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Disruptive behaviors in the classroom, a question of gender or of inadequate forms of coping?

Rocío Guil^{1,2} · Magdalena Holgado-Herrero^{1,2} · Paloma Gil-Olarte^{1,2} · Silvia González-Fernández^{1,2} · Anne-Marie Costalat-Founeau³ · Rocío Gómez-Molinero^{2,4}

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Abstract

Disruptive behaviors in the classroom are a cause of concern for schools and educational researchers because of their impact on the rhythm of the class, harming students and teachers. The literature links the use of different coping strategies with disruptive behavior, with controversy regarding the frequency in which boys and girls engage in them, as well as a differential use of problem-focused versus emotion-focused strategies within the sexes. This study aimed to explore the relationships between gender, coping strategies, and adolescent disruptive behaviors and to identify possible idiosyncratic profiles of students regarding gender and the typology of disruptive behaviors. A sample of 382 high school students from the city of Algeciras (Cádiz, Spain) completed the Hormigo et al. (2003) Questionnaire of Perception of Conflict Behaviors and the Spanish adaptation of the Cano et al. (2007) Coping Strategies Inventory. The results showed that problem-focused coping strategies predicted a lower frequency of disruptive behaviors, whereas emotion-focused coping strategies increased the frequency of disruptive behaviors regardless of gender. Three differentiated profiles of students have also been identified: two groups of boys (adolescents who frequently committed all types of disruptive behaviors and boys who engage less frequently in disruptive behaviors) and a group of girls, more homogeneous, who resemble the group of disruptive boys showing more aggression towards teachers and school material and slightly disobedient, and differing from both boys groups regarding aggression among students.

Keywords School violence · Coping strategies · Disruptive behaviors · Adolescents · Sex

Introduction

Educational centers are privileged spaces for harmonious coexistence. However, their peaceful atmosphere is often interrupted by a succession of Disruptive Behaviors (DB) hindering and (or) distorting the educational work (Gaeta González et al., 2020).

The United Nations (UNESCO, 2018) reports that one-third of adolescents worldwide have experienced events of violence in their schools. This violence, in and around schools, undermines learning and negatively impacts physical and mental health, preventing inclusive and equitable quality education. In Spain, the PISA 2018 Report (Programme for International Student Assessment) shows that

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almost 17% of 15-year-old students have been bullied at school (OECD, 2019). Meanwhile, according to the III Report of the Foundation for the Support of Children and Adolescents at Risk (Fundación ANAR, 2021), cases of bullying have increased from 43.7% in 2018–2019 to 72.4% in 2020–2021. In cases of peer bullying, boys are identified as aggressors more than twice as often as girls (18.65% for boys compared to 8.03% for girls), with peers mainly from their class (18.65%) and from other classes (13.42%) predominating (Fundación ANAR, 2021). Finally, the international TALIS 2018 report, published by the National Institute for Educational Assessment, shows that maintaining order in the classroom consumes 16% of class time, higher than the European average (Miranda Bolaños & Trigo García, 2019), wasting teaching time and hindering students' active participation (Goodnight et al., 2021; OECD, 2019).

This reality requires actions that, based on scientific evidence, provide indicators on which to work from schools in order to reduce this worrying situation and facilitate the educational work. Although most research focuses on studies of peer bullying (Penalva López, 2018), different behaviors have also negative consequences for both students and teachers (Ahumada, 2017). In this context, DB is defined as “any student behavior that interferes, disturbs, interrupts and prevents teachers from performing their educational work” (Gómez & Cuña, 2017, p. 279).

