# VICTIMS AND AGGRESSORS IN VIRTUAL SETTINGS - A COMPARATIVE STUDY ON CYBERBULLYING AMONG STUDENTS IN SIX COUNTRIES

## 1. MATERIALS AND METHODS

### 2.1. Study Population

This study is done in the TECPC - Together Everyone Can Prevent Cyberbullying (2020-1-RO01-KA226-SCH-095269) project, in the framework of the Erasmus+ Programme – KA2 Strategic Partnerships Digital Education Readiness. The study was conducted in November 2021 – March 2022 in several schools from six countries: Romania, Italy, Greece, Lithuania, Portugal, and Turkey.

The questionnaire was distributed online among 22 schools from rural and urban areas. Target participants were primary, secondary and high school students between the ages of 10 and 19. Participants were informed about the purpose of the study and confidentiality of data and they were informed that they could withdraw from the study whenever they wanted, without consequences. No incentive was given to participants.

The inclusion criteria were questionnaire filled in by children enrolled in private or public school, ages 10-19 years old submitting fully filled in questionnaires. The criteria for excluding questionnaires from the research were questionnaires not fully completed and questionnaries submitted after the deadline. A number of 1891 questionnaires were finally included in the research. *Figure 1* provides details on response rate.

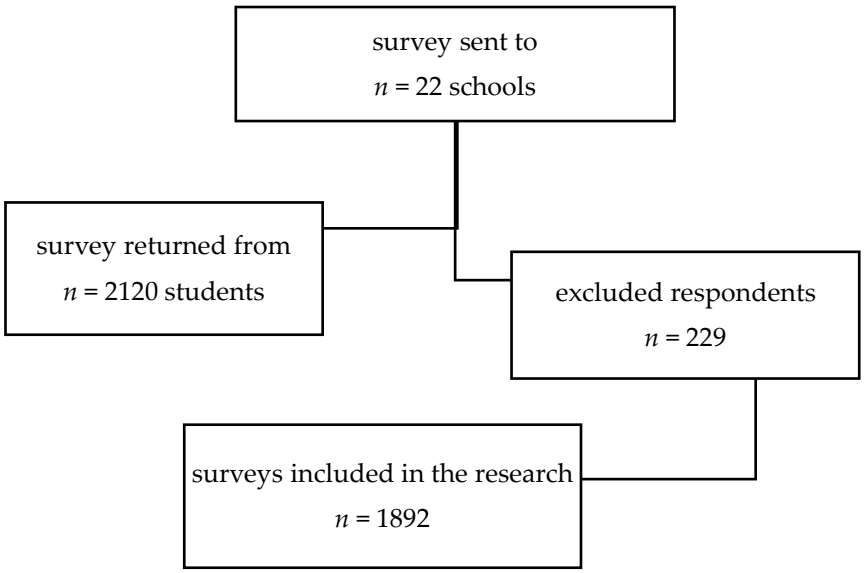


Figure 1. Study profile.

### 2.2. Data collection

The questionnaire was constructed using Google Forms application (Alphabet, Mountain View, CA, USA), was translated from English into all six national languages and was

developed in order to address the prevention, recognition and intervention of online harassment against its cruel social, psychological-medical & educational impact for children & teens.

a) The first part of the questionnaire gathered socio-demographic information (like age, gender, level of education of children and their parents, home environment, school environment, members of the household).

Data about family income was measured using *Family Affluence Scale* (FAS) that was developed first in Scotland as a measure of family affluence. It was proved that, at a young age children did not have accurate information on their family's finances, and adolescents too were not informed about the family incomes. So, this evaluation was found to be a less intrusive and more comprehensible approach had to be applied in order to evaluate socioeconomic status among children and teenagers. (Currie et al, 1997) The Family Affluence Scale (FAS), a four-item measure of family wealth, has been developed in the WHO Health Behaviour in School-aged Children Study as an alternative measure and in 2001–2002 the scale was composed of four item:

1. Does your family own a car, van or truck? (No [0]; Yes, one [1];Yes, two or more),
2. Do you have your own bedroom for yourself ? (No [0]; Yes [1]),
3. During the past 12 months, how many times did you travel away onholiday with your family? (Not at all [0]; Once [1]; Twice [2]; Morethan twice [3]),
4. How many computers does your family own? (None [0]; One [1];Two [2]; More than two [3]).

b) The second part includes questions about children's satisfaction with the relationship with parents, classmates, colleagues from school, friends and teachers. Self-assessed items were constructed and responses were assessed on a 5-point Likert scale. Other questions in this section include items about grades obtained last year, as well as the relationship between mother and father from the children's perspective, children's relationship with parents, the main decision-maker in the family, self-assessment of social position (leader, popular or lonely person), positioning the school learning situation compared to classmates, number of best friends, number of children in class.

c) The third part targets bullying and cyberbullying behaviors, including items that refer to children's views on the gender of people who are most often abusers or abuse others (boys or girls), if they have ever been an online abuser or a victim of physical or online bullying, if they have colleagues who are terrorizing others, if they have seen colleagues who are terrorized physically or online and if they have reported the incident in those cases.

d) The fourth part of the survey collected information about use of mobile phones and internet, the main reason for using internet, the time spent on average in a usual working day and in a weekend day on the internet, the age at which children received their first phone call, how often they socialize with people they know on the internet, as well as their parents' behavior towards them regarding excessive phone use (blaming, insulting, restricting access).

e) The final part of the questionnaire addressed several standardized scales used to assess self-esteem, loneliness, presented above:

- *Rosenberg self-esteem scale* consists of 10 items and it is a self-report instrument for evaluating individual self-esteem (Rosenberg, 1965). RSES is scored using four response choices, ranging from strongly agree to strongly disagree.
- *UCLA Loneliness scale* (ULS-8) contains the 20 items selected from the third revised version UCLA Loneliness Scale of Russell et al., 1980. This instrument is scored on a 4-point Likert scale with values ranging from 1 (never) to 4 (always). The UCLA is

a commonly used tool developed to measure one's subjective feelings of loneliness as well as feelings of social isolation.

- *The Cyber-aggression Scale* (CYB-AGS) comprised 18 items rated on a 5–point Likert–type scale ranging from 1 (never) to 5 (always). These items measure the adolescent's experience as a cyberbullying perpetrator (directly or indirectly) in the past 12 months (Buelga & Pons, 2012).
- *The Cyber victimization Questionnaire (*CYVIC) is a self-report instrument composed of 19 items, each one of which presents an aggression suffered through mobile phone or the Internet. The students should mark the frequency with which they were the victim of each one of these situations in the past three months, on a 4-point Likert-type scale (Álvarez-García et al, 2017).
- *The Parenting Styles and Dimensions questionnaire* (PSDQ) with 40 is designed to measure parenting styles grouping them in six typologies of supportive, controlling, compassionate, aggressive, avoidant, and orthodox parents (Batool, 2016).

### 2.3. Statistical analysis

All analyses for this research were performed using IBM Statistical Package for Social Sciences (SPSS) Statistics for Windows, version 24 (SPSS Inc., Chicago, IL, USA). Results for descriptive statistics were expressed as means and standard deviations (SD).

The normality of data distribution was tested by using the Kolmogorov-Smirnoff test. Given the fact that all data are not normally distributed, bivariate analysis will be performed and non-parametric tests will be applied.

To assess comparative results considering gender, living environment and school environment the Mann Whitney test was performed. Also, comparative results considering family affluence and country was assessed using the Kruskal-Wallis H test to determine if there are statistically significant differences between more of two groups of an independent variable on a continuous or ordinal dependent variable.

The Spearman correlation was used to test the relationship between variables. A p-value $< 0.05$ was considered statistically significant.

## 2. RESULTS

### 3.1. Socio-demographic data, family characteristic, financial status

Students included in the resesrch were studing in six different countries: Romania (n = 835, 44.2%), (n = 517, 27.3%), Italy (n = 243, 12.9%), Portugal (n = 193, 10.2%), Lithuania (n = 75, 4%) and Greece (n = 28, 1.5%). More female students participated to the study (54.36 %, N = 1028). The distribution of students according to the country and sex is presented in *Figure 2*.

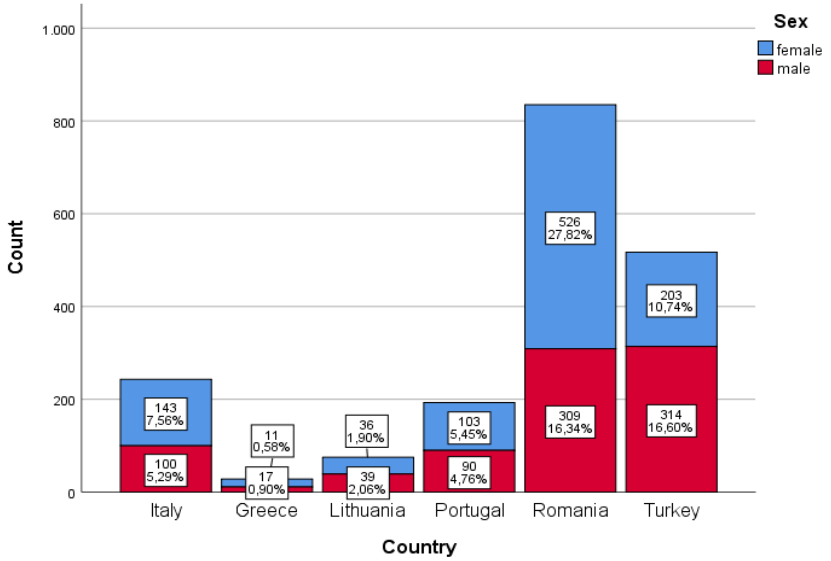


Figure 2. Distribution of students considering gender and country

The mean age of the students participating in the study is M = 14.77 ± 2.41 with a minim of 10 and a maximum of 19 years old. More than half of respondents declared that they live in urban areas (68.5%, N = 1296).

The majority of them (n = 1784, 94.3%) declared that their school is in a city. One item asked if the school is in the same area and the results showed that 57.6% (n = 1090) are studying in the same city or village, while an important number of students (42.4%, N = 801) sustained that they had to travel daily to a town in order to reach their schools.

