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15th International Conference on Education and Educational Psychology**TRADITIONAL AND CYBER BULLYING BEHAVIORS AMONG
CZECH AND ESTONIAN VOCATIONAL LEARNERS**

Kristi Kõiv (a)*, Veronika Štenclová (b)

*Corresponding author

(a) Institute of Education, University of Tartu, Jakobi 5, Tartu, Estonia, kristi.koiv@ut.ee(b) Department of Social Pedagogy, University of Ostrava, Fráni Šrámka 3, Ostrava, Czech Republic,
Veronika.Stenclova@osu.cz**Abstract**

The cross-sectional study aims to investigate the nature and prevalence of traditional (physical, verbal, social) bullying and cyberbullying (visual, text) among vocational school learners in the Czech Republic and Estonia. The Adapted Czech and Estonian versions of the Revised Adolescent Peer Relations Instrument – Bully and Target was used to measure three forms of traditional bully and target behaviors (physical, verbal, and social) and two forms of cyber bully and target behaviors (visual and text) among 1086 Czech and 849 Estonian vocational school learners. Current research suggests that even if differences were found in the ranking order of traditional and cyberbullying behavior forms among vocational school students in two countries, verbal bullying and victimization was a most prevalent problem in both. Descriptive analysis and t-tests revealed that Czech vocational school students were significantly more victimized and bullied physically, verbally, socially and with cyber text victimization than their Estonian counterparts, without a significant difference in the rate of cyber visual perpetration. However, Estonian male and Czech female vocational school students had significantly higher rates in the cyber visual perpetration subscales than their counterparts.

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Keywords: Bullying, victimization, adolescent, Czech vocational learners, Estonian vocational learners

1. Introduction

Bullying is defined as a repeated intentional aggressive behavior involving an imbalance of power (Olweus, 1993) in different educational (bullying in schools) and social (e.g. prison bullying, bullying at workplace) contexts in different age (from preschool to adulthood) groups and relationships (e. g dating) (Monks & Coyne, 2011). Children's and adolescents' bullying behavior (perpetration and victimization) is a prevalent subtype of aggressive behavior around the world, and it can take various forms in school settings (UNESCO, 2018). Empirical studies have demonstrated that traditional bullying (face-to-face) can be either physical, verbal, or social and cyberbullying taking place over the electronic tools in cyberplace with text-based and visual-based cyberbullying forms (Griezel et al., 2012).

Worldwide, approximately one-third of elementary and middle school students are involved in school bullying, but rates of bullying and victimization vary across country (UNESCO, 2018). Using international school children self-reported data (e.g. Health Behavior of School Children survey; HBSC) it was indicated that school bullying victimization rates were declining in a third of the countries participating in the large cross-country analysis, which also shows that victimization prevalence rates in the first decade of 2000 remained relatively stable in the Czech Republic and Estonia (Chester et al., 2015) with recent (Inchley et al., 2018) findings that the prevalence of traditional and cyberbullying among Czech and Estonian schoolchildren was relatively stable (e.g. traditional bullying victimization: 19% among Czech and 22% among Estonian sample; traditional bullying perpetration: 15% among Czech and 28% among Estonian schoolchildren; cyberbullying victimization: 11% in Czech and 12% in Estonian sample). The comprehensive international study (Programme for International Student Assessment) in 71 OECD countries (OECD, 2019) measures the incidence of bullying using reports from the victim's perspective, revealing that frequently of victimized middle school students in the Czech Republic was nearly 30% and in Estonia 25%.

The phenomenon of school bullying is widespread in education systems around the world involving children's and adolescents' bullying perpetration and victimization and adults' bullying experiences in school setting (e.g. Gaffney et al., 2019; Kõiv, 2009; Kõiv & Naruskov, 2024; Sarková et al., 2017; Ševčíková & Šmahel, 2009).

