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The Experience of Peer Aggression as a Heterogeneous Phenomenon: A Latent Class Analysis

Doświadczenie agresji rówieśniczej jako zjawisko niejednorodne. Analiza klas latentnych

KEYWORDS
arts education, arts therapy, affective intelligence, imagination, beauty, metamorphosis

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edukacja artystyczna, arteterapia, afektywna inteligencja, wyobraźnia, piękno, przemiana (metamorfoza)

ABSTRACT

Peer aggression, when escalated and regular, has negative consequences for proper psychosocial development. The main aim of this study was to identify classes among middle school students according to similarity in terms of experiencing particular forms and manifestations of peer aggression. Data were collected using a proprietary questionnaire, from which 10 questions forming indicators of experienced aggression (five forms, two manifestations each) were used for analysis. A total of 1.050 middle school students (525 boys and girls each) aged 13 and 14 participated in the study. The students most often experienced verbal and relational aggression, and least often sexual aggression. Boys were more likely to report experiencing

SPI Vol. 25, 2022/4
e-ISSN 2450-5366

DOI: 10.12775/SPI.2022.4.003
Submitted: 29.08.2022
Accepted: 28.09.2022

physical and verbal aggression (being insulted), while girls reported being the target of gossip and cyber aggression (offensive comments). Using Latent Class Analysis, we analyzed a model with six classes as follows: Low all, High verbal and relational, High physical and verbal, High all without sexual, High all and High sexual, cyber and relational. The results show that the phenomenon of peer aggression is not homogeneous and that the design of preventive measures should take into account the specificity of the experiences of its victims.

ABSTRAKT

Agresja jest wpisana w relacje rówieśnicze. Jednak nasilona i realizowana w sposób systematyczny, niesie ze sobą negatywne skutki dla prawidłowego rozwoju psychospołecznego. Głównym celem badań było wyłonienie wśród uczniów klas ze względu na podobieństwo w zakresie doświadczania poszczególnych form i przejawów agresji rówieśniczej. Dane zgromadzono za pomocą autorskiego kwestionariusza, z którego do analizy użyto 10 pytań tworzących wskaźniki doświadczanej agresji (pięć form, po dwa przejawy). W badaniu wzięło udział 1050 uczniów gimnazjum (po 525 chłopców i dziewcząt) w wieku 13 i 14 lat. Uczniowie najczęściej doświadczali agresji werbalnej i relacyjnej, a najrzadziej przejawów agresji seksualnej. Chłopcy częściej informowali o doświadczaniu agresji fizycznej i werbalnej (bycie wyzywanym), a dziewczęta o doświadczeniu plotkowania na swój temat i cyberagresji (obraźliwe komentarze). Wykorzystując analizę klas latentnych, poddano analizie model z sześcioma klasami: Wszystkie wskaźniki niskie, Wysoka werbalna i relacyjna, Wysoka fizyczna i werbalna, Wysokie wszystkie poza seksualną, Wysokie wszystkie wskaźniki oraz Wysoka seksualna, cyber i relacyjna. Uzyskane rezultaty pokazują, że zjawisko agresji rówieśniczej nie jest homogeniczne, a projektowanie działań profilaktycznych powinno uwzględniać specyfikę doświadczeń jej ofiar.

Introduction

Aggression can occur in the peer relationships of children and adolescents. However, when it is escalated and regular, it carries negative consequences for the proper development of individuals and whole groups. These consequences affect both the perpetrators and victims (Olweus 2013), as well as witnesses who are not directly

involved (Rivers, Poteat, Noret, Ashurst 2009). Individuals may be involved in peer aggression in different, overlapping roles (Várnai, Malinowska-Cieślik, Madarasová Gecková, Csémy, Horváth 2022). However, those experiencing increased peer aggression, which takes the form of violence, are at risk of the most serious consequences. This is especially true for adolescents, for whom group membership and status are extremely important (Faris, Ennett 2012).