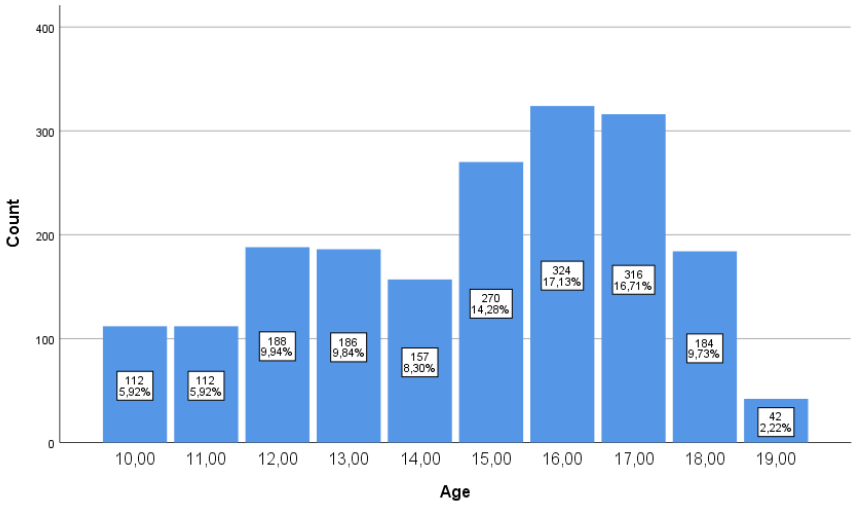


Figure 3. The distribution of students considering the age

Students were asked to mention their grade. The grades were from 3 (primary school) to 13 (post colleage or professional schools). The distribution of respondents considering this variable is presented in *Table 1*.

Table 1. Socio-demographic data

| **Students` grade** | **M ± S.D and %[1]** |
|---|---|

| | |
|---|---|
| 3 | 33 (1.7%) |
| 4 | 39 (2.1%) |
| 5 | 133 (7.0%) |
| 6 | 141 (7.5%) |
| 7 | 255 (13.5%) |
| 8 | 154 (8.1%) |
| 9 | 218 (11.5%) |
| 10 | 373 (19.7%) |
| 11 | 279 (14.8%) |
| 12 | 235 (12.4%) |
| 13 | 31 (1.6%) |

[1]Means and standard deviations (M±D), frequency and percentages (%)

Family wealth was measured using a 4-item scale, *Family Affluence Scale (FAS*). A composite FAS score is calculated for each student based on the answers to these four items. Thus, the total scores for all 6 countries vary between 0 points - which indicates a low affluence (2%, N = 38) and 9 points (7.2%, N = 137) - which indicates a high affluence, the average being **M = 5.31± 2.26.** Scores between 3 and 5 points indicates a medium affluence (38%, N = 718). Comparative results are presented in *Table 2*.

Table 2. Family Affluence Scale results by country

| **Family Affluence Scale** | **M ± S.D** |
|---|---|
| Lithuania | M = 6.96 ± 1.67 |
| Portugal | M = 6.77 ± 1.62 |
| Italy | M = 5.90 ± 1.86 |
| Romania | M = 5.30 ± 2.33 |
| Greece | M = 4.42 ± 2.11 |
| Turkey | M = 4.31 ± 2.10 |

[1]Means and standard deviations (M±D

The study gathered also family-related data. Children and adolescents were asked if they had at least one of the parents working abroad. Almost 1/5 of them susttain that they had a parents that work in another country (n = 399, 21.1%). Also, the analysis of the given answers identified that 18.2% (n = 345) had parents that were not together and approximatly 15% declared that they live with only one parent.

The study also collected data about the number of chidlren in the family . The nalysis of data showed that 17.8% (n = 336) are single child, 48.5% (n = 918) aare having a brother or a sister, 22.1%9 (n = 418) are having two siblings and 11.6% sustained that they have more than 3 brothers or sisters.

In terms of parents level of education, the analysis of reponses revealed that more than 1/3 of mothers and fathers graduated faculty level. More details about parents level of education, type of family or number of children in the family are presented in *Table 3*.

Table 3. Family related data

| **Variables** | **M±S.D and %[1]** |
|---|---|
| **Level of education of mothers** | |
| Primary school | 127 (6.7%) |

| | |
|---|---|
| Secondary school | 259 (13.7%) |
| High school | 768 (40.6%) |
| University | 601 (31.8%) |
| I do not know | 136 (7.2%) |
| **Level of education of fathers** | |
| Primary school | 94 (5%) |
| Secondary school | 263 (13.9%) |
| High school | 765 (40.5%) |
| University | 588 (31.1%) |
| I do not know | 181 (9.6%) |
| **Home environment/Members of the household: "I live":** | |
| With both my parents | 1430 (75.6%) |
| Only with mom | 229 (12.1%) |
| Only with dad | 40 (2.1%) |
| Only with grandparents | 27 (1.4%) |
| Parents, grandparents or other relatives | 73 (3.9%) |
| In an institution center | 5 (0.3%) |
| Others | 87 (4.6%) |
| **"My parents":** | |
| are living together | 1546 (81.8%) |
| are living separately | 345 (18.2%) |
| **The number of children in the family** | M = 2.31 ± 0.98 |

[1]Means and standard deviations (M±D), frequency and percentages (%)

3.2. Relationship with family, friends and collegues

More than half of the students considered that the relationship between their parents is collaborative (N = 1546, 81.8%), conflictual (n = 166, 8.8%) and small number of them declared that there is no relationship between their parents (N = 179, 9.4%).

Students were also asked how they apppreciate the relationship between their parents. The frequency of answers is presented in *Figure 4*.

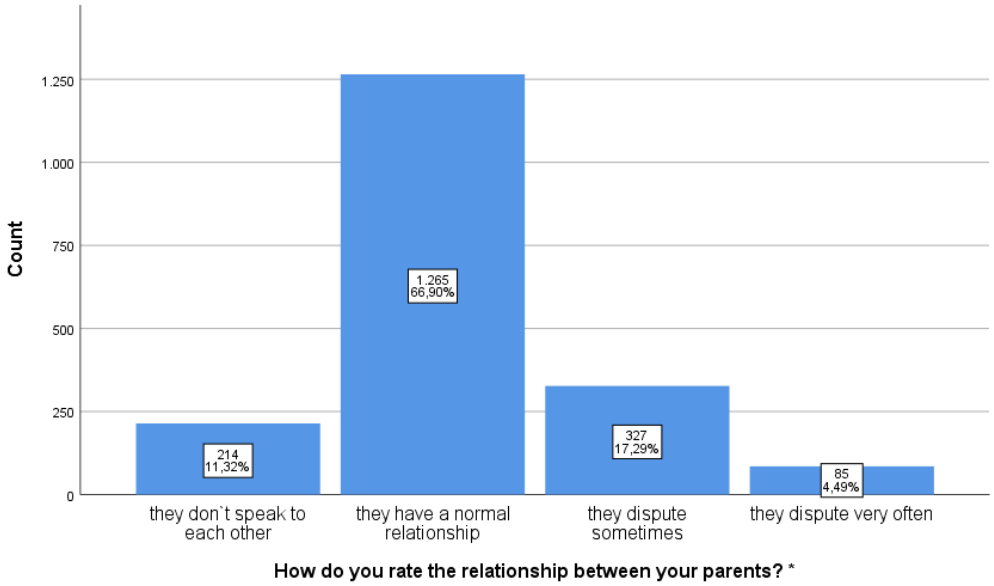

Figure 4. Student opinion regarding the relationship between parents

Also, more than half of the children declare that there is not a single family member who makes decisions, but it is a shared decision between the members of the family (62.8%, N = 1180). Detailed information are presented in *Table 4*.

Table 4. Decision in the family

| **Who takes the decision in the family?** | **N, %[1]** |
|---|---|
| In general,my mother | 407, 21.5% |
| In general, my father | 261, 13.8% |
| In general, the grandparents | 15, 0.8% |
| In general, me | 28, 1.5% |
| It is a shared decision between the members of the family | 1180, 62.8% |

[1]Means and standard deviations (M±D), frequency and percentages (%)

Regarding the relationship between children and parents, **more than half of the students stated that their mothers (58.9%, N = 1114) and fathers (65.9%, N = 1246) did not offend them and never shouted at them**. The distribution of answers is presented in *Table 5*.

Table 5. Distributiom of answers for the item investigating the behavior of both parents

| *Does your mother/father offends you or screm to you?* | Mother (n, %) | Father (n, %) |
|---|---|---|
| Never | 1114, 58.9% | 1246, 65.9% |
| Sometimes | 656, 34.7% | 535, 28.3% |
| Frequent | 46, 2.4% | 69, 3.6% |
| All the time | 75, 4% | 41, 2.2% |
| | M = 1.51 ± 0.73 | M = 1.42 ± 0.66 |

[1] Frequency and percentages (%)

Students were also asked if their mothers or fathers had been verbally aggressive to them. More than half of them sustained that they never have been agrresed by their parents in this way/. The means and the percentages are presented in *Table 6*.

Table 6. Distributiom of answers for the item investigating the verbal aggresiveness for both parents

| *Is your mother/father verbally aggressive to you*? | Mother (n, %) | Father (n, %) |
|---|---|---|
| Never | 1161, 61.4% | 1234, 65.3% |
| Occasionally | 369, 19.5% | 348, 18.4% |
| Sometimes | 290, 15.3% | 227, 12% |
| Often | 56, 3% | 64, 3.4% |
| Always | 15, 0.8% | 18, 1% |
| | M = 1.62 ± 0.90 | M = 1.56 ± 0.89 |

[1]Frequency and percentages (%)

Students were asked to express their satisfaction with their relationship with different categories of people on a scale of 1 to 5, where 1 = very dissatisfied and 5 = very satisfied.

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Mainly, **students are very satisfied with the relationship with parents** (M = 4.12 ± 1.07) and friends. More self-rated items are described in *Table 7*.