2. Problem Statement

Although literature on traditional and cyber school bullying during the last four decades is abundant with cross-country variation (e.g. Zych et al., 2015), a limited body of empirical research exists among vocational school learners across countries. Several studies revealed that the rate of bullying behavior among vocational school students is higher than among high school students in different countries: in terms of victimization in Hungary (Horváth et al., 2018) and Turkey (Yerlikaya, 2014); regarding perpetration and victimization in Poland (Zych et al., 2017), Italy (Menesini et al., 2009) and China (Han et al., 2017); and cyberbullying (cyber-perpetration and cybervictimization) experiences in China (Chen et al., 2024), but on the other hand, there were no differences between different school types in the cyber victimization rates in a Cyprus sample (Ercag, 2021), nor in traditional bullying victimization rate in a Turkish and Iranian sample (Cheraghi & Piskin, 2011).

Compared to their peers in high school, students studying in vocational schools had a higher risk of developing health-threatening behavior patterns (e.g. Horváth et al., 2018), although in both types of schools, students who were involved in peer bullying tended to show more externalized problems and victims more internalized problems (Menesini et al., 2009). Recent studies have revealed that traditional and cyberbullying related to the need for stimulation seeking among Austrian vocational students (Graf et al., 2019) and with the suicide ideation and attempts among Israel vocational school students (Benatov et al., 2022). Traditional bullying behavior as perpetration and victimization was related with: Finnish vocational school learners' smoking habits (Aho et al., 2019); Turkish vocational school students' problematic Internet use, school burnout, and poor parental monitoring (Çevik et al., 2021); Chinese vocational students' negative emotional state, emotionally negative parental style, and unsafe school atmosphere (Xu et al., 2022); and Indonesian vocational school students' low concern of vocational school educational staff (Dardiri et al., 2020). Chinese vocational school students' self-reported cyber-perpetration and cybervictimization was related with their negative evaluations of the vocational school climate in terms of peers and teachers support (Chen et al., 2024), and peer relationship difficulties with poor family system support (Zhou & Li, 2021). Also, self-reported traditional bullying victimization was connected with high levels of competitive vocational school climate in China among vocational learners (Huang et al., 2024). Cybervictimization was related with both internalizing and conduct problems among Dutch vocational school learners (Van Geel & Vedder, 2020) and with problematic internet use among Turkish vocational school sample (Nartgün & Cicioğlu, 2015).

The prevalence of bullying and victimization has been investigated across exclusive bullying subgroups in several studies: in Finland less than 10% of vocational school learners were involved in bullying behavior measuring as group of bullies, victims or bully/victims (Aho et al., 2019); in Turkey 48% of vocational school students were connected with victimization and 52% with bullying as groups of victims, bullies, risk group of victimization and risk group of bullying (Çevik et al., 2021); in China 55% of students in vocational schools involved in school bullying, of which 30% reported being a victim, 3% reported being a perpetrator, and 22% reported being a perpetrator/victim (Xu et al., 2022); in Estonia nearly 43% of vocational school learners were connected with bullying behavior: 14% were bullies, 18% were victims, and 10% were both bully/victims (Kõiv, 2022).

Two studies looked at victimization rates among vocational school learners: nearly 18% of vocational school students in China had suffered from at least one traditional (verbal, relational or physical) victimization behavior (Huang et al., 2024), and almost 50% of Indonesian vocational school students had experienced verbal, 40% relational and 30% physical victimization (Dardiri et al., 2020). In China, the prevalence of cyberbullying with overall rates of perpetration and victimization at 52% and 69% respectively (Zhou & Li, 2021), and the extent of mutually exclusive bullying groups was as follows: 26% of cyberbullying perpetration, 62% of cyberbullying victimization, and 25% of perpetration/victimization among vocational school students (Chen et al., 2024). A recent study among Israel vocational school students (Benatov et al., 2022) examines participation in traditional and cyberbullying in an exclusive bullying subgroup as follows – 2% of reported being involved in cyberbullying as both perpetrators and victims, 6% reported being involved in cyberbullying as perpetrators, 3% reported cybervictimization, 3% reported being involved in traditional bullying as both perpetrators and victims, 7% reported being involved in traditional bullying as perpetrators, and 7% reported being subjected to traditional bullying.