Peer aggression: its characteristics and forms

Many definitions of aggression can be found in the literature. For example, Robert A. Baron and Deborah R. Richardson (1994: 7) indicate that aggression is "any form of behavior directed toward the goal of harming or injuring another living being who is motivated to avoid such treatment." Violence is distinguished from aggression by the aspect of imbalance between the parties. The advantage of the abuser can be physical, psychological, or social. Violence is also seen as an extreme form of aggression (see https://dictionary.apa.org/violence [accessed: 10.08.2022]). Terms such as mobbing, bullying, harassment, and intimidation are used to describe intentional and repeated violent behavior that occurs between peers and causes harm (Ashrafi, Feng, Neudorf, Alphonsus 2020; Olweus 1978). Importantly, this behavior occurs within a group and this should be taken into account when designing and implementing interventions (Salmivalli 2010). Robert Faris and Susan Ennet (2012) prefer to use the term aggression rather than bullying because of the broader range of the behaviors, which includes more than just expressive actions. This view is closer to the views of the authors of this text.

Among the most common typologies of peer aggression is the division into verbal, physical, relational, and cyber aggression (Pyżalski 2015). The most widespread type is verbal aggression, which takes the form of name-calling, insults, threats, and verbal humiliation (Longobardi, Prino, Fabris, Settanni 2019; Poszwa, Myślińska 2020). Physical aggression involves the violation of physical integrity (e.g., hitting, tugging or pushing). In contrast, relational aggression is more difficult to observe and entails social exclusion, and creating and spreading rumors (Kennedy 2020b). Some authors use the terms social aggression and social violence, which are understood as social

exclusion/isolation (Ashrafi et al. 2020; Chung, Lee 2020). However, as Kaj Björkqvist (2018) points out, the terms relational, social and indirect aggression essentially refer to the same concept.

Cyber aggression is carried out through new technologies and new media (e.g., websites, text messages, social networks, and emails) with the aim of shaming, humiliating, and even intimidating or threatening (Chadwick 2014). This type of aggression is further distinguished from its traditional forms by the reach of the impact group, as well as the strength of its consequences (Pyżalski 2012).

Analyses of sexual aggression among adolescents can also be found in the literature (Longobardi et al. 2019). Sometimes its manifestations are divided into physical and verbal (Ulubas-Varpula, Björkqvist 2021). According to Ortega, Sánchez, Ortega-Rivera, Nocentini, & Menesini (2010: 248) peer sexual harassment in adolescence is "an unwanted and unwelcome sexual behaviour [...]. Sexual harassment includes different behaviours, such as name-calling, rumours, sexual comments, looks, gestures, attempts at personal contacts, and physical attacks."

The literature also distinguishes between direct (verbal and physical) and indirect (e.g., gossiping, social exclusion) displays of aggression, where identifying the aggressor presents some difficulties (Wyckoff, Kirkpatrick 2016).

Research indicates associations between the experience of different forms of traditional peer aggression (A. Arango, Opperman, Gipson, King 2016; Chung, Lee 2020; Ulubas-Varpula, Björkqvist 2021) and their relationship with cyber aggression (A. Arango et al. 2016; Hamm et al. 2015; Twardowska-Staszek, Zych, Ortega-Ruiz 2018).

Experience of peer aggression and gender

Some studies confirm the trend that boys are significantly more likely to experience traditional aggression and peer violence than girls (Joseph, Stockton 2018; Poszwa, Myślińska 2020). However, as Reeve S. Kennedy (2020b) points out, there are also data showing the opposite trend. If role is taken into account, some studies show that more girls are exclusively victims of traditional violence, but more boys are in the dual role of victim and perpetrator (Twardowska-Staszek, Zych 2019; Twardowska-Staszek et al. 2018). Boys are

more likely to experience physical and verbal aggression, while girls are more prone to suffer relational aggression (Bradshaw, Waasdorp, O'Brennan 2013; Lundh, Daukantaité, Wångby-Lundh 2014) and cyber aggression (Bradshaw et al. 2013; Hamm et al. 2015). However, in terms of being a victim of cyber aggression, some data also suggest that there are no gender differences (Bradshaw et al. 2013; Twardowska-Staszek, Zych 2019).

According to some reports, boys are more likely to experience indirect aggression than girls (Wang et al. 2015). Izabela Zych and co-researchers indicate that this may be related to the fact that girls develop faster and have relatively higher social and emotional competence, which is a protective factor (Zych, Beltrán-Catalán, Ortega--Ruiz, Llorent 2018).