The literature has shown controversy regarding the relationship between sex and the prevalence of DB in students, as well as high variability in its typology. Some studies postulated a higher prevalence of violent acts in boys (Driessen, 2011; Elgar et al., 2015), who are more restless, disruptive, and troubled (Glock & Kleen, 2017), with more physical violence (Gómez-Nashiki, 2017), absenteeism from school, problematic relationships with teachers, and more disruptive relationships than girls (Geven et al., 2017; Hadjar & Buchmann, 2016; Murillo & Hernández-Castilla, 2011). In addition, girls tend to be more proactive and less disruptive (Driessen, 2011) and place more emphasis on positive coexistence (Murillo & Hernández-Castilla, 2011), although with more shy and introverted behavior (Glock & Kleen, 2017) or verbal actions (Wincentak et al., 2017). In contrast, other research showed a sex-equalizing trend, with no differences in DB when students reported directly (Jurado de los Santos & Tejada Fernández, 2019), or that girls show slightly higher levels of DB than boys (Dominguez-Alonso et al., 2019). This apparent contradiction may be because boys exhibit fewer but more intense violent actions, while girls engage in more but less violent events (Currie et al., 2007; Schrock & Schwalbe, 2009).

Also, in educational contexts, Coping strategies (CS) are particularly relevant for preventing and resolving conflicts, a transcendental aspect for optimal personal and social functioning.

Moreover, adolescence is one of the developmental periods in which it is essential to have effective tools to face and resolve interpersonal problems and conflicts (Mestre et al., 2012).

Lazarus and Folkman (1984, p. 141) defined CS as “constantly changing cognitive and behavioral efforts to manage specific external and (or) internal demands appraised as taxing or exceeding the resources of the person”. According to their perspective, these strategies allow us to act on the problem and modify the emotional responses produced.

Lazarus and Folkman (1984) proposed two coping styles, with their corresponding strategies: 1) Problem-Focused CS: modifying the problem situation to make it less stressful, including Problem-Solving, Cognitive Restructuring, Desiderative Thinking, and Problem Avoidance. 2) Emotion-focused CS: reducing the tension, physiological activation, and emotional reaction, including Emotional Expression, Social Support, Self-Criticism, and Social Withdrawal (Folkman et al., 1986). In general, Problem-Focused CS are used when the environmental conditions causing stress are assessed as amenable to change. Emotion-Focused CS are employed when helplessness is experienced (Abbott et al., 2008).

Relevant literature suggests that less aggressive adolescents use more frequent Problem-Focused CS, show greater awareness of social norms, and exhibit higher levels of adaptive behaviors and psychological well-being (Figueroa et al., 2005; Uribe Urzola et al., 2018).

Concerning possible sex differences, boys are more likely to use Problem-Focused CS, while girls more frequently engage in Emotion-Focused CS (Martínez et al., 2011; Puigbó et al., 2019). These differences are attributed to the different socialization patterns of boys and girls (Puigbó et al., 2019). Thus, boys are asked to inhibit emotions, show stronger emotions, and focus on problem-solving, while free expression of emotions is more normalized among girls (Deocano et al., 2021).

Therefore, given the increasing incidence of DB in the classroom (Fundación ANAR, 2021; Sequera-Molina, 2021) and its possible negative impact on the physical, psychological, and social aspects of the protagonists of the educational process and the quality of education, this research proposes: 1) To explore the explanatory and predictive capacity of sex, CS and the possible interaction between them on adolescent DB (Disobedience, Aggression toward professors, Aggression among students, and Aggression toward material), as well as the processes by which this influence occurs. On the other hand, given the discrepancy found in the literature concerning possible differences in the frequency of DB depending on the sex of the adolescents, we set ourselves the second objective: 2) To identify the existence of idiosyncratic profiles of students concerning their sex and frequency of different typology of DB.

Hypotheses

Based on these aims, we proposed the following hypothesis: 1) Sex and CS will explain and predict, directly and (or) indirectly, the frequency of behaviors of Disobedience, Aggression toward professors, Aggression among students, and Aggression toward material. 2) Within each sex, we will find differentiated patterns of Disruptive Behaviors.