In the field of research that examines the nature and prevalence of bullying behavior among vocational school students, one study has noted cross-country variation. Cheraghi and Piskin (2011) investigated the prevalence of victimization among high school and vocational school students from Turkey and Iran, demonstrating that the Iranian vocational school students were significantly more victimized physically than their Turkish counterparts, whereas the Turkish students were more isolated than the Iranian students.

3. Research Question

- i. The following research question had emerged: What is the nature and prevalence of traditional and cyber bullying among learners of Czech and Estonian vocational schools?

4. Purpose of the Study

The general aim of the study was exploring the nature and prevalence of traditional and cyberbullying among Czech and Estonian vocational school learners. It has two core aims, first to explore the differences in the extent of traditional (physical, verbal social) and cyberbullying (visual, text) perpetration and victimization among Czech and Estonian vocational learners; and secondly to explore the differences in the extent of traditional (physical, verbal social) and cyberbullying (visual, text) perpetration and victimization between Czech and Estonian vocational learners.

5. Research Methods

5.1. Samples and procedure

A cross-sectional study was carried out based on data collection during study year 2022/2023 in vocational schools in the Czech Republic and Estonia. Randomly selected vocational schools in the Czech Republic were invited to participate in a survey study by phone (by second author) from 42 vocational schools at all regions in the Czech Republic and 15 agreed to participate in the research forming whole-country sample from learners. The Czech sample consisted of 1086 vocational learners (292 girls 25.9% and 804 boys 74.1%) aged 16 to 32 years ($M=7.37$, $SD=1.93$). Randomly selected vocational schools in Estonia were invited to participate in the survey by e-mail (by first author), and 17 of the 33 vocational schools from all regions of Estonia agreed to participate in the study, which formed a whole-country sample of learners. The Estonian sample consisted of 849 vocational learners (315 girls 37.1% and 534 boys 62.9%) aged 16 to 33 years ($M=18.92$, $SD=2.19$).

Only those students who consented, or who had parental consent to participate, were included in the study. The questionnaires were administered during school hours under the supervision of a teacher and learners completed their classroom-administered questionnaires individually on computers or on paper-pencil mode. The privacy of participants was protected by allowing for anonymous and voluntary participation. Participants were informed of their right to withdraw at any phase of the study.

5.2. Measure

Participating vocational school students were required to complete the Revised Adolescent Peer Relations Instrument – Bully and Target (RAPRI-BT; Griesel et al., 2012) that addressed the frequency of bullying behaviour with assessing three (physical, verbal, and social) forms of traditional bully and target behaviors and two (visual and text) forms of cyber bully and target behaviors. The RAPRI-BT was based on the Adolescent Peer Relations Instrument (APRI) developed by Parada (2000) and consists of 62 self-reported items with 31 perpetrator items and 31 victim items on a 6-point Likert-type scale ranging from 1 (never) to 6 (every day). Participants were asked to indicate, in the past year at vocational school, which behaviours they had carried out and which behaviours they had experienced.

The RAPRI-BT was adapted into Estonian (Kõiv, 2022) and into Czech (Štenclová, 2023) language with the back-translation method – an original questionnaire was translated into the target language by one translator and then back-translated into the source language by an independent translator who was blind to the original questionnaire. With regard to the reliability of the Estonian and the Czech version of the RAPRI-BT, Cronbach's alpha estimates for all subscales, including traditional bullying (physical, verbal, social) and cyberbullying (visual, texts), were good to excellent, with scores ranging from .80 to .95 (Table 1).

