

Exposure to Peer Violence Among Romanian High School Students And Its Relationship With Internet Use And Other Health Risk Behaviors

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Abstract

INTRODUCTION: Peer violence can have important physical and psychological consequences.

OBJECTIVES: This study assessed exposure to peer violence among Romanian high school students and investigated its relationship with internet use and other health risk behaviors.

METHODS: A cross sectional study using anonymous questionnaires was performed in the school year 2015/2016 among 220 high school students from Cluj-Napoca, Romania.

RESULTS: Around 9% of the girls, respectively 20% of the boys were involved in a physical fight with a peer in the last year. More than half of both girls and boys declared verbal aggression by peers at least once in the last year, while around one quarter of the participants declared being aggressed in the last year through messages sent by peers by phone or social media platforms. The results of the bivariate correlation analyses show that involvement in physical fights was positively associated with being boy, experimentation with smoking, electronic cigarettes use and getting drunk during lifetime. High school students who declared verbal aggression in the last year had the tendency to spend more time on internet for several purposes, to experiment smoking and alcohol intoxication. Exposure to peer violence through messages sent by phone or social media platforms

was more frequent among those spending more time on internet, having social media accounts and getting drunk during lifetime.

CONCLUSIONS: The study shows the need for future investigations in this field as well as the necessity to develop appropriate programs for prevention and decreasing of peer violence among high school students.

KEYWORDS: **violence, health risk behaviors, Romanian high school students**

Introduction

Peer violence can embrace several forms-physical fight, verbal aggression or bullying as well as cyber bullying (being bullied through someone sending mean instant messages, wall-postings, e-mails and text messages, or had created a website that made fun of them) [1-2]. All can have important physical and psychological consequences, as well as impeding school performance, mental and social development and well being [1-5]. The Health Behavior in school aged children study performed in several European countries among 11, 13 and 15 years old children showed that youth violence remains a problem of concerns, with several variations between countries, age groups and factors which influence different forms of violence [6].

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Moreover, it underlines that research is needed to investigate the issue of cyber bullying to known psychosocial determinants and outcomes and how its prevalence and patterning is similar to, and differs from, traditional forms of bullying [6].

Several studies from Romania investigated the relationship between smoking, e-cigarette use, alcohol and illicit drug consumption, but to a less extent how different health risk behaviors influence violence related behaviors among adolescents [2, 7].

The internet use and its relationship with different health risk behaviors represent an important subject of investigation in order to better understand the opportunities and threats for adolescent health, but limited data are available from Romania [6, 8].

The objectives of this study are to assess exposure to peer violence among Romanian high school students and to investigate its relationship with internet use and other health risk behaviors.

Material and methods

Study sample and data collection

A cross sectional study was performed in the school year 2015-2016 in Cluj-Napoca, a big city from North-Western Romania, among high school students aged 15-18 from grades IX-XI of three high schools of the city (the study involved 3 classes of students for each grade). The study received informed consent from the directors of the high schools [9]. The study sample consisted of 220 high school students (113 boys and 107 girls).

Data were collected by means of anonymous questionnaires filled in by high school students after being informed that participation is voluntary. The questionnaire assessed several socio-demographic characteristics, as well as health risk behaviors. The present study is presenting data regarding the following issues:

- involvement in a physical fight with a peer during the last year (never, once, 2-3 times, more than 3 times)
- being verbally aggressed by peers during the last year (never, once, 2-3 times, more than 3 times)
- being aggressed during the last year through messages sent by peers by phone or social media platforms (never, once, 2-3 times, more than 3 times)
- internet use -using internet, time spent on internet per day, having e-mail address, having social media platform account
- involvement in health risk behaviors -smoking at least once during lifetime and smoking in the last month, use of electronic cigarettes (e-cigarettes) at least once and in the last month, getting drunk during lifetime (never, 1-2 times, 3-4 times, more than 4 times)

Statistical analyses

The prevalence of the investigated behaviours was calculated. Pearson correlation was used to assess the association between exposure to peer violence, gender, smoking and e-cigarette use, experimentation with alcohol intoxication as well as having social media platform account and time spent on internet/day.

Data analysis was performed with SPSS-20 statistics program. Statistical significance is reported at $p < 0.05$.

Results

The results of the study have shown that around 9% of the girls, respectively 20% of the boys, were involved in a physical fight with a peer in the last year (see Table 1). More than half of both girls and boys declared that during the last year they suffered verbal aggression by peers at least once, while around one quarter of the participants declared that were aggressed during the last year through messages sent by peers by phone or social media platforms.

Table 1. Exposure to peer violence

	Girls N=107 %	Boys N=113 %
Physical fight with a peer in the last year		
Never	90.7	80.6
Once	7.4	8.8
Two-three times	1.9	7.1
More than three times	0	3.5
Verbal aggression by peers in the last year		
Never	43	46.9
Once	23.4	17.7
Two-three times	18.6	26.5
More than three times	15	8.9
Aggression through messages sent by peers by phone or social media platforms		
Never	75.7	74.3
Once	12.1	23
Two-three times	0.9	0
More than three times	11.3	2.7

With regard to other health risks behaviors, Table 2 shows that half of both girls and boys have smoked at least once during lifetime, while one quarter of girls and one third of boys did so in the last month. Around one out of three girls and one out of two boys declared using e-cigarettes at least once during lifetime, while 6.5% of the girls and 13% of boys did so in the last month. Almost half of the girls and

two thirds of boys have experimented alcohol intoxication at least once during lifetime (see Table 2).