Table 7. Self-rated items regarding satisfaction with relationship with ….

| Item | 1 | 2 | 3 | 4 | 5 | M ± SD[1] |
|---|---|---|---|---|---|---|
| your parents | 53 (2.8) | 121 (6.4) | 314 (16.6) | 447 (23.6) | 956 (50.6) | 4.12 ± 1.07 |
| your friends | 32 (1.7) | 88 (4.7) | 233 (12.3) | 682 (36.1) | 856 (45.3) | 4.18 ± 0.93 |
| your classmates | 85 (4.5) | 147 (7.8) | 474 (25.1) | 665 (35.2) | 520 (27.5) | 3.73 ± 1.08 |
| other students in the school | 207 (10.9) | 875 (46.3) | 658 (34.8) | 102 (5.4) | 49 (2.6) | 2.42 ± 0.85 |
| teachers | 64 (3.4) | 160 (8.5) | 478 (25.3) | 618 (32.7) | 571 (30.2) | 3.77 ± 1.07 |

[1] *Number of answers (N) and percentage (%), means and standard deviations (M±SD)*

2.3. Self-positioning of the school learning situation

Students mentioned that the number of person in the class is M = 27 ± 4.98 and they stated that they have between none (7.5%, N = 142) and more than five best friends (17%, N = 322) with an average of M = 2.46 ± 0.57.

Students were also asked about how they appreciated themselves regarding their social position in the school. The distribution of their answers is presented in *Table 8*.

Table 8. Frequency of answers to self-rated items

| | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|
| *I consider that I am a popular person* | 351, 18.6% | 424, 22.4% | 778, 41.1% | 2661, 4.1% | 72, 3.8% |
| *I consider that I am a solitaire person* | 411, 21.7% | 374, 19.8% | 546, 28.9% | 436, 23.1% | 124, 6.6% |
| *I consider that I am a leader in my group* | 449, 23.7% | 491, 26.% | 672, 35.5% | 201, 1.6% | 78, 4.1% |

[1] *Number of answers (N) and percentage (%), means and standard deviations (M±SD)*

On a Likert like scale from 1 (very unsatisfied) to 5 (very satisfied), the analysis of answers showed that students were quite satisfied with the grades obtained at school last year, the average being M = 3.73 ± 1.12. The distribution of answers is presented in *Figure 5*.

In addition, more than half of the students reported achieving medium learning results compared to their classmates (54.9%, N = 1039).

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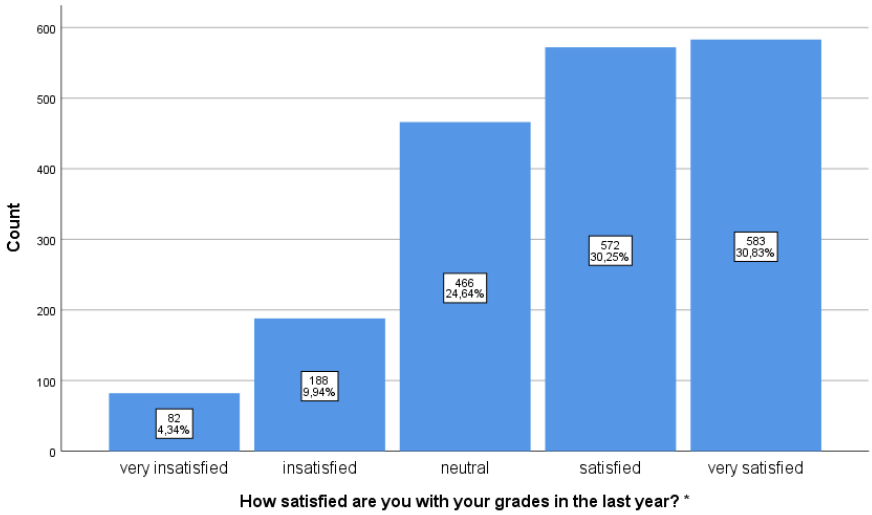


Figure 5. Satisfaction with grades from previous year of study

The answers to the item ”Considering your grades from the previous year and compared to your classmates, how do you rate yourself”, showed that ¼ of respondents considered that they have high results (n = 483, 25.5%), more than half of them sustained that they have medium results (n = 1039, 54.9%) and 19.5% (n = 369) evaluated themselves as having poor results. The frequency of their answers, considering sex differences, is presented in Figure 6.

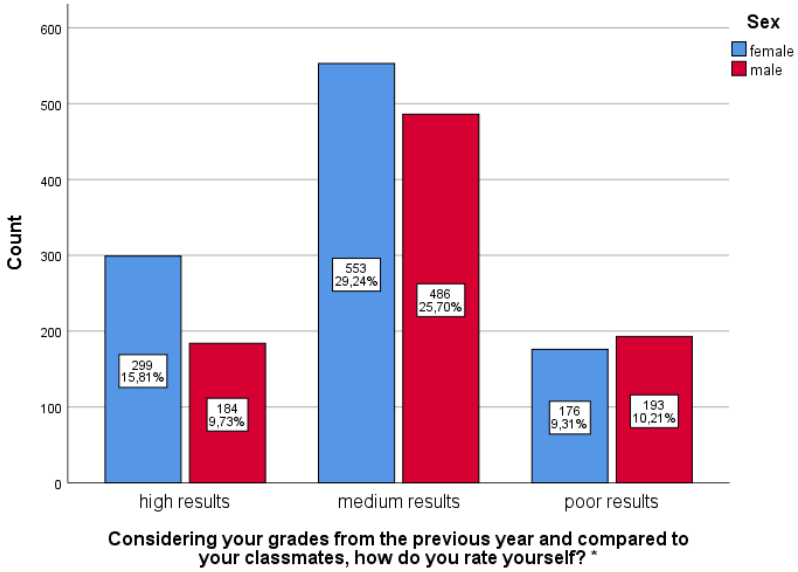


Figure 6. Distribution of answers for male and female respondents

2.4. Use of internet and mobile phones

Cyberbullying is about using phones and having acces to social networks. Some items targeted the use of smartphones. The results indicate that the average age at which children had their first phone is **M = 10.19 ± 2.30**, with a minim of 3 and a maximum of 16 years old.

The Mann Whitney test (U = 339096.500, Z = - 4.253, p < 0.001) showed that there are **significant difference at this item in terms of living environment in the sense that children living in a city (Mdn = 10.00) received the first phone at a younger age compaired to children living in the villages** (Mdn = 11).

The **main reasons** why students use smartphones are primarily for **having fun** (43.6%, N = 824) and **chating** (42.6%, N = 805) and **less so for solving academic tasks** (13.9%, N = 262). The gender distribution of students according to the main reason for using internet is presented in *Figure 6*.

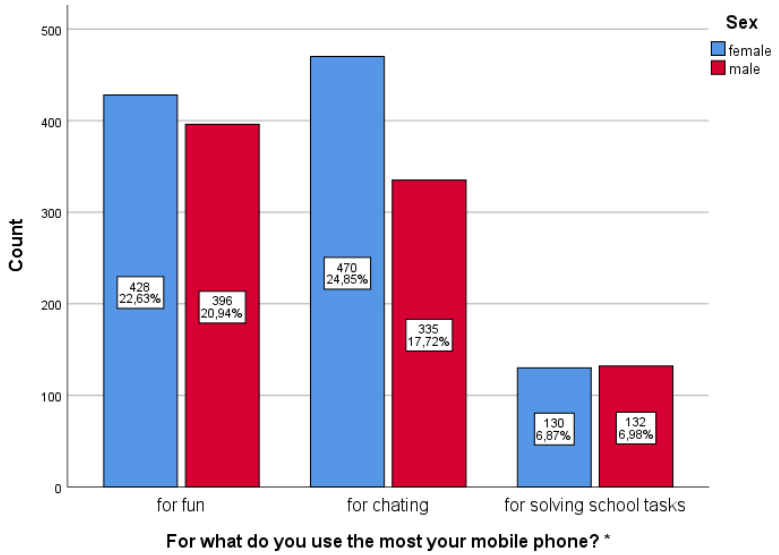


Figure 6. Distribution of students considering gender and the main reason for using internet

There is a significant difference between the number of hours using smartphones during and after school days. On average, students spend **5.40 ± 2.79** using phones the week, while on weekends they spend on average **9.71 ± 8.80**.

Students were also asked to rate from 1 (never) to 5 (very often) how often do they talk on the internet with people they know. More than a quarter of them sustained that they never chat on the internet with acquaintances. The distribution of their answers is presented in *Table 8*.

Table 8. Distributiom of answers for the item investigating the frequency of chating on the internet with acquaintances

| *How often do you chat with people that you know on the internet?* | **N, %[1]** |
|---|---|
| Never | 526, 27.8% |
| Occasionally | 391, 20.7% |
| Sometimes | 428, 22.6% |
| Often | 309, 16.3% |
| Very often | 237, 12.5% |
| | M = 2.65 ± 1.36 |

[1]Number of answers (N) and percentage (%), means and standard deviations (M±SD)

Children and teenagers were asked of their parents restrict their mobile phone acces. More than half of them (n = 1099, 58.12%) declared that their parents never restrict their acces to smartphones, a quarter of them (n = 476, 25.17%) sustained that sometimes their parents restrict their acces using the smartphones while the others mentioned that their parents are doing that frequently (n = 152, 8.04%) or all the time (n = 164, 8.67%).

Students were also asjked of their parents blame them for using too much the mpobile phone. Detailed results are presented in *Table 9*.

Table 9. Distributiom of answers for the items investigating parents attitude regarding the use of mobile phones

| | *Do your parents blame you for using too much on your mobile phone* | *Do your parents restrict your mobile phone access* |
|---|---|---|
| never | 396, 20.9% | 1099, 58.1% |
| sometimes | 1082, 57.2% | 476, 25,2% |
| frequent | 197, 10.4% | 152, 8.0% |
| all the time | 216, 11,4% | 164, 8.7% |

[1]Number of answers (N) and percentage (%), means and standard deviations (M±SD)

3.5. Bullying and cyberbullying behaviors

**More than ¾ of students (77%, N = 1457) stated they do not have classmates who cyberbully others**. Participants were also asked their opinion about who are the most frequent victims of cyberbullying. n about three quarters of cases, more than half of participants (n = 1302, 68.85%) considered **girls are the most common victims of cyberbullying**.

One item investigating their opinion about who is the most frequent person who cyberbullies the others and the answers were the following: a boy (n = 588, 3.1%), a girl (n = 112, 5.9%) and more than half considered that the bullie is a boy or a girl, equally (n = 1191, 63.0%).