Table 1. Cronbach's alpha values in two separate study samples among vocational school learners

| RAPRI-BT subscale | | Cronbach's α | | |
|--------------------|--------------|---------------------|--------------------------|----------------------------|
| | | Number of items | Czech sample (N=1087) | Estonian sample (N=849) |
| Traditional bully | | | | |
| | Physical | 6 | 0.90 | 0.86 |
| | Verbal | 6 | 0.89 | 0.89 |
| | Social | 6 | 0.89 | 0.80 |
| Cyber bully | | | | |
| | Cyber visual | 5 | 0.88 | 0.85 |
| | Cyber text | 8 | 0.94 | 0.91 |
| Traditional target | | | | |
| | Physical | 6 | 0.85 | 0.82 |
| | Verbal | 6 | 0.90 | 0.85 |
| | Social | 6 | 0.87 | 0.84 |
| Cyber target | | | | |
| | Cyber visual | 5 | 0.82 | 0.81 |
| | Cyber text | 8 | 0.93 | 0.95 |

The measure is scored by summing the items for each subscale (physical, verbal, social, cyber visual, and cyber text) by calculating mean scores. Higher scores represent more frequent involvement in bullying either as a perpetrator or as a target. A series of *t*-tests were conducted to examine pairwise differences existed on any differences between means of subscales.

6. Findings

First, a descriptive analysis was conducted to present prevalence rates and comparisons of different forms of traditional and cyberbullying perpetration and victimization for the Czech and Estonian samples separately. Descriptive statistics about different forms of bullying and victimization rates among Czech and Estonian vocational school learners is presented in the Table 2 and comparisons in Table 3 and 4.

Table 2. Descriptive statistics (subscale means, standard deviations) and comparison (*t*-values, *p* values) of Czech and Estonian vocational school learners

| RAPRI-BT subscale | Czech sample | | Estonian sample | | <i>t</i> -value | <i>p</i> value |
|--------------------|--------------|------|-----------------|------|-----------------|----------------|
| | M | SD | M | SD | | |
| Traditional bully | | | | | | |
| Physical | 1.34 | 0.93 | 1.15 | 0.59 | 13.59 | 0.00 |
| Verbal | 1.83 | 1.38 | 1.50 | 0.99 | 14.90 | 0.00 |
| Social | 1.26 | 0.85 | 1.21 | 0.72 | 2.61 | 0.01 |
| Cyber bully | | | | | | |
| Cyber visual | 1.16 | 0.62 | 1.15 | 0.53 | 0.76 | 0.22 |
| Cyber text | 1.15 | 0.63 | 1.10 | 0.44 | 5.69 | 0.00 |
| Traditional target | | | | | | |
| Physical | 1.47 | 1.05 | 1.26 | 0.63 | 11.40 | 0.00 |
| Verbal | 1.94 | 1.50 | 1.66 | 1.02 | 10.15 | 0.00 |
| Social | 1.47 | 1.10 | 1.31 | 0.75 | 8.10 | 0.00 |
| Cyber target | | | | | | |
| Cyber visual | 1.20 | 0.66 | 1.14 | 0.53 | 4.65 | 0.00 |
| Cyber text | 1.18 | 0.66 | 1.14 | 0.51 | 4.64 | 0.00 |

Table 3. *T*-values (*p*-values) for pairwise comparison separately of Czech and Estonian vocational school learners across bullying subscale

| Estonian sample/Czech sample | Bully: Physical | Bully: Verbal | Bully: Social | Bully: Cyber visual | Bully: Cyber text |
|------------------------------|-----------------|---------------|---------------|---------------------|-------------------|
| Bully: Physical | - | 23.43 (0.00) | 5.86 (0.00) | 12.99 (0.00) | 14.72 (0.00) |
| Bully: Verbal | 21.47 (0.00) | - | 28.55 (0.00) | 35.04 (0.00) | 36.94 (0.00) |
| Bully: Social | 4.82 (0.00) | 16.61 (0.00) | - | 6.91 (0.00) | 8.32 (0.00) |
| Bully: Cyber visual | 0.07 (0.94) | 21.60 (0.00) | 4.81 (0.00) | - | 1.03 (0.30) |
| Bully: Cyber Text | 5.24 (0.00) | 26.85 (0.00) | 9.93 (0.00) | 5.21 (0.00) | - |