In terms of sexual aggression, some studies show no significant gender difference (McMaster, Connolly, Pepler, Craig 2002), while others report that boys in general are more likely to be victims of this form of aggression (Vega-Gea, Ortega-Ruiz, Sánchez 2016). In contrast, among adolescents surveyed in Finland, girls reported greater victimization due to physical and verbal sexual harassment (Kaltiala-Heino, Savioja, Fröjd, Marttunen 2018), but in Canada boys were more likely to experience verbal sexual harassment (Volk, Craig, Boyce, King 2006).

The use of Latent Class Analysis in research on peer aggression

A number of studies on peer aggression divide participants into groups/classes based on their answers to a set of questions or selected single observed indicators. One popular analysis for measures of this type is Latent Class Analysis (LCA). It is part of a person-oriented and model-based approach (Bergman, Wångby 2014), which uses categorical variables as indicators. Assignment of individuals to the same unobserved class is based on probabilities. The profile of a class, which undergoes substantive interpretation, is the result of the probabilities of item-response probabilities (Lanza, Rhoades 2013). Thus, it can be said that the primary effect of using LCA is to divide participants into distinct classes, while maximizing the similarity of individuals within them.

With regard to LCA and peer aggression, the number of variables included in the analysis varies as indicators are either single questions from the questionnaire covering a specific manifestation of aggression (Chung, Lee 2020), or questions defining the experience of aggression in a general way (Várnai et al. 2022). Participants in studies on peer aggression are most often asked to identify the frequency of the forms of aggression they experienced using a pre-defined scale of several points (Twardowska-Staszek, Zych 2019; Twardowska-Staszek et al. 2018). The method of dichotomizing the indicators, which is based on this scale, is another element that differentiates the present research. Some studies seek to identify responses that indicate only whether an individual has or has not experienced a given behavior (Várnai et al. 2022), while others view experiencing a given situation incidentally as equivalent to the individual not being affected by this form of aggression (Twardowska-Staszek et al. 2018).

The number of classes identified in research on peer aggression and violence varies, typically ranging from three (Ashrafi et al. 2020; Nylund, Bellmore, Nishina, Graham 2007) to six (Chung, Lee 2020). Studies consider experiences in the victim role only (Ashrafi et al. 2020), but most commonly include information on experiencing and perpetrating aggression (Liu, Guo, Weissman, Liu 2020). The indicators that are used to distinguish classes include manifestations of so-called traditional forms of abuse (Chung, Lee 2020), but also include cyber aggression (Coyle, Cipra, Rueger 2021).

Method

The significance of the problem of aggression and peer violence among adolescents, its scale and its consequences, raises questions about the specific characteristics of the problem. Although most studies focus on capturing the prevalence of bullying, it can be difficult to precisely operationalize the concept and thus examine the intensity of the phenomenon (Volk, Veenstra, Espelage 2017). It is justifiable to also study the specificity characteristics of peer aggression because this offers a broader perspective and a lack of mitigating measures may foster escalation. Furthermore, as research findings confirm, experiencing peer aggression that does not meet the criteria

of bullying is also sometimes rated as harmful by victims, sometimes even to a comparable degree (Skrzypiec et al. 2018).

For this reason, we carried out research on peer aggression among students. The results are analyzed in a person-oriented approach. The main objective of this study is to identify groups (classes) among students according to their similarity in terms of experiencing particular forms and manifestations of peer aggression. In addition, an attempt was made to verify the existence of gender differences between the classes we identified. The main research problems were formulated as follows: What student groups can be distinguished on the basis of similarity in terms of experiencing particular forms and manifestations of peer aggression? Are there gender differences in the experience of forms and manifestations of peer aggression?

Measures

The research tool was a self-administered questionnaire, which explored multiple contexts of adolescent problem behavior (Frankowiak 2017, 2018, 2020). Only 10 variables, out of a broader set of 20, were included in the analysis. They concerned the experience of different manifestations of peer aggression, which included its five forms: (1) physical, (2) verbal, (3) relational, (4) sexual and (5) cyber aggression. Each form was represented by two items, as listed in Table 1. Survey participants were asked to indicate the frequency with which they had experienced the various manifestations of aggression in the year preceding the survey. Responses were given on a 4-point scale (i.e., "not once," "once," "two to five times" and "more than five times").