Participants were asked if they have been victime of cyberbullying, if they had cyberbullying others or if they witness cyberbullying. Most students said they had never been the victim of cyberbullying (77.5%, N = 1465), and that they had never cyberbullied other children (89.5%, N = 1693), and more than half of them say they have seen other children being bullied online (50.9%, N = 963).

Table 9. Cyberbullying behaviors

| **Cyberbullying behaviors** | **Total M±S.D and %** | **M±S.D and %[1]** | |
|---|---|---|---|
| | | **Boys** | **Girls** |
| *Have you ever been bullied online (via email, chatroom, cellphone)?* | 1.26 ± 0.55 | 1.24 ± 0.52 | 1.28 ± 0.57 |
| Never | 1465 (77.5%) | 686 (36.28%) | 779 (41.20%) |
| A few times | 368 (19.5%) | 153 (8.09%) | 215 (11.37%) |
| Many times | 36 (1.9%) | 17 (0.90%) | 19 (1.00%) |
| Very frequent | 22 (1.2%) | 7 (0.37%) | 15 (0.79%) |
| *Have you ever bullied others while online?* | 1.12 ± 0.39 | 1.12 ± 0.42 | 1.11 ± 0.37 |
| Never | 1693 (89.5%) | 773 (40.88%) | 920 (48.65%) |
| A few times | 172 (9.1%) | 76 (4.02%) | 96 (5.08%) |
| Many times | 16 (0.8%) | 7 (0.37%) | 9 (0.48%) |
| Very frequent | 10 (0.5%) | 3 (0.16%) | 7 (0.37%) |

[1]Number of answers (N) and percentage (%), means and standard deviations (M±SD)

Regarding the reporting of an online bullying incident in the classroom or school, **less than half of the students state that they have not seen other children being bullied online** in the classroom or school (44.3%, N = 837) and **54.2% children (N = 1024) did not report**

**any incident of a kid being bullied online (messages, social media, chatrooms) because they did not see any**. Detailed results are presented in *Table 10*.

Table 10. Reporting a cyberbullying behavior

| **Have you ever report to an adult when you saw a kid being bullied online (messages, social media, enol, chatrooms etc)?** | 6.34 ± 2.52 |
|---|---|
| Yes, to my parent | 230 (12.2%) |
| Yes, to the kid`s parent | 63 (3.3%) |
| Yes, to a teacher | 105 (5.6%) |
| Yes, to the school psychologist | 22 (1.2%) |
| Yes, to the principal | 11 (0.6%) |
| To other adult | 68 (3.6%) |
| No, I did not report any incident | 368 (19.5%) |
| No, I did not report any incident because I did not see any | 1024 (54.2%) |

[1]Means and standard deviations (M±D), frequency and percentages (%)

3.5. Rosenberg self esteem scale

Global self-esteem scores as measured with the RSES ranged from 17 up to 30 (M = 24.19 ± 1.92), most students having a normal self-esteem (77.8%, N = 1471). For the present study, Cronbach Alpha score was 0.865.

A Kruskal-Wallis test was conducted to determine if there were differences in Total Rosenberg scores between country of origin: Italy (N = 243), Greece (N = 28), Lithuania (N = 75), Portugal (N = 193), Romania (N = 835) and Turkey (N = 517).

Distributions of RSES scores were not similar for all groups, as assessed by visual inspection of a boxplot. Median RSES scores were statistically significantly different between the countries, $\chi^2(5) = 43.699$, $p < 0.001$. Subsequently, pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons. Adjusted *p*-values are presented. This post hoc analysis revealed statistically significant differences in median RSES scores between the Portugal (24.00) and Turkey (25.00) ($p < 0.001$), Portugal (24.00) and Lithuania (25.00) ($p = 0.001$) and Romania (24.00) and Turkey (25.00) ($p < 0.001$), but not between any other country group combination.

3.6. Loneliness scale

The total score for Loneliness scale was on average M = 39.76 ± 10.47, scores ranging from 20 (0.2%, N = 3) to 75 (0.1%, N = 1).

More than half of the students (53.6%, N = 1014) have a **moderate level of loneliness** and more than a quarter **have a high level of loneliness** (35.4%, N = 669).

The scale had a high level of internal consistency, as determined by a Cronbach's alpha of 0.880.

The analysis of data identified significant differences at this scale in terms of participants` gender (U = 418113.500, Z = -2.154, p = 0.031) in the sense that **women have a higher score on loneliness** (Mdn = 39.00) compared to boys (Mdn = 38.00).

A Kruskal-Wallis test was conducted to determine if there were differences in Total Loneliness scores between country of origin: Italy (N = 243), Greece (N = 28), Lithuania (N = 75), Portugal (N = 193), Romania (N = 835) and Turkey (N = 517). Distributions of Loneliness scores were not similar for all groups, as assessed by visual inspection of a boxplot. Median

Loneliness scores were statistically significantly different between the countries, $\chi^2(5) = 32.315$, $p < 0.001$. Subsequently, pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons. Adjusted *p*-values are presented. This post hoc analysis revealed statistically significant differences in median Loneliness scores between the Lithuania (38.00) and Italy (42.00) ($p = 0.019$), Turkey (37.00) and Italy (42.00) ($p < 0.001$) and Romania (38.00) and Italy (42.00) ($p < 0.001$), but not between any other country group combination.

Also, a Kruskal-Wallis test was conducted to determine if there were differences in UCLA scores between family affluence groups: low (N = 239), medium (N = 718) and high (N = 934). Distributions of CYVIC were not similar for all groups, as assessed by visual inspection of a boxplot. Median UCLA scores were statistically significantly different between the countries, $\chi^2(2) = 18.245$, $p < 0.001$. The Mann-Whitney U post hoc analysis (p = 0.027, U = 101413.00, z = -2.214) showed that **children who have a low family affluence (Mdn = 16.00) had a lower level of Loneliness than children who have a high family affluence** (Mdn = 17.00).

### 3.7. Cyber-aggression Scale

The Cronbach Alpha score was 0.914 for total scale, 0.849 for indirect cyber aggression and 0.904 for direct cyber aggression. For Cyber-aggression subscales we obtained the following results:

*Indirect Cyber Aggression* - M = 9.86 ± 3.54,

*Direct Cyber Aggression* - M = 10.70 ± 2.74,

The results proved that respondents had not such a high level of cyber aggression. The total CYB-AGS score was on average M = 20.57 ± 5.81, scores ranging from 18 (51.9%, N = 981) to 90 (0.1%, N = 1).

Significant differences was found in terms of **participants` gender and school environment** in the sense that boys and children living in a city have lower scores on CYB-AGS scale than girls and children living in a village.

*Tables 11* and *Table 12* present the results for the subscales.

**Table 11.** Gender differences for CYB-AGS Scale[1]

| Subscales | Median | | Mann Whitney U | Z | p |
|---|---|---|---|---|---|
| | Boys | Girls | | | |
| Indirect CYB-AGS | 8.00 | 8.00 | 418098.500 | -2.362 | 0.018 |
| Direct CYB-AGS | 10.00 | 10.00 | 432804.000 | -1.319 | 0.187 |
| Total CYB-AGS | 18.00 | 19.00 | 416863.000 | -2.440 | 0.015 |

1

**Table 12.** School environment differences for CYB-AGS Scale[1]

| School environment | Median | | Mann Whitney U | Z | p |
|---|---|---|---|---|---|
| | City | Village | | | |
| Indirect CYB-AGS | 8.00 | 9.00 | 80060.000 | -3.075 | 0.002 |
| Direct CYB-AGS | 10.00 | 10.00 | 89073.500 | -1.680 | 0.093 |
| Total CYB-AGS | 18.00 | 19.00 | 80182.000 | -3.005 | 0.003 |

1

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A Mann Whitney test (U = 20547.00, Z = - 2.636, p = 0.008) showed that there are significant difference at CYB-AGS scale in terms of participants` satisfaction with the relationship with parents in the sense that **children who are very insatisfied with the relationship with their parents** (Mdn = 19.00) have a higher score at this scale compared to children who are very satisfied with the relationship with their parents (Mdn = 18.00). Also, the comparative analysis (U = 277813.50, Z = -2.212, p = 0.027) showed that **children who have at least one parent working abroad** (Mdn = 19.00) have a higher score at CYB-AGS scale than children whose parents work in their home country (Mdn = 18.00).

### 3.8. Cyber victimization Questionnaire

The total score for Cyber victimization was on average M = 18.68 ± 4.78, scores ranging from 15 (29.2%, N = 552) to 47 (0.1%, N = 1). The scale had a high level of internal consistency, as determined by a Cronbach's alpha of 0.885 for total scale: 0.651- for impersonation, 0.638 – for visual-sexual cyber victimization, 0.813 - for written verbal cyber victimization and 0.611 for online exclusion.

There are significant differences at this scale in terms of participants` gender (U = 387459.500, Z = -4.820, p < 0.001) in the sense that **girls have a higher score on cyber victimization** (Mdn = 18.00) compared to boys (Mdn = 17.00). The Mann Whitney test (U = 418611.00, Z = - 2.305, p = 0.021) showed that there are **significant difference at online exclusion subscale in terms of sex of the participants in the sense that boys (Mdn = 3.00) have a lower score at this subscale compared to girls** (Mdn = 4.00). No other gender differences were identified for the other subscales of CYVIC.

Also, there are significant differences at this scale in terms of living environment (U = 293797.00, Z = -8.453, p < 0.001) in the sense that c**hildren living in city have a lower score on cyber victimization** (Mdn = 16.00) compared to children living in village (Mdn = 18.00). Other significant differences in the subscales of the CYVIC questionnaire are mentioned in the ***Table 13***.

Table 13. Living environment differences for CYVIC Subscales[1]

| Subscales | Median | | Mann Whitney U | Z | p |
|---|---|---|---|---|---|
| | City | Village | | | |
| Impersonation | 3.00 | 3.00 | 350010.50 | -4.751 | 0.000 |
| Visual-sexual cyber victimization | 3.00 | 3.00 | 361471.00 | -3.555 | 0.000 |
| Written verbal cyber victimization | 7.00 | 8.00 | 292746.00 | -8.728 | 0.000 |
| Online exclusion | 3.00 | 4.00 | 336667.00 | - 4.481 | 0.000 |

The Mann Whitney test (U = 17168.00, Z = - 4.073, p < 0.001) showed that there are **significant difference at CYVIC scale in terms of participants` satisfaction with the relationship with parents in the sense that children who are very satisfied with the relationship with their parents (Mdn = 16.00) have a lower score at this scale compared to children who are very insatisfied with the relationship with their parents** (Mdn = 19.00).