As presented in Table 2, all high school students use internet and the time spent per day was higher than 2 hours for more than two thirds of the girls and more than half of the boys. At the same time, all have email address and more than 90% have social media platform account.

Table 2. Internet use and health risk behaviors

	Girls N=107 %	Boys N=113 %
Use of internet	100	100
Time spent on internet/day		
<1hour	0	10.6
1-2hours	32.7	38.1
2-3hours	28	26.5
>3hours	39.3	24.8
Have social platform account	96.3	91.2
Have email	100	100
Tobacco smoking		
At least once during lifetime	50.3	51.3
In the last month	25.2	36.4

	Girls N=107 %	Boys N=113 %
Use of e-cigarettes		
At least once during lifetime	33.6	48.7
In the last month	6.5	13.3
Alcohol use		
Experimentation with alcohol intoxication at least once during lifetime	49.5	65.4

The results of the bivariate correlations show that involvement in physical fights was positively associated with being boy, experimentation with smoking, electronic cigarettes use and getting drunk during lifetime (Table 3). High school students who declared verbal aggression in the last year had the tendency to

spend more time on internet for several purposes, to experiment smoking and alcohol intoxication. Exposure to peer violence through messages sent by phone or social media platforms was more frequent among those spending more time on internet, having social media accounts and getting drunk during lifetime.

Table 3. Association between peer violence, internet use and health risk behaviors

	Physical fight	Verbal aggression ^f	Aggression through messages ^f
Gender ^a	-0.206	NS	NS
Smoking ^b	0.275	0.205	NS
E-cigarette use ^b	0.205	NS	NS
Alcohol intoxication ^c	0.164	0.340	0.192
Having social media platform account ^d	NS	NS	0.187
Time spent on internet/day ^e	NS	0.156	0.321

NS-non-significant ($p>0.05$)

a-1 boys, 2 – girls

b-0-never, 1 – at least once in the lifetime but not in the last month, 3 – in the last month

c-0-never, 1 – 2 times, 2 – 3 – 4 times, 4 – more than 4 times

d-0-no, 1 – yes

e-0-less than 1 hour, 1-2 hours, 2-3 hours, 3 – more than 3 hours

f-0 – never, 1 – once, 2-3 times, 3 – more than 3 times

Discussions

The study offers information regarding the prevalence of different forms of violence among Romanian senior high school students, issues which are insufficiently studied in Romania. It shows that verbal aggression is the most frequent one (with more than half of the participants experimenting it in the last year), while the cyber bullying is less frequent, but still affecting one quarter of the participants in the last year. A review of 80 studies that reported corresponding prevalence rates for cyber and traditional

bullying in adolescents showed that traditional bullying was twice as common as cyber bullying; cyber and traditional bullying were also highly correlated, suggesting that poly-aggression involvement should be a primary target for interventions and policy [10].

Moreover, similar with other studies from Romania and worldwide, our study shows that smoking and alcohol use among adolescents remain an important problem of public health which needs appropriate prevention programs [11, 12].

At the same time, the study is one of the few studies investigating the use of e-cigarette among high school students from Romania, underlining that it is an emerging public health problem [11].

The study also investigates associations between different forms of violence and health risk behaviors. Similar to other studies from Romania and other countries, involvement in physical fights was associated with smoking and experimentation with alcohol use, as well as with experimentation with e-cigarettes [11, 12]. On the other hand, verbal aggression was also associated with smoking and experimentation with alcohol intoxication, but not use of e-cigarettes. Exposure to peer violence through messages sent by phone or social media platforms was associated with alcohol intoxication, but not with the behaviors related to smoking and e-cigarette use.

At the same time, the study showed the preoccupation of high school students for using internet for different purposes, with one quarter of the boys and one third of girls staying more than three hours per day. Spending more hours per day on internet for different purposes was positively associated with verbal violence and exposure to aggression through messages sent by phone or social media platforms. Moreover, having social media platforms account was associated with exposure to peer cyber bullying. Studies from other countries also showed this potential risk of excessive internet and social media use [8,13].

The increasing importance of this subject is highlighted by recent genetic studies as part of the “childhood adversity and DNA methylation” study programs searching for bullying exposure and changes in gene expression like serotonin transporter gene (*5-HTT*) or glucocorticoid receptor gene (Nuclear Receptor Subfamily 3 Group C Member 1 – *NR3C1*); hypermethylation was identified in these genes in depressed and bullied adolescents [14-16]. The recent study published in 2020 have tried to characterize epi-genome-wide intra-individual changes in DNA methylation on genes in relationship with bullying exposure, and the results were controversial, explaining the increasing interest in these molecular mechanisms involving gene-wide analyses [14].

It is important to continue raising awareness among children from their early age and train them on techniques of non-violent communication, types

of violence, and its effects on victims. Public health should prioritize further evaluation and creative intervention designs aiming to prevent all forms of bullying [4,5,17-20].

The present study has several limitations, including the limited sample size and the fact that it is just an exploratory study which included only few questions regarding peer violence.

Nevertheless, it shows the need for future investigations in this field as well as the necessity to develop appropriate programs focused on prevention and decreasing of different forms of violence among school students from Romania.

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