Table 4. *T*-values (*p*-values) for pairwise comparison separately of Czech and Estonian vocational school learners across victimization subscales

| Estonian sample/Czech sample | Target: Physical | Target: Verbal | Target: Social | Target: Cyber visual | Target: Cyber text |
|------------------------------|------------------|----------------|----------------|----------------------|--------------------|
| Target: Physical | - | 21.01 (0.00) | 0.41 (0.67) | 16.88 (0.00) | 19.09 (0.00) |
| Target: Verbal | 16.12 (0.00) | - | 20.33 (0.00) | 36.08 (0.00) | 38.27 (0.00) |
| Target: Social | 2.35 (0.02) | 13.32 (0.00) | - | 16.83 (0.00) | 18.92 (0.00) |
| Target: Cyber visual | 7.76 (0.00) | 22.67 (0.00) | 9.33 (0.00) | - | 1.33 (0.18) |
| Target: Cyber Text | 8.42 (0.00) | 23.40 (0.00) | 9.90 (0.00) | 0.19 (0.84) | - |

Research results indicated that the most prevalent type of bullying among Czech vocational school learners was verbal bullying, following with physical and social bullying with less prevalent two forms (cyber text and cyber visual) of cyberbullying (without statistically significant differences) (Table 3). Bullying victimizations rates across different types of victimization for the Czech sample were the following: verbal victimization was predominant, followed by psychical and social victimization (without statistical differences), and visual- and text cybervictimization (no statistical differences) was the lowest, whereby all the abovementioned differences were significant (Table 4).

The results of the study showed that verbal bullying and social bullying were the most common types of bullying among vocational learners in Estonia, following with physical and cyber visual perpetration (without statistically significant differences in prevalence) rates, whereas the prevalence of cyber text bullying was lowest (Table 3). Findings revealed that verbal victimization was the most common among Estonia vocational school learners, followed by social victimization and then psychical victimization with visual- and text cybervictimization (no statistical differences) being the lowest, whereas all of the above differences were significant (Table 4).

Also, it was indicated that victimization across all five types (physical, verbal, social, cyber visual, cyber text) was more prevalent than perpetration among Czech sample (corresponding statistically significant t -test results: $t=6.86$; $t=4.50$; $t=12.64$; $t=2.93$; $t=3.30$); and victimization compared with perpetration among Estonian sample was more prevalent with statistically significant differences across physical, verbal, social, and cyber text scales (corresponding statistically significant t -test values: $t=6.93$; $t=46.14$; $t=4.77$; $t=4.58$) without statistical differences in cyber visual scale.

Secondly, a descriptive analysis was conducted to present the prevalence indicators in the comparison of Czech and Estonian vocational school samples in terms of different types of perpetration and victimization of traditional and cyberbullying. Prevalence rates and overall differences in the distributions of bullying behavior on the traditional bullying (physical, verbal, social) scales and on the cyberbullying (visual, text) scales by the country among Czech and Estonian vocational school learners is presented in the Table 2. Examining the overall mean scores across five subscales of bullying perpetration and victimization, it can be noted that, on average, both country samples members were not frequently involved in bullying behavior, as the mean scores did not exceed 2.10 (monthly frequency occurrence) in the Likert scale, which was especially true for cyberbullying.

Research results indicated that there were several statistically significant differences comparing bullying behavior between two samples revealing that: (1) Czech vocational school learners were significantly more victimized in traditional (physical, verbal, social) and cyber (visual, text) victimization than their Estonian counterparts; (2) the prevalence of traditional (physical, verbal, social) bullying and cyber (text) bullying among Czech vocational school students was significantly higher than among their Estonian counterparts, whereby there were no statistically significant differences between rates of cyber visual perpetration between two country samples (Table 2).

In addition, a comparison of different types of bullying and victimization rates was performed in Czech and Estonian male and female respondents (Table 5).