Method

Participants

Participants were 382 adolescents, 131 females (32.24%) and 251 males (65.71%) aged 11 to 17 years ($M=13.88$, $SD=1.345$), recruited from three High Schools in Algeciras (Cádiz, Spain): public, private, and subsidized, through a convenience sampling. Regarding the study course, 119 participants were in 1st grade (31.15%), 107 in 2nd grade (28.01%), 87 in 3rd grade (22.77%) and 69 in 4th grade (18.6%). We collected data at the end of the second trimester of the 2018–2019 academic year. The inclusion criteria of the sample were as follows: i) adolescents whose parents have signed the informed consent; ii) participants with a level of reading and writing that will enable understanding of the measuring instruments used; and iii) students were enrolled in courses between 1st and 4th of ESO with a maximum of 17 years old. Exclusion criteria: i) subjects with limitations due to intellectual disability or language. All participants completed all the questionnaires.

Procedure

An ex post facto and cross-sectional study was used to measure and detect the relationships between the variables assessed.

The data regarding all the Secondary Education Centers of Campo de Gibraltar was obtained through the Subdelegation of the Government of the Andalusian Regional Government. All Centers were contacted by email and telephone to discuss the details of the study. Despite 17 Centers were contacted, only three agreed to take part in the research. Information regarding the study aims and assessment tools was sent to each of the three Center directors. The teachers informed the parents in an information session held at the beginning of the course about the research goals, and their consent was requested. All parents allowed their children to participate in the study. The questionnaires were administered in two-hour-and-a-half sessions during November and December. All participants completed the questionnaires individually through Google Forms in the computer room

of the schools. Teachers and the researcher provided support where required and ensured confidentiality/independence of responding. The average completion time was 1:30 h.

The study was conducted following the Declaration of Helsinki (World Medical Association, 2001) and approved by the School Principals. Parents or guardians signed the informed consent form, and we arranged an appointment with the teachers who voluntarily participated in the research.

The data analyzed are not publicly available due to ethical or privacy restrictions but are available upon reasonable request.

Instruments and variables

Socio-demographic variables Age and sex were assessed through an ad hoc questionnaire with other socio-demographic data.

Coping strategy inventory In this study the Coping Strategies Inventory (CSI, Tobin et al., 1989) was employed, adapted into Spanish by Cano et al. (2007). This instrument assesses 8 CS that people use in stressful situations. Participants have to answer 40 items rated on a five-point Likert scale ranging from 0 (not at all) to 4 (completely).

Items tap eight coping dimensions grouped into two styles:

- Problem-solving: Behavioral and cognitive processes to discover, analyze, and solve problems, and thus, eliminate stress by modifying the stress-provoking situation. The dimension showed adequate reliability ($\alpha=0.82$).
- Cognitive restructuring: Cognitive strategies that modify the meaning of the stressful situation, moving from a negative to a positive plane. The dimension showed adequate reliability ($\alpha=0.83$).
- Desiderative thinking: Cognitive strategies reflecting the wish that reality was not stressful. The dimension showed adequate reliability ($\alpha=0.83$).
- Problem avoidance: Strategies of denial and avoidance of thoughts or actions related to the stressful event, i.e., trying to avoid thinking about or giving importance to stressful events. The dimension showed adequate reliability ($\alpha=0.83$).

* Emotion-focused CS:

- Emotional expression: Strategies used to release and communicate the emotions that arise during the stress process. The dimension showed adequate reliability ($\alpha=0.84$).
- Social support: Strategies focused on seeking emotional support and social contact with significant people close

to them (friends, family, peers). The dimension showed adequate reliability ($\alpha=0.83$).

- Self-criticism: Strategies based on self-blame and self-appraisal from the stressful event inadequate handling. The dimension showed adequate reliability ($\alpha=0.84$).
- Social withdrawal: a strategy based on avoiding communication and expression with one's immediate environment, thereby distancing oneself from friends, family, colleagues, and significant people associated with the emotional relationship in the stressful process. The reliability of this dimension in this study was $\alpha=0.85$.

