someone who had attempted
suicide; if a family member has a criminal behaviour,
asked by 2 questions if a household member ever
went to prison or committed a serious crime; by
experiencing parental separation or divorce. All these
experiences were defined as a “yes” response to
the questions. Childhood exposure to domestic violence
was described by 4 questions addressing violent
treatment of mother: “Sometimes, often or very often
your mother/step mother was pushed, grabbed or
slapped, or have things thrown at her”, or “kicked,
beaten, hit with a fist, or with a hard object”,
“repeatedly hit her for a period of at list few minutes”,
and “threatened her with, or hurt by a knife or gun”.

ACE study design

The ACE study used a random selection of a
representative sample of students in IV year
secondary school (aged 18 and above) and first and
second year university students.

The sampling framework included all
secondary schools containing IV year (33 schools).
Eleven schools were selected by random selection to
participate in the ACE study. The sample consisted of
randomly selected intact classrooms (using a random
start) from each school. All students attending school
on the day of the testing in the sampled classrooms
were eligible to participate in the ACE. University
students attending I and II year in the four state
university centers (in Skopje, Bitola, Tetovo, and
Shtip), from 9 faculties attending lectures on the day
of testing were approached and had been offered to
take part in the study. Students came from 4 different
geographical areas and from several different ethnic
groups in the country (Macedonian, Albanian, Turkish
and other ethnic groups).

Results

Characteristics of the study population

The sample consisted of 664 secondary
school students (258 males and 406 females) which
represented 2.8% of total student population in fourth
grade from general and vocational school, thus
obtaining stratified sampling considering different
social strata. The university student sample consisted
of 613 (343 female and 270 male) students from these
four universities, which is 1.9% of the total student
population in the first and second year of studies [10].

The student response rate was 90.3 % (1277
of 1414 students included in the sample). In the 11
secondary school all girls and boys attending selected
classrooms, present that day at school were invited to
participate in the study. The total number of non-
responders in this group was 102 (13.3%). The total
number of non-responders in the university group was
35 (5.4%) consisting of 30 male students and 5 female
students.

Table 1: Age and sex of respondents (N = 1277).

<table>
<thead>
<tr>
<th>Sex</th>
<th>N (%)</th>
<th>Mean age</th>
<th>St. dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>749</td>
<td>19.83</td>
<td>2.18</td>
</tr>
<tr>
<td>Male</td>
<td>528</td>
<td>20.14</td>
<td>2.77</td>
</tr>
<tr>
<td>Total</td>
<td>1277</td>
<td>19.95</td>
<td>2.73</td>
</tr>
</tbody>
</table>

The prevalence of each experience and the
ACE scores are given in the Table 2. Emotional
neglect, physical abuse and physical neglect were the
most frequent abusive experiences students had.
There was a statistically significant difference between
female and male responders in experiencing sexual
abuse, physical neglect (significantly more males) and
emotional neglect (significantly more female
respondents) (Table 2). Almost 30 % of the
respondents reported at least one adverse experience
of the 10 categories, 15.5% reported two adverse
experiences, 9.8% three such experiences and 9.5%
four and more such experiences.

Table 3: Characteristics of suicide attempts by adolescents
by sex.

<table>
<thead>
<tr>
<th>Suicide attempt by adolescents</th>
<th>Female N (%)</th>
<th>Male N (%)</th>
<th>Total N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suicide attempt</td>
<td>35 (4.7%)</td>
<td>4 (0.6%)</td>
<td>39 (3.1)</td>
</tr>
<tr>
<td>Mean age of the attempt</td>
<td>13.83</td>
<td>14.24</td>
<td>14.09</td>
</tr>
<tr>
<td>Suicide attempt resulting in injury</td>
<td>9 (1.2)</td>
<td>2 (0.4)</td>
<td>11 (0.9)</td>
</tr>
<tr>
<td>2 or more suicide attempts</td>
<td>11 (1.5)</td>
<td>3 (0.6)</td>
<td>14 (1.2)</td>
</tr>
</tbody>
</table>

N = 39.

Overall, suicide attempts were reported by 3.1
% of respondents. There was a statistically significant
difference between female and male respondents (for
p<0.05), with 4.7% for females and 0.8% for males.
The age when suicide was first attempted for both
sexes was 14. In 1.2% of females and 0.4% of males
the attempt(s) resulted in injury, which indicates that
the attempt was very serious. More than one attempt
was made by 1.5% of females and 0.6% of males.

To assess the ACE as risk factors for suicide
Having a family member who had been in prison increased the odds of almost 3.5 times for attempting suicide (statistically significant). Overall, these results showed that being exposed to negative experiences during childhood could result in a number of risky behaviours in adolescence and young adulthood.

Table 5: Prevalence and odds of suicide attempt by number of adverse childhood exposures.