Table 5. Descriptive statistics (subscale means, standard deviations) and comparison (*t*-values, *p* values) of Czech and Estonian vocational school learners by gender

| RAPRI-BT | | | Czech sample | | Estonian sample | | <i>t</i> -value | p value |
|--------------------|--------------|-------|--------------|------|-----------------|------|-----------------|---------|
| | | | M | SD | M | SD | | |
| Traditional bully | | | | | | | | |
| | Physical | Boys | 1.39 | 0.99 | 1.20 | 0.72 | 9.59 | 0.00 |
| | | Girls | 1.20 | 0.65 | 1.10 | 0.41 | 5.61 | 0.00 |
| | Verbal | Boys | 1.90 | 1.44 | 1.63 | 1.15 | 9.01 | 0.00 |
| | | Girls | 1.61 | 1.13 | 1.37 | 0.75 | 7.81 | 0.00 |
| | Social | Boys | 1.27 | 0.89 | 1.25 | 0.77 | 0.67 | 0.04 |
| | | Girls | 1.22 | 0.75 | 1.18 | 0.65 | 1.88 | 0.06 |
| Cyber bully | | | | | | | | |
| | Cyber visual | Boys | 1.17 | 0.65 | 1.24 | 0.68 | 3.93 | 0.00 |
| | | Girls | 1.13 | 0.53 | 1.06 | 0.27 | 4.54 | 0.00 |
| | Cyber text | Boys | 1.16 | 0.67 | 1.15 | 0.54 | 1.77 | 0.07 |
| | | Girls | 1.11 | 0.48 | 1.05 | 0.29 | 4.24 | 0.00 |
| Traditional target | | | | | | | | |
| | Physical | Boys | 1.50 | 1.09 | 1.23 | 0.66 | 11.54 | 0.00 |
| | | Girls | 1.37 | 0.92 | 1.30 | 0.58 | 2.44 | 0.02 |
| | Verbal | Boys | 1.92 | 1.49 | 1.66 | 1.09 | 7.22 | 0.00 |
| | | Girls | 2.00 | 1.52 | 1.65 | 0.91 | 7.23 | 0.00 |
| | Social | Boys | 1.40 | 1.01 | 1.22 | 0.67 | 7.27 | 0.00 |
| | | Girls | 1.70 | 1.31 | 1.42 | 0.85 | 6.73 | 0.00 |
| Cyber target | | | | | | | | |
| | Cyber visual | Boys | 1.20 | 0.67 | 1.15 | 0.51 | 3.11 | 0.01 |
| | | Girls | 1.20 | 0.64 | 1.13 | 0.54 | 3.27 | 0.01 |
| | Cyber text | Boys | 1.17 | 0.65 | 1.13 | 0.51 | 3.48 | 0.01 |
| | | Girls | 1.22 | 0.66 | 1.15 | 0.51 | 4.06 | 0.00 |

Results specified that both incidence rates of traditional (physical, verbal, social) bullying and being bullied among Czech male and female students were significantly higher than among Estonian counterparts with one exception – the rate of social bullying of other students among Czech and Estonian girls was nearly equal without statistically significant differences.

Secondly, in two (visual, text) types of cybervictimization, the incidence rate of being bullied was significantly higher among Czech female and male vocational learners than their Estonian counterparts.

Thirdly, the following statistically significant differences were found among Czech and Estonian boys and girls regarding the prevalence of cyberbullying other peers: (1) the prevalence of visual and text cyberbullying was higher among Czech girls than among Estonian girls; and (2) the prevalence of visual cyberbullying was higher among Estonian boys than among Czech boys, whereby the prevalence of text cyberbullying tended to be similarly low (without statistically significant differences).

7. Conclusions

This study aimed to increase the knowledge base concerning traditional bullying and cyberbullying, to explore the differences on the prevalence rates of bullying and victimization has two distinctive bullying behaviours among vocational school students in two countries – the Czech Republic and Estonia.