Disruptive behavior perception questionnaire The level of DB at school was assessed using the Disruptive Behavior Perception Questionnaire (Hormigo et al., 2003). This scale is composed of 29 items and provides information about the frequency with which students engage in DB. Responses were collected on a 4-point Likert scale from 1 (never or almost never) to 4 (always or almost always). The dimensions included are:

- Disobedience: includes non-compliance with school and teacher rules. The reliability of this dimension was $\alpha=0.8$.
- Aggression toward professors: includes physical and/or verbal aggression toward teachers. The reliability of this dimension was $\alpha=0.62$.
- Aggression among students: includes physical and/or verbal aggression among peers. The reliability of this dimension was $\alpha=0.83$.
- Aggression toward materials: includes aggression toward school materials. The reliability of this dimension was $\alpha=0.85$.

Statistical analyses

Preliminary analyses were carried out to compute descriptive statistics and internal consistencies.

To explore the explanatory and predictive capacity of sex, CS, and the possible interaction between them on adolescent DB, as well as the processes through which such an influence occurs, mediation analyses were performed using Model 4 in the PROCESS tool (Hayes, 2017). Simple mediation analyses aim to establish how the predictor variable (sex) influences an outcome variable (frequency of DB) through one or more mediating variables (CS). Due to behavioral differences between younger and older adolescents in the teenage period, age was incorporated. In addition, as a statistical significance criterion, we used a bootstrapping method using 10,000 replications of the original sample and

considering a 95% confidence interval and, thus, assessing the significance of the mediating effects.

Then, we performed a two-stage cluster analysis by introducing sex and DB frequency (Disobedience, Aggression toward professors, Aggression among students, and Aggression toward material) to discover the natural groupings of a data set. Finally, a one-way analysis of variance (ANOVA) was performed using Tukey's post hoc test to compare groups and determine significant differences between the clusters found. To check the effect size of the ANOVA, Cohen's *d* was calculated considering: a small effect (values between 0.20 and 0.30), a medium effect (around 0.50 and 0.80), and a large effect (more than 0.80).

The analyses were carried out using IBM SPSS v. 22 (IBM Corp, Chicago, IL, USA) and the PROCESS macro (Hayes, 2017).

Results

Table 1 displays reliability coefficients (Cronbach's alpha) and descriptive statistics (means and standard deviation) between all the study variables for the total sample and the group of boys and girls separately. Internal consistencies of all instruments administered were above 0.70, except for Aggression among students, which scored 0.62. Descriptive statistics indicate that girls and boys showed average levels in all CS and average frequency of DB.

To accomplish the first goal, four mediation analyses were performed to determine how the different CS mediated the relationship between sex and the DB evaluated. The mediation model 1, with the path coefficients for the dependent variable Disobedience, is summarized in Online Resource 1.

The variance explained by the global mediation model 1 was 14.63% ($R^2=0.146$; $p<0.001$). The analysis revealed that sex explained 4.57% ($R^2=0.046$; $c=-.214$; $p<.001$) of the variance of Disobedience, with 10.06% attributed to direct or indirect effects of CS of both sexes ($R^2=0.10$; $c'=-.189$; $p<.01$). The indirect effect was not statistically significant, which indicated that CS did not mediate the relationship between sex and Disobedience. Considering the direct effects, we found a positive predictive association between sex and Disobedience ($c'=-.189^{***}$, $p<.001$), which indicated that being a boy predicted a lower frequency of Disobedience. In addition, four CS (Emotional expression, Social withdrawal, Problem avoidance, and Desiderative thinking) were associated with Disobedience regardless of the effect of sex. Specifically, the Emotion-focused CS, Emotional expression ($b_2=.027$, $p<.001$) and Social withdrawal ($b_3=.016$, $p<.05$), increased Disobedience; while the Problem-focused CS, Problem avoidance

Table 1 Descriptive statistics of all the variables included in the study for the total sample, and for the group of boys and girls separately