Manifestations of aggression, similar to those selected, also appeared in studies by Chung and Lee (2020), as well as Twardowska-Staszek et al. (2018).

Due to the use of the LCA, the participants' responses were dichotomized into the following forms: "not experienced" (answer "not even once") and "experienced" (other responses). A similar procedure, in terms of using questions as indicators and dichotomizing the responses to indicate whether an action did or did not affect a student, was used in a study by Chung and Lee (2020).

Participants and procedure

The invitation to participate in the study was sent to all middle schools in one of the large cities in northern Poland, of which six schools were willing to cooperate. In these schools, the study was carried out in all first and second grades (52 groups, 1086 pupils in total). The project had the practical purpose of designing and implementing prevention measures in schools based on the survey data collected. We selected first- and second-grade pupils for the study so that the solutions could be implemented while they were still in school.

Due to missing data, 1.050 children—525 girls and 525 boys aged 13 and 14—were included in the analyses presented in this article. The research took place during the 2014/2015 school year and was carried out using the paper-and-pencil method.

The survey was conducted as part of the implementation of the educational and preventive program. The students completed the survey during the homeroom hour in the presence of one of the researchers, who informed them about the purpose of the study, anonymity, the voluntary nature of participation and the possibility of opting out at any time without consequences.

Data analysis

Latent Class Analysis (LCA) was used as the main method of data analysis. The following information criteria (IC) and model fit indices were used to compare models considering a different number of classes: AIC—Akaike Information Criterion, BIC—Bayesian Information Criterion, SABIC (sample size adjusted BIC), and consistent Akaike Information Criterion (cAIC). The lower the value of the indices, the better the model fit (Lanza, Rhoades 2013). Entropy is a parameter that provides information about the precision of class extraction, where a score higher than 0.8 is desirable (Muthén, Muthén 2007). In this study, R software version 4.2.0 (R Core Team 2022), with the poLCA package (Linzer, Lewis 2011) was used to perform the LCA. Class comparisons by gender were made using the chi-square test in the SPSS v28.

Results

Among the adolescents surveyed, the most frequently experienced manifestation of aggression was being insulted, and the least frequently experienced manifestations were being undressed and being touched in a sexual manner against one's will (sexual aggression). Significant gender differences occurred in four of the five forms of aggression (although not in all the manifestations included). There were no gender differences in the category of sexual aggression (Table 1).

Table 1: Questions from the questionnaire included in the analysis (five forms, two manifestations each) with a summary of responses, *N*=1050

During the last school year:	**Total**, *n* (%)		**Girls**, *n* (%)		**Boys**, *n* (%)			
	No	*Yes*	*No*	*Yes*	*No*	*Yes*	χ^2	*p*
have you ever been **photographed or recorded** against your will or knowledge? (CA)	679 (64.7)	371 (35.3)	333 (63.4)	192 (36.6)	346 (65.9)	179 (34.1)	0.704	0,401
has someone ever written **offensive comments or made fun of you** using the Internet or a mobile phone? (CA)	793 (75.5)	257 (24.5)	382 (72.8)	143 (27.2)	411 (78.3)	114 (21.7)	4.333	0,037
have you ever been **beaten** by a peer or peers? (PA)	867 (82.6)	183 (17.4)	469 (89.3)	56 (10.7)	398 (75.8)	127 (24.2)	33.361	<0,001
have you ever been **jerked** by a peer or peers? (PA)	756 (72.0)	294 (28.0)	420 (80.0)	105 (20.0)	336 (64.0)	189 (36.0)	33.333	<0,001
have you ever been **humiliated or mocked** by any of your peers? (VA)	681 (64.9)	369 (35.1)	344 (65.5)	181 (34.5)	337 (64.2)	188 (35.8)	0.205	0,651
have you been **insulted** by any of your peers? (VA)	525 (50.0)	525 (50.0)	283 (53.9)	242 (46.1)	242 (46.1)	283 (53.9)	6.404	0,011
have any of your peers ever **made up or spread rumors, untrue information** about you? (RA)	602 (57.3)	448 (42.7)	284 (54.1)	241 (45.9)	318 (60.6)	207 (39.4)	4.501	0,034
have peers ever **excluded you or isolated you** from the group? (RA)	852 (81.1)	198 (18.9)	423 (80.6)	102 (19.4)	429 (81.7)	96 (18.3)	0.224	0,636