A Kruskal-Wallis test was conducted to determine if there were differences in CYVIC scores between level of education of mothers groups: primary school (N = 127), secondary school (N = 259), high school (N = 768), university (N = 601) and I do not know (N = 136). Distributions of CYVIC were not similar for all groups, as assessed by visual inspection of a boxplot. Median CYVIC scores were statistically significantly different between these groups, $\chi^2(4) = 26.895$, $p < 0.001$. The Mann-Whitney U post hoc analysis (p < 0.001, U = 28333.50,

z = -4.657) showed that **children whose mothers have a primary school level of education (Mdn = 16.00) had a lower level of** CYVIC scale **than children whose mothers have a university level of education** (Mdn = 17.00).

Also, a Kruskal-Wallis test was conducted to determine if there were differences in CYVIC scores between level of education of fathers groups: primary school (N = 94), secondary school (N = 263), high school (N = 765), university (N = 588) and I do not know (N = 181). Median CYVIC scores were statistically significantly different between these groups, $\chi^2(4) = 20.440$, $p < 0.001$. The Mann-Whitney U post hoc analysis (p = 0.003, U = 22454.50, z = -2.991) showed that **children whose fathers have a low level of education (primary school - Mdn = 16.00) had also a lower level of** CYVIC scale **than children whose fathers have a higher level of education (university** - Mdn = 17.00).

3.9. Parenting Styles and Dimensions questionnaire

The total score for PSDQ scale was on average M = 120.04 ± 17.11, scores ranging from 38 (0.1%, N = 1) to 190 (0.2%, N = 3). The Cronbach Alpha score was 0.773. Detailed results about PSDQ subscale`s are presented in *Table 14.*

*Table 14. PSDQ Subscales*

| Subscales | M±S.D. | Cronbach Alpha |
|---|---|---|
| Supportive parents | 27.61 ± 4.67 | 0.214 |
| Controlling parents | 27.17 ± 5.55 | 0.624 |
| Compassionate parents | 28.04 ± 4.87 | 0.280 |
| Aggressive parents | 15.11 ± 3.33 | 0.367 |
| Avoidant parents | 10.41 ± 3.15 | 0.650 |
| Orthodox parents | 11.68 ± 2.51 | 0.336 |

[1]Means and standard deviations (M±D)

There are significant differences at this scale in terms of **participants` gender** (U = 402290.00, Z = -3.492, p < 0.001) in the sense that **girls have a lower score on PSDQ scale** (Mdn = 121.00) compared to boys (Mdn = 124.00).

The Mann Whitney test (U = 333995.00, Z = -4.678, p < 0.001) showed that there are **significant difference at this scale between children living in a city (Mdn = 124.00) who have higher scores on this scale than children who live in a village** (Mdn = 119).

A Kruskal-Wallis test was conducted to determine if there were differences in PSDQ scores between **family affluence groups**: low (N = 239), medium (N = 718) and high (N = 934). Distributions of PSDQ were not similar for all groups, as assessed by visual inspection of a boxplot.

Median PSDQ scores were statistically significantly different between the countries, $\chi^2(2) = 15.592$, $p < 0.001$. The Mann-Whitney U post hoc analysis (p = 0.001, U = 96457.500, z = -3.244) **showed that children who have a low family affluence (Mdn = 119.00) had a lower score of PSDQ scale than children who have a high family affluence** (Mdn = 124.00). Also, the Mann-Whitney U post hoc analysis (p = 0.002, U = 305723.500, z = -3.079) showed that **children who have a high family affluence (Mdn = 124.00) had a higher score at PSDQ scale than children who have a medium family affluence** (Mdn = 122.00).

3.10. Correlation analysis

The results showed that there was a positive correlation between the total score of CYB-AGS and the relationship between parents (r = 0.067**, p = 0.003). Thus, we identified the fact that the more conflicted or, worse, the relationship between the parents does not exist, the more the children obtained a higher score on the CYB-AGS scale. Similarly, the CYB-AGS score is negatively correlated with children's satisfaction with their relationship with their friends (r = -0.112**, p < 0.001), in the sense that **the more dissatisfied children are with this relationship, the more likely these children are to become cyber aggressors**.

A strong positive correlation was identified between the total score of CYB-AGS and the item that refers to the frequency with which children were victims of cyberbullying. Thus, the results (r = 0.250**, p < 0.001) showed that the more often it happens that children to be the victims of cyberbullying, the higher the score on the CYB-AGS scale. In addition, **the greater the family affluence is, the more likely children are to be cyber aggressors** (r = 0.079**, p = 0.001).

Similar results to those presented above were also identified for the CYVIC scale. Thus, the relationship between parents (r = 0.119**, p < 0.001), the frequency with which children happen to be victims of cyberbullying (r = 0.260**, p < 0.001) and family affluence (r = 0.059*, p = 0.010) are positively correlated with the scores obtained on the CYVIC scale, in the sense that the more conflictive the parents' relationship is, the more children are terrorized online more often and the greater the family's affluence is, the greater the aggression suffered by children through the Internet.

A negative correlation is identified between the CYVIC score and students' satisfaction with their relationship with friends (r = -0.158**, p < 0.001), meaning that the less satisfied they are with their friends` relationship, the more likely they are to become victims of cyberbullying. A positive correlation was identified between the responses to the item on how often children bullied others while online and CYVIC scales (r = 0.237**, p < 0.001), in the sense that the higher the level of cyberaggression is, the higher the scores of children on this scale.

Regarding the correlational results between the subscales of the two instruments mentioned above and other items, the results showed that the higher the level of loneliness and the higher the age of the children, the higher the scores on these subscales related to cyber aggression direct or indirect, impersonation, online exclusion, visual-sexual and written-verbal cyber victimization. In addition, some of the parenting styles negatively correlate with the results obtained in these subscales, which means that different types of parents predispose children to obtain higher overall scores of cyber aggression and cyber victimization.

Details regarding these significant correlations are presented in Table 15.

*Table 15. Correlational results of CYB-AGS and CYVIC subscales*

| **Items** | Indirect CYB-AGS | Direct CYB-AGS | Impersonation | Visual-sexual CYVIC | Written verbal CYVIC | Online exclusion |
|---|---|---|---|---|---|---|
| *FAS scale* | no correlation | r=0.087** p=0.000 | no correlation | no correlation | r = 0.056* p = 0.015 | r = 0.053* p = 0.022 |
| *UCLA scale* | r = 0.139** p = 0.000 | r = 0.107** p=0.000 | r = 0.150** p = 0.000 | r = 0.199** p = 0.000 | r = 0.257** p = 0.000 | r=0.372** p =0.000 |
| *Have you ever been bullied online?* | r = 0.256** p = 0.000 | r = 0.185** p=0.000 | r = 0.144** p = 0.000 | r = 0.232** p = 0.000 | r = 0.249** p = 0.000 | r=0.197** p =0.000 |
| *Have you ever bullied others while online?* | r = 0.139** p = 0.000 | r = 0.262** p=0.000 | r = 0.144** p = 0.000 | r = 0.213** p = 0.000 | r = 0.231** p = 0.000 | r=0.183** p =0.000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| *PSDQ scale* | r = -0.100** p = 0.000 | r = -0.059** p=0.010 | no correlation | no correlation | r = -0.105** p = 0.000 | r=-0.102** p = 0.000 |
| *Age* | r = 0.229** p = 0.000 | r = 0.110** p = 0.000 | r = 0.070** p = 0.002 | r = 0.068** p = 0.003 | r = 0.316** p = 0.000 | r = 0.151** p = 0.000 |

Table 16 describes the correlation results between parenting styles and other relevant items. Thus, it is observed that the mother's level of education is positively correlated with almost all parenting styles, in the sense that the higher the mother's level of education, the more likely they are to become a supportive, controlling, compasionate, avoidant or orthodox parent.

In contrast, the relationship between parents evaluated from the children's perspective is negatively correlated with almost all parenting styles, while family affluence is negatively correlated with controlling and aggressive parenting styles and positively correlated with supportive, compassionate, avoidant and orthodox parenting styles. In addition, the results showed that **supportive and controling parenting styles are negatively correlated with cyber aggression scores in the sense that the better the parents fit into these parenting styles, the lower the level of cyber aggression**.

Also, the scores on the cybervictimization scale are positively correlated with the orthodox parental style and negatively correlated with the supportive and controling parental styles, in the sense that **the better the parents fit into the conventional parenting typology, the higher the level of cybervictimization**. On the other hand, **the better the parents fit into the supportive and controlling parenting styles, the lower the level of cyber victimization**. Detailed results are presented above.

*Table 16. Correlational results of PSDQ subscales*

| Items | Supportive parents | Controlling parents | Compassionate parents | Aggressive parents | Avoidant parents | Orthodox parents |
|---|---|---|---|---|---|---|
| *Mothers level of education* | r=0.059* p=0.011 | r =-0.066** p = 0.004 | r =0.073** p = 0.002 | no correlation | r = 0.108** p = 0.000 | r = 0.095* p = 0.000 |
| *Relationship between parents* | r = -0.157** p = 0.000 | r = -0.132** p = 0.000 | r = -0.156** p = 0.000 | no correlation | r = -0.183** p = 0.000 | r=-0.800** p =0.000 |
| *FAS scale* | r = 0.110** p = 0.000 | r = -0.067** p=0.004 | r = 0.170** p = 0.000 | r = -0.101** p = 0.000 | r = 0.250** p = 0.000 | r=0.096** p = 0.000 |
| *CYB-AGS score* | r=-0.076**, p = 0.00 | r=-0.191** p = 0.000 | no correlation | no correlation | no correlation | no correlation |
| *CYVIC scores* | r= -0.107** p = 0.000 | r= -0.203** p = 0.000 | no correlation | no correlation | no correlation | r= 0.059** p = 0.010 |

## VICTIMS AND AGGRESSORS IN VIRTUAL SETTINGS - A COMPARATIVE STUDY ON CYBERBULLYING AMONG STUDENTS IN SIX COUNTRIES

### 1. Victims` profile

The results of the study done in the TECPC - Together Everyone Can Prevent Cyberbullying (2020-1-RO01-KA226-SCH-095269) project, in the framework of the Erasmus+ Programme – KA2 Strategic Partnerships Digital Education Readiness showed that in students` opinion**, girls are the most common victims of cyberbullying** (68,85%, n = 1302). There are significant differences at this scale in terms of participants` gender (U

= 387459.500, Z = -4.820, p < 0.001) in the sense that **girls have a higher score on cyber victimization** (Mdn = 18.00) compared to boys (Mdn = 17.00).