	α	Total sample		Girls		Boys	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Sex							
Age		13.88	1.35				
Problem-solving	0.80	11.49	4.45	11.27	4.51	11.60	4.43
Cognitive restructuring	0.79	10.16	4.16	10.08	4.26	10.2	4.11
Desiderative thinking	0.84	11.63	4.92	11.56	4.57	11.66	5.09
Problem avoidance	0.74	10.83	4.22	10.99	4.32	10.75	4.17
Emotional expression	0.82	10.01	4.45	10.38	4.51	9.81	4.42
Social support	0.84	12.21	5.04	12.44	5.26	12.09	4.93
Self-criticism	0.78	8.26	3.66	8.15	3.33	8.32	3.83
Social withdrawal	0.72	8.99	3.79	9.28	3.77	8.84	3.80
Disobedience	0.83	1.83	0.48	1.97	0.37	1.76	0.51
Aggression toward professors	0.62	1.66	0.53	1.84	0.37	1.562	0.58
Aggression among students	0.80	2.09	0.55	2.07	0.35	2.092	0.62
Aggression toward materials	0.71	1.672	0.57	1.78	0.50	1.62	0.60

($b_7 = -.015$, $p < .05$) and Desiderative thinking ($b_8 = -.022$, $p < .001$) reduced them. Age was not significant.

Considering Aggression toward professors, the mediation model 2 with the path coefficients is displayed in Online Resource 2.

The variance explained by the global mediation model 2 was 14.25% ($R^2 = 0.143$; $p < .001$). Sex explained 6.26% ($R^2 = 0.063$; $c = -.280$; $p < .001$) of the variance in Aggression toward professors, although 7.99% was attributed to direct or indirect effects of CS in both sexes ($R^2 = 0.080$; $c' = -.258$; $p < .001$). Again, the indirect effect was not statistically significant, which indicated that CS did not mediate the relationship between sex and Aggression toward professors. Considering the direct effects, we found a positive predictive association between sex and Aggression toward professors ($c' = -.258$; $p < 0.001$) indicative that being a boy predicted a lower frequency of Aggression toward professors. In this case, three CS were associated with Aggression toward professors regardless of the effect of age. The Emotion-focused coping strategies, Emotional expression ($b_2 = .024$, $p < .01$) and Self-criticism ($b_4 = .021$, $p < .05$) presented a positive relationship. The Problem-focused strategy, Desiderative thinking ($b_8 = -.020$, $p < .01$) had a negative one. Age was not significantly associated with Aggression toward professors.

Regarding Aggression among students, the mediation model 3 with the coefficients paths is summarized in Online Resource 3.

The variance explained by the global mediation model 3 was 7.69% ($R^2 = 0.077$; $p < .001$). The analysis revealed that sex did not statistically significantly explain the variance in Aggression among students ($R^2 = 0.02$; $c = -.017$). Similarly, the indirect effect was not statistically significant, indicating that CS did not mediate the relationship between sex and Aggression among students. Attending to direct effects, two

of the CS were associated with Aggression among students regardless of the effect of sex. The Emotion-focused coping strategy, Emotional expression, showed a positive relationship ($b_2 = .025$; $p < .01$) while the Problem-focused CS, Desiderative thinking, had a negative one ($b_8 = -.032$; $p < .001$). Again, age did not significantly predict this DB.

Finally, the mediation model 4 with the path coefficients regarding Aggression toward material is displayed in Online Resource 4.

The variance explained by the global mediation model 4 was 9.37% ($R^2 = 0.094$; $p < .001$). Sex explained 1.62% ($R^2 = 0.162$; $c = -.153$; $p < .05$) of the variance of Aggression toward material being 7.75% attributed to direct or indirect effects of CS ($R^2 = 0.078$; $c' = -.135$; $p < .05$) in both sexes. Again, the indirect effect was not statistically significant, indicating that CS did not mediate the relationship between sex and Aggression toward material. Regarding the direct effects, we found a positive predictive association between sex and Aggression toward material ($c' = -.135$; $p < .001$) indicating that being a boy predicted a lower Aggression toward material. In the same line, the strategy focused on emotion, Social support ($b_1 = .017$; $p < .05$) showed a positive relationship with Aggression toward material. The Problem-focused CS, Cognitive restructuring ($b_6 = -.021$, $p < .05$), Problem avoidance ($b_7 = -.017$; $p < .01$), and Desiderative thinking ($b_8 = -.025$; $p < .01$) displayed a negative one. In addition, age showed a negative relationship with Aggression toward material regardless of the effect of sex ($b_9 = -.046$, $p < .05$), indicating that older age predicts less Aggression toward material.