During the last school year:	**Total,** *n* (%)		**Girls,** *n* (%)		**Boys,** *n* (%)			
	No	*Yes*	*No*	*Yes*	*No*	*Yes*	χ^2	*p*
has a peer or peers ever tried to **undress you** against your will? (SA)	979 (93.2)	71 (6.8)	492 (93.7)	33 (6.3)	487 (92.8)	38 (7.2)	0.378	0,539
has anyone ever attempted to **touch you in a sexual way** against your will? (SA)	949 (90.4)	101 (9.6)	472 (89.9)	53 (10.1)	477 (90.9)	48 (9.1)	0.274	0,601

Note: CA – cyber aggression, PA – physical aggression, VA – verbal aggression, RA – relational aggression, SA – sexual aggression

LCA was used as the main analysis, with the aim of identifying the optimal number of classes with 10 indicators. Models ranging from two to seven classes were compared with each other. A summary of the model fit parameters for each solution is included in Table 2.

Table 2: Model fit indices for latent class analysis, *N*=1050

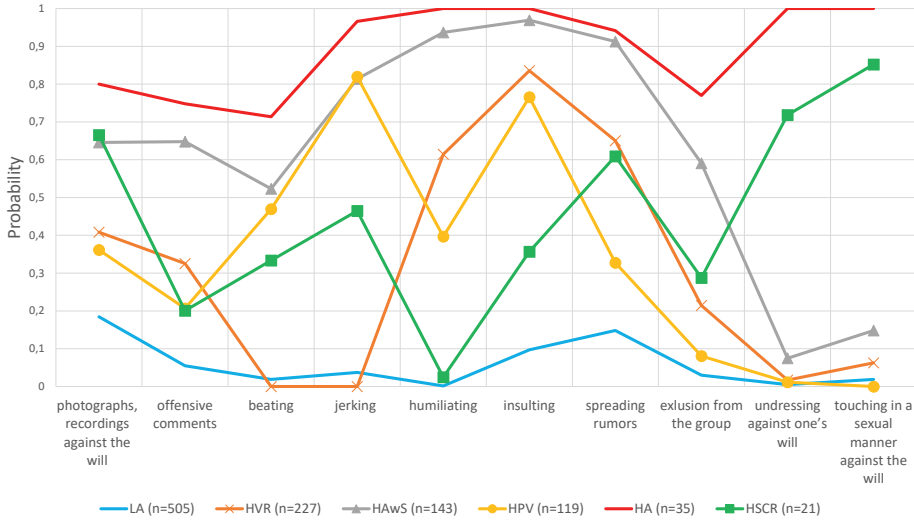
Model	LL	AIC	cAIC	BIC	SABIC	Entropy	Smallest class count (*n*)
1 class	–5600.28	11220.56	11280.13	11270.13	11238.37	–	1050
2 classes	–4770.09	9582.181	9707.27	9686.27	9619.57	0.81	415
3 classes	–4651.88	9367.758	9558.37	9526.37	9424.73	0.76	187
4 classes	–4595.41	9276.822	9532.95	9489.95	9353.38	0.76	113
5 classes	–4550.92	9209.832	9531.49	9477.49	9305.97	0.79	22
6 classes	**–4514.00**	**9158.001**	**9545.18**	**9480.18**	**9273.73**	**0.80**	**21**
7 classes	–4497.00	9146.004	9598.70	9522.70	9281.31	0.78	17

Note. LL = Log-likelihood; AIC = Akaike Information Criteria; cAIC = consistent Akaike Information Criteria, BIC = Bayesian Information Criteria; SABIC = Sample size-adjusted Bayesian Information Criteria; Entropy. The chosen solution is shown in bold.