The total score for Cyber victimization was on average M = 18.68 ± 4.78, scores ranging from 15 (29.2%, N = 552) to 47 (0.1%, N = 1). there are significant differences at this scale in terms of living environment (U = 293797.00, Z = -8.453, p < 0.001) in the sense that **children living in city have a lower score on cyber victimization** (Mdn = 16.00) compared to children living in village (Mdn = 18.00).

The Mann Whitney test (U = 17168.00, Z = - 4.073, p < 0.001) showed that there are significant difference at CYVIC scale in terms of participants` satisfaction with the relationship with parents in the sense that **children who are very satisfied with the relationship with their parents** (Mdn = 16.00) **have a lower score at this scale** compared to children who are very insatisfied with the relationship with their parents (Mdn = 19.00).

The relationship between parents (r = 0.119**, p < 0.001), the frequency with which children happen to be victims of cyberbullying (r = 0.260**, p < 0.001) and family affluence (r = 0.059*, p = 0.010) are positively correlated with the scores obtained on the CYVIC scale, in the sense that **the more conflictive the parents' relationship is, the more children are terrorized online more often and the greater the family's affluence is, the greater the aggression suffered by children through the Internet**.

Correlational results showed **that the higher the level of loneliness (r = 0.331**, p < 0.001) and the higher the age of the children (r = 0.284**, p < 0.001), the higher the scores on on the CYVIC scale.**

The scores on the **cybervictimization scale are positively correlated with the orthodox parental style** (r= 0.059**, p = 0.010) and **negatively correlated with the supportive and controling parental styles**, in the sense that **the better the parents fit into the conventional parenting typology, the higher the level of cybervictimization**.

## 2. Aggresors` profile

The results proved that respondents had not such a high level of cyber aggression. The total CYB-AGS score was on average M = 20.57 ± 5.81, scores ranging from 18 (51.9%, N = 981) to 90 (0.1%, N = 1).

Significant differences was found in terms of participants` gender (U = 416863.000, Z = -2.440, p=0.015) and school environment (U =80182.000, Z=-3.005, p = 0.003 ) in the sense that **boys** (Mdn = 18) and **children living in a city** (Mdn = 18) have lower scores on CYB-AGS scale than girls (Mdn = 19) and children living in a village (Mdn = 19).

A Mann Whitney test (U = 20547.00, Z = - 2.636, p = 0.008) showed that there are significant difference at CYB-AGS scale in terms of participants` satisfaction with the relationship with parents in the sense that **children who are very insatisfied with the relationship with their parents** (Mdn = 19.00) **have a higher score at this scale compared to children who are very satisfied with the relationship with their parents** (Mdn = 18.00). Also, the comparative analysis (U = 277813.50, Z = -2.212, p = 0.027) **showed that children who have at least one parent that working abroad** (Mdn = 19.00) **have a higher score at CYB-AGS scale than children whose parents work in their home country** (Mdn = 18.00).

The results showed that there was a positive correlation between the total score of CYB-AGS and the relationship between parents (r = 0.067**, p = 0.003). Thus, we identified the fact that **the more conflicted or, worse, the relationship between the parents does not exist, the more the children obtained a higher score on the CYB-AGS scale**. Similarly, the CYB-AGS score is negatively correlated with children's satisfaction with their relationship with their

friends (r = -0.112**, p < 0.001), in the sense that **the more dissatisfied children are with this relationship, the more likely these children are to become cyber aggressors.**

A strong positive correlation was identified between the total score of CYB-AGS and the item that refers to the frequency with which children were victims of cyberbullying. Thus, the results (r = 0.250**, p < 0.001) showed that **the more often it happens that children to be the victims of cyberbullying, the higher the score on the CYB-AGS scale. In addition, the greater the family affluence is, the more likely children are to be cyber aggressors** (r = 0.079**, p = 0.001).

The results showed that supportive (r = -0.-076**, p = 0.001) and controling parenting styles (r = -0.191**, p < 0.001) are negatively correlated with cyber aggression scores in the sense that **the better the parents fit into these parenting styles, the lower the level of cyber aggression**.

# RESULTS

## COMPARATIVE ANALYSIS BY COUNTRY

Comparative results considering family affluence and country was assessed using the Kruskal-Wallis H test to determine if there are statistically significant differences between more of two groups of an independent variable on a continuous or ordinal dependent variable.

Students included in the resesrch were studing in six different countries: Romania (n = 835, 44.2%), (n = 517, 27.3%), Italy (n = 243, 12.9%), Portugal (n = 193, 10.2%), Lithuania (n = 75, 4%) and Greece (n = 28, 1.5%). More female students participated to the study (54.36 %, N = 1028). The distribution of students according to the country and sex is presented in *Figure 1*.

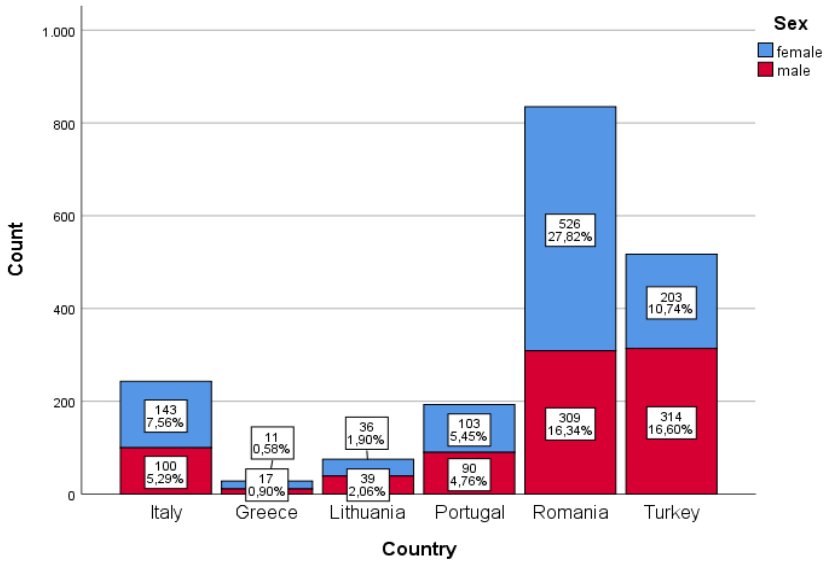



Figure 1. Distribution of students considering gender and country

The mean age of the students participating in the study is M = 14.77 ± 2.41 with a minim of 10 and a maximum of 19 years old. The mean age of the students who participated in the study, depending on the country they come from, is presented in *Table 1*.

Table 1. Mean age by country

| Country | Age (M ± S.D) |
|---|---|
| Italy | M = 16.29 ± 1.28 |
| Greece | M = 14.60 ± 1.61 |
| Lithuania | M = 14.56 ± 1.19 |
| Portugal | M = 15.48 ± 2.17 |
| Romania | M = 15.84 ± 1.82 |
| Turkey | M = 12.11 ± 1.67 |

[1]Means and standard deviations (M±D

More than half of respondents declared that they live in urban areas (68.5%, N = 1296). Depending on the country of origin, most students live in urban areas, except in Romania, where a larger proportion is occupied by students living in villages. Detailed results are presented in Figure 2.

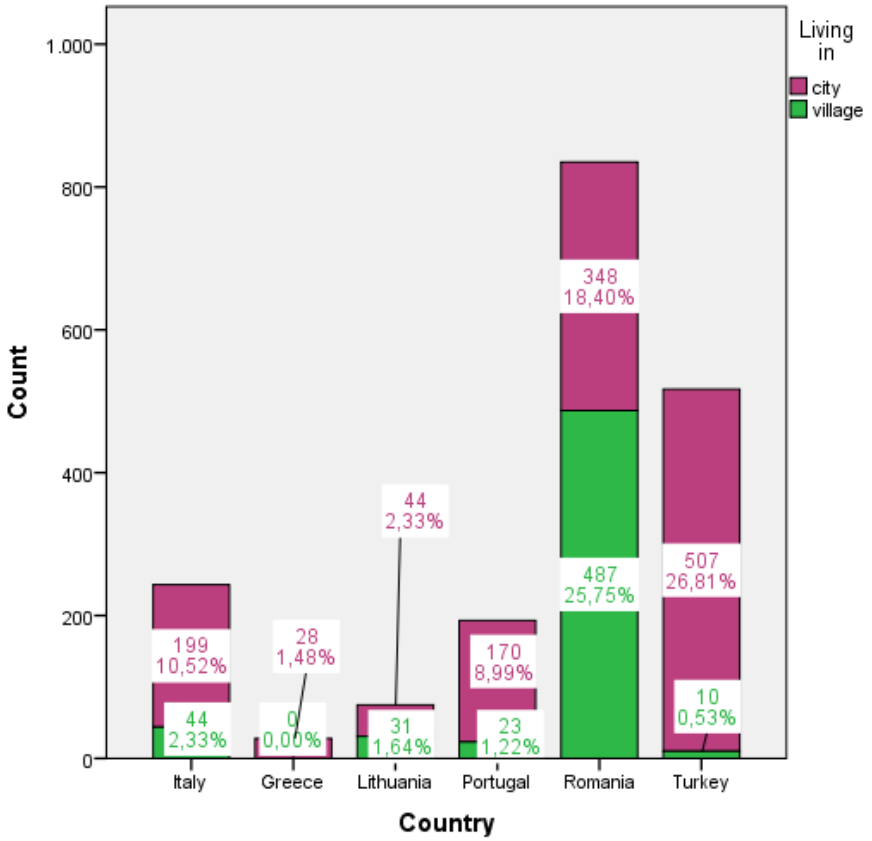



Figure 1. Distribution of students considering living environment and country

Family wealth was measured using a 4-item scale, *Family Affluence Scale (FAS*). A composite FAS score is calculated for each student based on the answers to these four items. Thus, the total scores for all 6 countries vary between 0 points - which indicates a low affluence (2%, N = 38) and 9 points (7.2%, N = 137) - which indicates a high affluence, the average being **M = 5.31± 2.26.** Scores between 3 and 5 points indicates a medium affluence (38%, N = 718). Comparative results are presented in *Table 2*.