Finally, concerning our second objective, the two-stage cluster was carried out to explore the possible DB profiles according to sex (categorical variable). The frequencies of the four DB typologies (continuous variables) were introduced as indirect indicators of the cluster attributes. The

resulting model indicated the formation of three clusters. The cluster quality graph showed that the result is good (average silhouette > 0.5) (Fig. 1).

Figure 2 illustrates the variables evaluated in the rows and the clusters in the columns, showing three different profiles:

- Group 1 (N = 119; 31.2%). Boys with reduced levels of Disobedience (M = 1.36), Aggression toward professors (M = 1.19), Aggression among students (M = 1.61), and Aggression toward materials (M = 1.21).
- Group 2 (N = 133; 34.8%). Boys with the highest levels of Disobedience (M = 2.13), Aggression toward professors (M = 1.9), Aggression among students (M = 2.53,) and Aggression toward materials (M = 1.99).
- Group 3 (N = 30; 34.0%). Girls with a high level of Disobedience (M = 1.97), average Aggression toward professors (M = 1.83), and high levels of Aggression among students (M = 2.06) and Aggression toward materials (M = 1.76).

To determine if the differences between the three groups were statistically significant, a one-way ANOVA was performed, finding statistically significant differences between the four variables: Disobedience ($F(2,381) = 172.65; p < .001$), Aggression toward professors ($F(2,381) = 105.25; p < .001$), Aggression among students ($F(2,381) = 169.42; p < .001$) and Aggression toward materials ($F(2,381) = 88.76; p < .001$).

- (1) Children with higher levels of DB (cluster 1) differed significantly from children with low levels (cluster 2) in the four variables: Disobedience ($p < .001$), Aggression toward professors ($p < .001$), Aggression among students ($p < .001$) and Aggression toward materials ($p < .001$). Cohen's d showed a strong effect for Disobedience ($d = 2.343$; $[-0.87-0.66]$ 95% CI), Aggression toward professors ($d = 1.58$; $[-0.84-0.59]$ 95% CI), Aggression among students ($d = 2.16$; $[-1.04-0.80]$ 95% CI) and Aggression toward materials ($d = 1.69$; $[-0.92-0.64]$ 95% CI).