The lowest value of the cAIC and BIC parameter was noted for the model with five classes, while the SABIC value was lowest in the solution with six classes. In general, the entropy values were similar in all models, but the two- and six-class solution came closest to the suggested value of 0.8 (Muthén, Muthén 2007). Based on the

parameters presented (i.e., SABIC and Entropy) and the substantive interpretive possibilities, the model with six classes was selected for further analysis (Figure 1).

Figure 1: Item endorsement probability for the six-class model obtained in Latent Class Analysis, LA = Low all; HVR = High verbal and relational; HAwS = High all without sexual; HPV = High physical and verbal; HA = High all; HSCR = High sexual, cyber and relational



The largest class (48.1%) is the group of students that can be described as those who do not experience aggression ("Low All"—LA; the probability of the "experienced" response here is low for all indicators). The second class (21.62%) can be described as those who experience mainly verbal and relational aggression, such as humiliation, insults, and gossip. The leading aspect is verbal aggression, hence this class will be described as those who experience mainly verbal and relational aggression ("High Verbal and Relational"—HVR). The third class (13.62%) is those who experience verbal, physical and cyber aggression, but do not experience sexual aggression ("High All without Sexual"—HAwS). The fourth class (11.33%) consists of students who experience physical and verbal aggression (i.e., traditional forms). Hereafter, this class will be referred to as "High Physical and Verbal"—HPV. Class five and six are the least numerous, at 3.33% and 2%, respectively. Class five ("High All"—HA) is distinguished

by the experience of all forms of aggression. It is similar to class three, except that the experience of sexual aggression is also present. Class six is made up of students who have mainly experienced sexual aggression in the form of being undressed and touched against their will and cyber aggression, as well as relational aggression in the form of gossip. This class will be labelled as "High Sexual Cyber and Relational"—HSCR.

The extracted classes were compared by sex ratio (Table 3). The result of the chi-square test is statistically significant, which indicates the presence of differences in the proportions between the classes. First, the Adjusted Standardized Residuals were analyzed according to the ± 2 rule of thumb, indicating significant differences between observed and expected values. The LA and HVR classes included more girls than expected, while the HAwS and HPV classes included more boys than expected. Using a Z-test with Bonferroni correction, the proportions of columns within sexes were compared to each other. The number of girls in the LA and HVR classes differed significantly from that reported in the HAwS and HPV classes. The HSCR and HA classes were not significantly different from the other classes.

Table 3: Class comparison according to gender, *N*=1050

	LA	HVR	HAwS	HPV	HA	HSCR	X^2	*V*
Female								
Observed	271_a	138_a	56_b	32_b	$18_{a.b}$	$10_{a.b}$		
Col%	53.7%	60.8%	39.2%	26.9%	51.4%	47.6%		
ASR	2.3	3.7	-2.8	-5.4	0.2	-0.2	45.51*	0.208
Male								
Observed	234_a	89_a	87_b	87_b	$17_{a.b}$	$11_{a.b}$		
Col%	46.3%	39.2%	60.8%	73.1%	48.6%	52.4%		
ASR	-2.3	-3.7	2.8	5.4	-0.2	0.2		

Note: LA = Low all; HVR = High verbal and relational; HAwS = High all without sexual; HPV = High physical and verbal; HA = High all; HSCR = High sexual, cyber and relational; ASR = Adjusted standardized residual;
*p<0.001.

Discussion and conclusions

Peer aggression, although quite common in peer relationships, requires action from adults to prevent it from escalating. The data collected in our study allowed a basic mapping of students' experiences of peer aggression and comparisons by gender. Students most frequently dealt with verbal aggression. This is consistent with the trend identified by other researchers (Coyle et al. 2021; Twardowska-Staszek et al. 2018). Our findings confirm the tendency for boys to experience direct aggression more often (Lundh et al. 2014): both manifestations of physical aggression and humiliation. In contrast, girls were more likely to experience gossiping, which is in line with reports from other studies (Bradshaw et al. 2013).

There were no statistically significant gender differences in experiencing sexual aggression, which is consistent with the trend captured in the study of McMaster et al. (2002) and in contrast to reports that indicate their presence (Kaltiala-Heino et al. 2018; Volk et al. 2006). In terms of cyber aggression, a difference was noted between girls and boys in one of its two manifestations (i.e., offensive comments/made fun). There were significantly more girls with this experience than boys, which is consistent with the study by Bradshaw et al. (2013) and the review of studies by Hamm et al. (2015). However, this finding should be interpreted with caution because many manifestations are usually included under the term cyber aggression in the form of a single question or a summary score obtained with the measurement tool, while in our study there were single manifestations.