Table 2. Family Affluence Scale results by country

| Family Affluence Scale | M ± S.D |
|---|---|
| Lithuania | M = 6.96 ± 1.67 |
| Portugal | M = 6.77 ± 1.62 |
| Italy | M = 5.90 ± 1.86 |
| Romania | M = 5.30 ± 2.33 |
| Greece | M = 4.42 ± 2.11 |
| Turkey | M = 4.31 ± 2.10 |

[1]Means and standard deviations (M±D

The study gathered also family-related data. Children and adolescents were asked if they had at least one of the parents working abroad. Almost 1/5 of them sustain that they had a parents that work in another country (n = 399, 21.1%). *Figure 3* shows the distribution of students` responses by country. As can be seen, few students in Greece, Lithuania, Italy or Turkey say they have parents who work in other countries, while surprisingly in Portugal, although the results show one of the highest averages in terms of family affluence, most students say they have at least one parent working abroad.

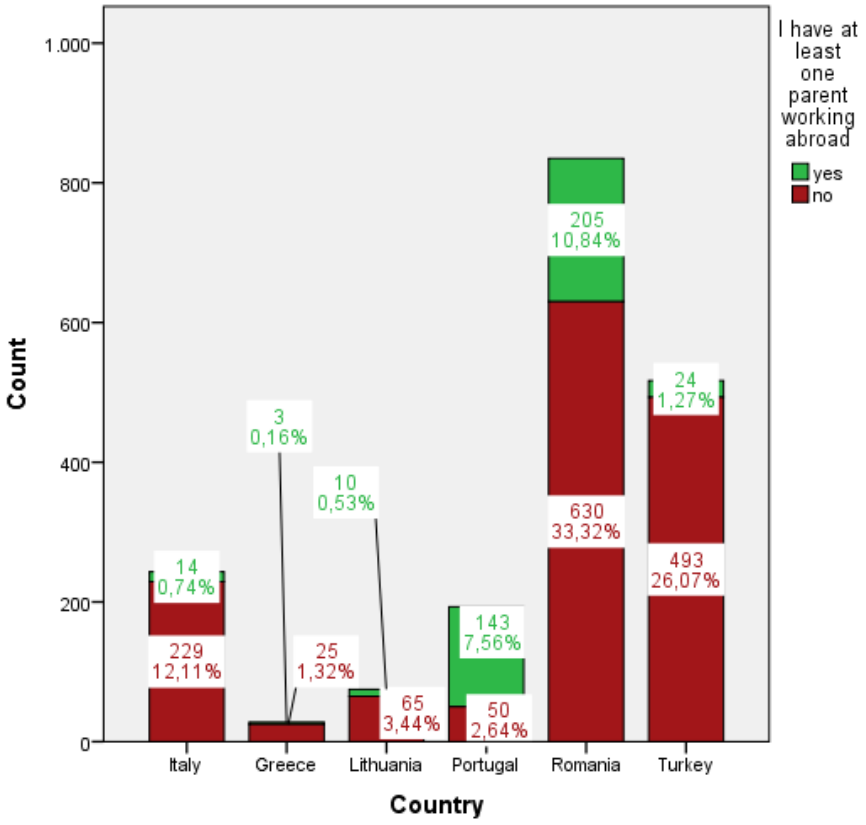



Figure 2. Distribution of students considering country and ”I have at leat one parents working abroad” variable

The study also collected data about the number of chidlren in the family . The analysis of data showed that the mean number of children in the family is M = 2.31 ± 0.98, the highest average being registered in Turkey, and the lowest in Greece. Detailed results are presented in *Table 3*.

Table 3. Number of children in the family - results by country

| Number of children in the family | M ± S.D |
|---|---|

| | |
|---|---|
| Italy | M = 6.96 ± 1.67 |
| Greece | M = 6.77 ± 1.62 |
| Lithuania | M = 5.90 ± 1.86 |
| Portugal | M = 5.30 ± 2.33 |
| Romania | M = 4.42 ± 2.11 |
| Turkey | M = 4.31 ± 2.10 |

[1]Means and standard deviations (M±D)

The analysis of the given answers identified that 18.2% of the students (n = 345) had parents that were not living together. Figure 4 shows the distribution of students` answers by country.

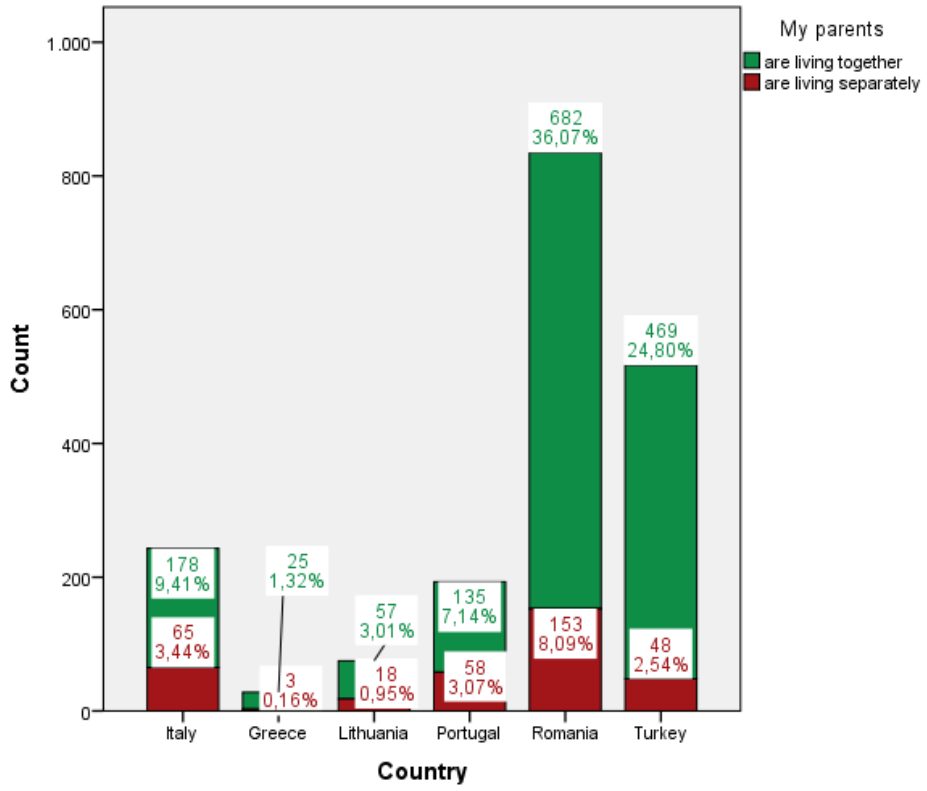



Figure 4. Distribution of students considering parents` way of life and country

The results indicate that the **average age at which children had their first phone call is M = 10.19 ± 2.30.** On average, students spend 5.40 ± 2.79 hours on social media during the week, while on weekends they spend on average **9.71 ± 8.80**. Detailed results for each country are presented in *Table 4*.

Also, the Mann Whitney test (U = 339096.500, Z = - 4.253, p < 0.001) showed that there are **significant difference at this item in terms of living environment in the sense that children living in a city (Mdn = 10.00) received the first phone call at a younger age as opposed to children living in the village** (Mdn = 11).

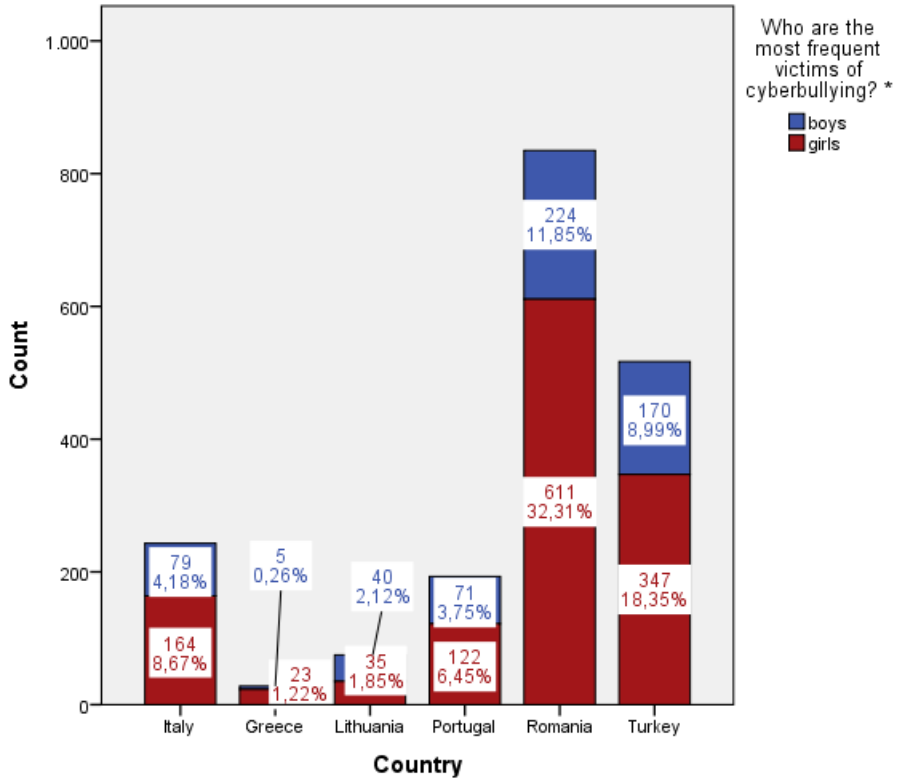
Table 4. Use of internet and phone - results by country

| Country | Mean age of the first phone | Hours on social media during the week | Hours on social media during the weekend |
|---|---|---|---|
| Italy | M = 10.98 ± 1.57 | M = 6.26 ± 2.91 | M = 7.99 ± 5.24 |

| | | | |
|---|---|---|---|
| Greece | M = 12.07 ± 2.29 | M = 2.50 ± 1.26 | M = 3.14 ± 1.86 |
| Lithuania | M = 8.06 ± 1.87 | M = 3.97 ± 2.68 | M = 5.50 ± 3.73 |
| Portugal | M = 10.53 ± 1.50 | M = 4.80 ± 2.58 | M = 6.86 ± 6.56 |
| Romania | M = 10.24 ± 2.43 | M = 5.53 ± 2.75 | M = 10.82 ± 9.56 |
| Turkey | M = 9.83 ± 2.39 | M = 5.37 ± 2.69 | M = 10.76 ± 9.61 |

[1]Means and standard deviations (M±D)

In general, students considered that **girls are the most common victims of cyberbullying, which is true for most countries except Lithuania, where the situation is different**. The distribution of answers according to country is presented in *Figure 5*.