The prevalence of bullying across the five types of victimization behavior among Czech and Estonian vocational school students fell similarly to the prevalence of traditional bullying as verbal, social and physical and less common forms of cyber victimization as visual-based and text-based modes. Although verbal perpetration was prevalent among vocational school learners in both countries, the occurrence of other types of bullying perpetration differed: (1) physical bullying dominated in Czech subjects, followed by social bullying, which was more prevalent among boys in the cross-country comparison with less-frequent types of cyber-perpetration; and (2) in the Estonian sample, social perpetration dominated, followed by physical perpetration and cyber visual perpetration with more dominant among boys in cross-country comparison, whereby the last common was cyber text perpetration. This result is consistent with findings supporting that the verbal bullying is the most common type of bullying among vocational schools' students (e.g. Dardiri et al., 2020) with low rates of cyberbullying (Xu et al., 2022). In this study, there were also differences in the ranking order of physical and social bullying prevalence by country, which is parallel to previous results (Cheraghi & Piskin, 2011) where cross-cultural comparison showed variation in victim behavior in terms of both physical and social victimization.

Thus, current research suggests that even if differences were found between Czech and Estonian vocational school learners' multidimensional structure of bullying, bullying behavior in vocational schools is a problem in both, both as a predominant verbal bullying and victimization among other types of traditional (physical, social) bullying, with less prevalent forms of cyber-perpetration and cybervictimization, especially in text-based mode. Current findings also revealed the tendency of becoming a victim among Czech and Estonian vocational school learners was higher than becoming a bully in terms of traditional (physical, verbal social) and cyber (visual, text) bullying rates, confirming previous studies (Çevik et al., 2021; Xu et al., 2022; Zhou & Li, 2021).

The current research is the first one to compare bullying and victimization rates in terms of traditional (physical, verbal, social) and cyber (visual, text) bullying behaviors among Czech and Estonian vocational school learners. It was revealed that cross-country variations exist in examining the prevalence of traditional and cyberbullying perpetration and victimization among Czech and Estonian vocational school students. Current study results revealed that Czech vocational school students were significantly more victimized and bullied physically, verbally socially and with cyber text victimization than their Estonian vocational school students. However, the Czech vocational school learners had significantly higher scores on a nine out ten of bullying and victimization subscales than their counterparts, there were no differences in cyber visual perpetration scale between two samples. Additional descriptive analysis revealed that the rate of occurrence of cyber visual perpetration was higher among Estonian boys compared with Czech vocational schoolboys, and opposite was the case for girls – Czech female vocational school learners compared with Estonian females had predominant rates of cyber visual perpetration.

Vocational school students often stay hidden not only from the attention of cross-cultural school bullying research (e.g. Cheraghi & Piskin, 2011), but also from prevention and intervention programs related to reducing cyberbullying (e.g. Chen et al., 2024) and traditional bullying in the area of victimization (e.g. Huang et al., 2024). Our results can contribute to an increased effectiveness of targeted prevention and intervention programs for this special population – for vocational school learners. Raising awareness of traditional- and cyber bullying problems and taking vocational school-type-specific patterns of challenges

into consideration when designing these programs might contribute to an increased effectiveness of targeted prevention and intervention in the Czech Republic and in Estonia.

Our research targets were specific groups of population in the educational system, which were vocational school students. Vocational schools are an important part of the Czech Republic and Estonian education system, and after compulsory education, students have two choices – to attend high school or to attend vocational school, but the limitation of this study is that there was no possibility to take into account the type of vocational school (e.g. state, private) when choosing vocational schools, which should be taken into account in future studies. While our study did not focus on differentiated gender behavior in relation to bullying problems in vocational schools, there is suggestion for future research to address this limitation.

Data Availability Statement

Data is available upon request.

Declaration of Conflicts Interests

The authors would like to declare that they have no conflict of interest to disclose.

Ethical Statement

This research did not require institutional review board approval as only deidentified data from the entirely anonymous nature of the database were used.

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