Studies of peer aggression using LCA usually include experiences from the perspective of the victim and the perpetrator. For traditional and cyberaggression forms, four (Liu et al. 2020), through five (Coyle et al. 2021; Várnai et al. 2022), to even six classes (Chung, Lee 2020) can be identified. The findings of the above-mentioned studies can be used to interpret the results of our research but should be treated with caution because our study only considered the experience of the victim of aggression, without the role of the perpetrator.

Trends in five of the six classes identified in our study relate to certain patterns reported in other studies. We refer to the classes as follows: Low all (LA), High verbal and relational (HVR), High physical and verbal (HPV), High all without sexual (HAwS)

and High all (HA). The first of these tends to be the most numerous and appears in all analyses (Bradshaw et al. 2013; Coyle et al. 2021; Liu et al. 2020; Nylund et al. 2007). There were significantly more girls than boys in this class, which is compatible with the results of Polish studies in which boys were more likely to experience peer aggression and peer violence (Poszwa, Myślińska 2020; Twardowska-Staszek et al. 2018).

The HVR class, due to the leading aspect of verbal and relational aggression, shares similarities with the victim class from the study by Coyle et al. (2021), the "Verbal & rumors" and "Verbal & relational" classes from Bradshaw et al. (2013), the "sometimes experiencing aggression" class (Nylund et al. 2007), and the "moderate victims" class emerging from the study by Liu et al. (2020). It should be mentioned that there were significantly more girls in the HVR class, which is consistent with reports that girls are more likely to experience relational aggression (Lundh et al. 2014).

The HPV class is characterized by high rates of two manifestations of traditional forms of aggression (i.e., jerking and insulting). A similar class emerged among middle school students, but not among high school students in the study by Bradshaw et al. (2013). There are significantly more boys than girls in the HPV class, similarly as in Bradshaw et al. (2013), which may confirm reports of gender differences in experiencing direct aggression (Lundh et al. 2014).

The HAwS and HA classes resemble the "moderately victimized" and "aggressively victimised" (Ashrafi et al. 2020), and "victims" (Chung, Lee 2020) groups, except that sexual aggression was not measured in these studies. The classes that were identified in our research share a high rate of verbal aggression and an accompanying high level of relational aggression with the findings of the previously mentioned studies. What distinguishes our study is a significantly higher level of physical aggression compared to the rates reported by other researchers.

The HSCR ("High Sexual, Cyber and Relational") class identified in our study does not appear as a separate category in other studies known to us. The HSCR class combines experiences of three forms of aggression, of which the highest rate was recorded for sexual aggression. It is combined with experiencing acts of cyber aggression and gossiping, as a manifestation of relational aggression.

The analysis of our findings offers gain insight into the specific configurations of the experience of different forms and manifestations of aggression to provide a better understanding of the situation of the groups/classes that are targeted by preventive measures, although they should cover all students. This also applies to those in the LA class who are involved in peer aggression even though they do not declare having experienced it directly. The roles of aggressor as well as witness are also important (Várnai et al. 2022). However, in the context of the present research which focuses on the specificity of experiencing peer aggression, the key addressees of preventive measures are those located in the other classes.

The HVR class is so sizeable because verbal and relational aggression occurs most commonly (Waasdorp, Bradshaw 2015). However, one should not be tempted to normalize the phenomenon, especially given the size of this group (18.3% of respondents). Data presented in a meta-analysis by Kennedy (2020a) shows that bullying prevention programs are effective in terms of physical, relational and verbal aggression, excluding the latter in the United States.

It can be assumed that the other four classes include addressees of secondary prevention measures (i.e., selective and indicated), depending on the severity, duration and harm that occurred as a result of peer aggression. Individuals in the HAwS, HA and HSCR classes experience different forms of aggression, which confirms the tendency of co-occurrence of different forms (A. Arango et al. 2016; Chung, Lee 2020; Ulubas-Varpula, Björkqvist 2021), including of traditional forms of aggression and cyber aggression (A. Arango et al. 2016; Hamm et al. 2015; Twardowska-Staszek et al. 2018). It is worth mentioning that exposure, however sporadic, to cyber aggression should also attract attention because of the entrenched nature of the traces of this form of aggression (Pyżalski 2012).