Global self-esteem scores as measured with the **RSES** ranged from 17 up to 30 (M = 24.19 ± 1.92), most students having a normal self-esteem (77.8%, N = 1471).

A Kruskal-Wallis test was conducted to determine if there were differences in Total Rosenberg scores between country of origin: Italy (N = 243), Greece (N = 28), Lithuania (N = 75), Portugal (N = 193), Romania (N = 835) and Turkey (N = 517). Distributions of RSES scores were not similar for all groups, as assessed by visual inspection of a boxplot. Median RSES scores were statistically significantly different between the countries, $\chi^2(5) = 43.699$, $p < 0.001$. Subsequently, pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons. Adjusted *p*-values are presented. This post hoc analysis revealed statistically significant differences in median RSES scores between the Portugal (24.00) and Turkey (25.00) ($p < 0.001$), Portugal (24.00) and Lithuania (25.00) ($p = 0.001$) and Romania (24.00) and Turkey (25.00) ($p < 0.001$), but not between any other country group combination.

The total score for **Loneliness** scale was on average M = 39.76 ± 10.47, scores ranging from 20 (0.2%, N = 3) to 75 (0.1%, N = 1). More than half of the students (53.6%, N = 1014)

have a **moderate level of loneliness** and more than a quarter **have a high level of loneliness** (35.4%, N = 669). There are significant differences at this scale in terms of participants` gender (U = 418113.500, Z = -2.154, p = 0.031) in the sense that **women have a higher score on loneliness** (Mdn = 39.00) compared to boys (Mdn = 38.00).

A Kruskal-Wallis test was conducted to determine if there were differences in Total Loneliness scores between country of origin: Italy (N = 243), Greece (N = 28), Lithuania (N = 75), Portugal (N = 193), Romania (N = 835) and Turkey (N = 517). Distributions of Loneliness scores were not similar for all groups, as assessed by visual inspection of a boxplot. Median Loneliness scores were statistically significantly different between the countries, $\chi^2(5) = 32.315$, $p < 0.001$. Subsequently, pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons. Adjusted *p*-values are presented. This post hoc analysis revealed statistically significant differences in median Loneliness scores between the Lithuania (38.00) and Italy (42.00) ($p = 0.019$), Turkey (37.00) and Italy (42.00) ($p < 0.001$) and Romania (38.00) and Italy (42.00) ($p < 0.001$), but not between any other country group combination.

The results proved that respondents had not such a high level of **cyber aggression**. The total CYB-AGS score was on average M = 20.57 ± 5.81, scores ranging from 18 (51.9%, N = 981) to 90 (0.1%, N = 1).

A Kruskal-Wallis test was conducted to determine if there were differences in CYB-AGS scores between country of origin groups: Italy (N = 243), Greece (N = 28), Lithuania (N = 75), Portugal (N = 193), Romania (N = 835) and Turkey (N = 517). Distributions of CYB-AGS were not similar for all groups, as assessed by visual inspection of a boxplot. Median CYB-AGS scores were statistically significantly different between these groups, $\chi^2(5) = 289.740$, $p < 0.001$.

The Mann-Whitney U post hoc analysis (p < 0.001, U = 1546.00, z = -4.811) showed that **children from Italy (Mdn = 20.00) had a lower level of** CYB-AGS scale **than children from Greece (Mdn = 26.00),** but **Italian students (Mdn = 20.00) had a higher level of CYB-AGS scale than Portuguese students (Mdn = 18.00)** (p < 0.001, U = 16565.00, z = -5.527)**, Romanian students (Mdn = 19.00)** (p = 0.021, U = 91928.50, z = -2.307) **and Turkish students (Mdn = 18.00)** (p < 0.001, U = 31499.00, z = -13.085).

Also, the Mann-Whitney U post hoc analysis (p < 0.001, U = 402.00, z = -4.894) showed that **students from Greece had the highest score on CYB-AGS scale (Mdn = 26.00) compared to students from Lithuania (Mdn = 19.00), students from Portugal (Mdn = 18.00)** (p < 0.001, U = 671.00, z = -6.914)**, students from Romania (Mdn = 19.00)** (p < 0.001, U = 4501.50, z = -5.738) **and students from Turkey (Mdn = 18.00)** (p < 0.001, U = 1101.50, z = -10.182).

The results of Mann-Whitney post hoc analysis (p = 0.006, U = 5801.50, z = -2.739) showed that **Lithuanian children had a higher score on CYB-AGS scale (Mdn = 19.00) compared to Portuguese (Mdn = 18.00) and Turkish children (Mdn = 18.00)** (p < 0.001, U = 11375.00, z = -7.656). Also, **students from Romania (Mdn = 19.00) had a higher score on CYB-AGS scale compared to students from Portugal (Mdn = 18.00)** (p < 0.001, U = 64277.50, z = -4.596) **and Turkey (Mdn = 18.00)** (p < 0.001, U = 125608.50, z = -14.258).

A Kruskal-Wallis test was conducted to determine if there were differences in CYB-AGS scores between **family affluence groups**: low (N = 239), medium (N = 718) and high (N = 934). Distributions of CYB-AGS were not similar for all groups, as assessed by visual inspection of a boxplot. Median CYB-AGS scores were statistically significantly different between these groups, $\chi^2(2) = 10.341$, $p = 0.006$. The Mann-Whitney U post hoc analysis (p = 0.012, U = 100686.00, z = -2.504) **showed that children who have a low family affluence**

**(Mdn = 18.00) had a lower score of CYB-AGS scale than children who have a high family affluence** (Mdn = 19.00).

The total score for **Cyber victimization** was on average M = 18.68 ± 4.78, scores ranging from 15 (29.2%, N = 552) to 47 (0.1%, N = 1). There are significant differences at this scale in terms of participants` gender (U = 387459.500, Z = -4.820, p < 0.001) in the **sense that girls have a higher score on cyber victimization (Mdn = 18.00) compared to boys (Mdn = 17.00**).

The Mann Whitney test (U = 17168.00, Z = - 4.073, p < 0.001) showed that there are **significant difference at CYVIC scale in terms of participants` satisfaction with the relationship with parents in the sense that children who are very satisfied with the relationship with their parents (Mdn = 16.00) have a lower score at this scale compared to children who are very insatisfied with the relationship with their parents** (Mdn = 19.00).

A Kruskal-Wallis test was conducted to determine if there were differences in CYVIC scores between country of origin. Median CYVIC scores were statistically significantly different between these groups, $\chi^2(5) = 382.838$, $p < 0.001$. The Mann-Whitney U post hoc analysis (p = 0.009, U = 2383.00, z = -2.610) showed that **children from Italy (Mdn = 18.00) had a lower level of** CYVIC scale **than children from Greece (Mdn = 20.00),** but **a higher level of** CYVIC **scale than children from Portugal (Mdn = 16.00)** (p < 0.001, U = 16562.00, z = -5.336) **and Turkey (Mdn = 15.00)** (p < 0.001, U = 28664.50, z = -12.780).

Also, the Mann-Whitney U post hoc analysis (p = 0.007, U = 686.00, z = -2.716) showed that **students from Greece had the highest score on CYVIC scale (Mdn = 20.00) compared to students from Lithuania (Mdn = 17.00), students from Portugal (Mdn = 16.00)** (p < 0.001, U = 1293.50, z = -4.566)**, students from Romania (Mdn = 18.00)** (p = 0.036, U = 8979.00, z = -2.100) **and students from Turkey (Mdn = 15.00)** (p < 0.001, U = 1930.50, z = -7.300). In the same time, **students from Romania (Mdn = 18.00) had a higher score on CYVIC scale compared to students from Lithuania (Mdn = 17.00),** (p = 0.041, U = 26886.50, z = -2.041) **Portugal (Mdn = 16.00)** (p < 0.001, U = 53187.00, z = -7.417) **and Turkey (Mdn = 15.00)** (p < 0.001, U = 89938.00, z = -18.375).

The total score for **PSDQ scale** was on average M = 120.04 ± 17.11, scores ranging from 38 (0.1%, N = 1) to 190 (0.2%, N = 3). There are significant differences at this scale in terms of **participants` gender** (U = 402290.00, Z = -3.492, p < 0.001) in the sense that **girls have a lower score on PSDQ scale** (Mdn = 121.00) compared to boys (Mdn = 124.00). The Mann Whitney test (U = 333995.00, Z = -4.678, p < 0.001) showed that there are **significant difference at this scale between children living in a city (Mdn = 124.00) who have higher scores on this scale than children who live in a village** (Mdn = 119).

A Kruskal-Wallis test was conducted to determine if there were differences in PSDQ scores between **family affluence groups**. Median PSDQ scores were statistically significantly different between the countries, $\chi^2(2) = 15.592$, $p < 0.001$. The Mann-Whitney U post hoc analysis (p = 0.001, U = 96457.500, z = -3.244) **showed that children who have a low family affluence (Mdn = 119.00) had a lower score of PSDQ scale than children who have a high family affluence** (Mdn = 124.00). Also, the Mann-Whitney U post hoc analysis (p = 0.002, U = 305723.500, z = -3.079) showed that **children who have a high family affluence (Mdn = 124.00) had a higher score at PSDQ scale than children who have a medium family affluence** (Mdn = 122.00).

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Co-funded by the
Erasmus+ Programme
of the European Union

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