<table>
<thead>
<tr>
<th>Suicide attempt</th>
<th>Number of adverse childhood experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 (N=457)</td>
</tr>
<tr>
<td></td>
<td>1 (N=274)</td>
</tr>
<tr>
<td></td>
<td>2 (N=198)</td>
</tr>
<tr>
<td></td>
<td>3 (N=125)</td>
</tr>
<tr>
<td></td>
<td>&gt;4 (N=121)</td>
</tr>
<tr>
<td>Prevalence</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>3.4</td>
</tr>
<tr>
<td></td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>7.4</td>
</tr>
<tr>
<td>OR (95% CI)</td>
<td>0 (0.344)</td>
</tr>
<tr>
<td></td>
<td>1.076 (0.418)</td>
</tr>
<tr>
<td></td>
<td>1.207 (0.525)</td>
</tr>
<tr>
<td></td>
<td>1.976 (0.734)</td>
</tr>
<tr>
<td></td>
<td>2.484 (0.956)</td>
</tr>
<tr>
<td></td>
<td>3.516 (1.525)</td>
</tr>
<tr>
<td></td>
<td>7.346 (3.464)</td>
</tr>
<tr>
<td>Odds Ratios</td>
<td>Adjusted for age, sex, SES: p=0.5</td>
</tr>
<tr>
<td></td>
<td>p=0.05</td>
</tr>
</tbody>
</table>

The general trend indicated that there was a relatively strong graded relationship between health-risk behaviours and number of adverse childhood experiences.

Significantly attempted suicide was found to be 1.5 times more likely (OR=1.533, 95% CI = 1.207-3.516) as the number of ACEs reaches 3 and 3.4 times (OR = 3.447, 95% CI = 1.525–7.346) more likely as the number of adverse childhood experiences reached four or more.

Discussion

Our study confirmed the finding, that females significantly more often attempt suicide, significantly more often had more than one attempt, and the attempt(s) more often resulted in injury, which indicated that the attempt was very serious. During adolescence, girls who are under stress are more likely to suffer from emotional and psychosomatic problems, following the pattern of internalizing psychopathological manifestations (such as anxiety, depression, and somatisation) which at some point might lead to suicidal behaviour. Boys under stress have more behavioural and conduct problems, following the pattern of externalization [11, 12]. The immediacy of the developmental stress and potential abuse and household dysfunction are experiences not easily elaborated by children and adolescents, as a result of which at certain points suicide may appear to be the only solution.

We found that 8 out of 10 adverse childhood experiences increased the risk of attempting suicide during adolescence from 1.5-4 folds. The impact of pain and anxiety caused by emotional, sexual and physical abuse or witnessing domestic violence are experienced in silence and sometimes suicide attempt is perceived as the only way out or an appeal for help. Because the experiences are strongly interrelated and rarely occur in isolation [4], it is important to simultaneously consider the impact of multiple experiences. As the number of these experiences increased, the risk of ever attempting suicide, as well as...
as risk of attempting suicide either during childhood/adolescence or adulthood increased dramatically [1]. A strong graded relationship was reported between the number of adverse experiences in childhood (multiple forms of CAN and household dysfunction) and self-reports of health-risk behaviours during adolescence (such as attempted suicide among others) [7]. These findings are supported by studies on abused children and adolescents at high risk of suicidal behaviours [5].

Information from neurosciences supports the biological plausibility of our findings. Children who experience traumatic events are more likely to have problems with emotional and behavioural self-regulation later in life, and are more likely to mutilate themselves and attempt to commit or commit suicide [13]. Furthermore, the biological processes that occur when children are exposed to adverse events such as recurrent abuse and witnessing domestic violence can disrupt the early development of the central nervous system, which may additionally affect brain functioning later in life [14-18].

The results of this study are subject to certain limitations. Responses were based on self-reports. A potential weakness of studies of this kind might result in the likelihood of giving socially desirable answers. It is also known that studies with retrospective reporting of childhood experiences have the possibility of recalling bias, such as the likelihood that more recent and severe experiences are being reported. It may also be possible that there was differential recall, depending upon the nature and significance of the events (e.g., sexual abuse compared with emotional neglect, suicide attempt compared to smoking).

We did not examine the relationship between suicide attempts and other health risk behaviours in adolescence such as alcohol abuse and drug use, which can also increase the suicidal risk.

In conclusion we found that adverse childhood experiences increase the risk of attempting suicide. Thus, recognition that adverse childhood experiences are common and frequently happen as multiple events may be the first step in preventing their occurrence. Identifying and treating children, adolescents and young adults who have been affected by such experiences may have substantial value in our evolving efforts to prevent suicide.

References

9. The questionnaire can be downloaded from the web site of the U.S. Centers for Disease Control and Prevention (CDC), (http://www.cdc.gov/nccdphp/ace, Accessed 26 June 2011)