Cyber aggression co-occurs with all types of aggression (HA class), with other types except sexual aggression (HAwS class), and with relational and sexual aggression (HSCR class). It is worth combining the prevention of traditional and cyber aggression. Therefore, when designing preventive measures, one should consider that cyber aggression involves the perpetrator's sense of anonymity and the presence of a so-called invisible audience, which increases its victimogenic potential (Pyżalski 2012).

Experiencing sexual aggression has not been part of previous LCA analyses (Ashrafi et al. 2020; Chung, Lee 2020), and the studies that have addressed this issue to some extent only referred to sexual comments (Bradshaw et al. 2013). Our results indicate that this form of aggression co-occurs with other forms, and this is reflected in the HA and HSCR classes. The HSCR class, due to the distinctive characteristics of the aggression experienced, may be more difficult to identify when compared to a class that contains all forms of aggression. Consequently, individuals in the HSCR class may be less likely to receive appropriate support.

More often, however, sexual aggression does not co-occur with other manifestations of aggression (HVR, HAwS, HPV classes), which may be related to the different risk pattern of experiencing it (Volk et al. 2006). Additionally, in the HSCR class, it is experienced significantly more often than cyber and relational aggression. These findings encourage treating manifestations of sexual aggression as distinctly separate. This justifies both embedding sexual aggression prevention in the field of broader social action (e.g., through the promotion of anti-violence norms or the strengthening of social skills) and activities directly related to sex education (Basile et al. 2016).

Summary, limitations and practical recommendations

In summary, students most often experienced verbal aggression (being insulted) and relational aggression (gossiping), and least often experienced manifestations of sexual aggression. Boys were more likely to report experiencing physical aggression and verbal aggression (being insulted), while girls reported being the target of gossip and cyber aggression (offensive comments). The experience of peer aggression is not homogeneous, as evidenced by the isolation of as many as six classes, with one class consisting of students who essentially do not experience aggression. Gender differences between classes were noted: LA and HVR classes (more girls) were significantly different from HAwS and HPV classes (more boys).

This study has several limitations. First, only the perspective of the victim of aggression was included in the questionnaire. Examining experiences in the role of the perpetrator would have provided even more insight into students' functioning. Second, although the

sample size is large, the survey was conducted in just one city. Future research should focus on reaching students in schools in small towns and villages. Third, an instrument of our own design was used in the survey. It would be advisable to include a validated tool with proven psychometric properties in future surveys so that, for example, international comparisons can be made, as pointed out by Twardowska-Staszek and Zych (2019).

The interconnectedness and partial overlap between risk factors and protective factors of the different forms and manifestations of aggression call for measures oriented towards the prevention of aggression and violence in general (Basile et al. 2016). Although there are gender differences in the experience of peer aggression and within the classes specified in the study, they are not substantial enough to justify targeting girls and boys differently with preventive measures. This approach is further supported by the high effectiveness of interventions which strengthen universal protective factors.

Moreover, if school staff and parents are made aware of a tendency for girls to experience indirect aggression more often and for boys to experience direct aggression more often, they could potentially become more attentive. This is particularly important from the perspective of preventing relational aggression, which is the most difficult to diagnose. However, it seems far more valuable to sensitize school staff, especially teachers, to the heterogeneity of the experience of different forms of peer aggression, as presented in our analysis. It is crucial to emphasize mental health promotion and to improve the detection of, and response to early manifestations of undesirable behavior and, ultimately, focus on the prevention of mental health disorders (C. Arango et al. 2018). Research confirms that the most effective programs are school-wide and incorporate complementary activities at all levels of prevention (Fraguas et al. 2021; Frankowiak 2017). Some even go beyond the school walls, and take the form of (for example) protective community environments (David-Ferdon et al. 2016). The search for appropriate solutions thus needs to consider the specific characteristics of the different groups of students who experience peer aggression.

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