Model Summary

Algorithm	TwoStep
Inputs	5
Clusters	3

Cluster Quality

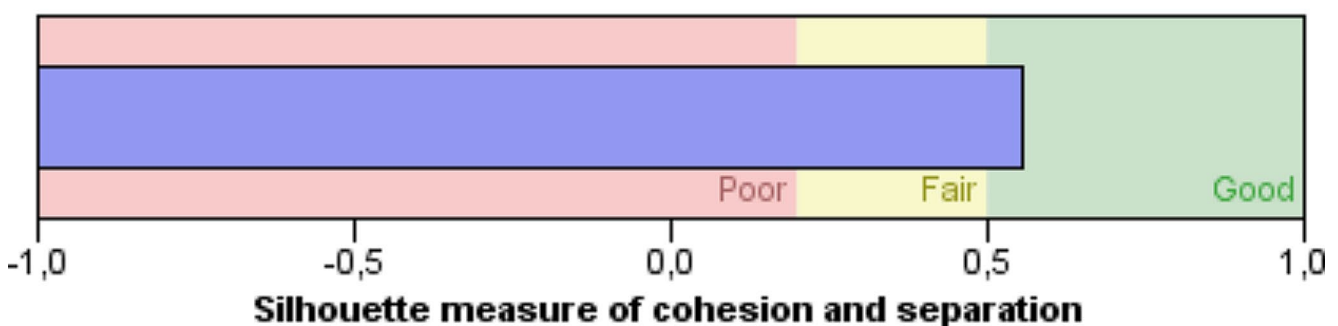


Fig. 1 Cluster model summary including average silhouette measure

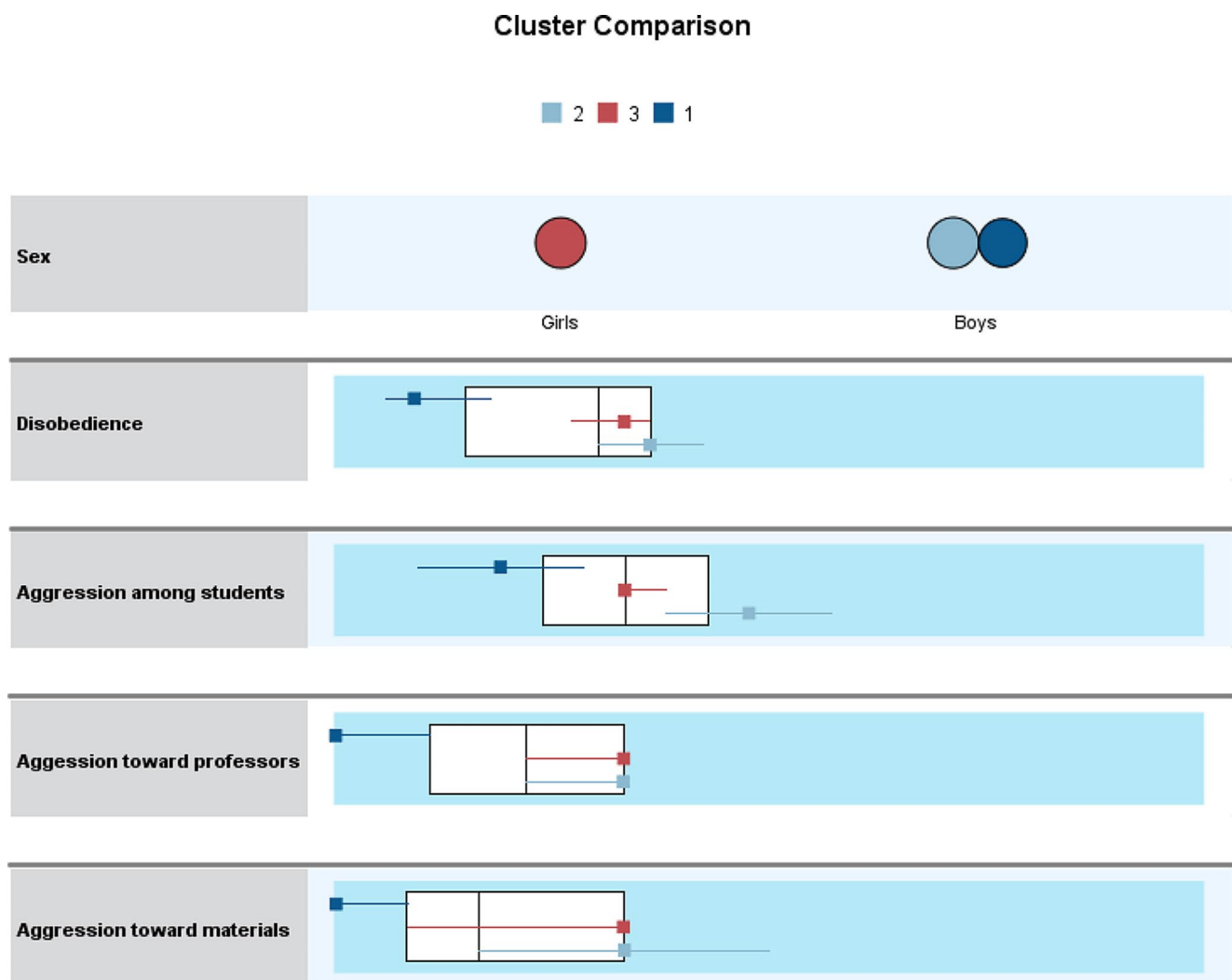


Fig. 2 Comparison of clusters regarding sex and disruptive behaviors

- (2) Boys with higher levels of DB (cluster 1) differed significantly from girls (cluster 3) who showed lower levels in the four variables: Disobedience ($p < .000$), Aggression toward professors ($p < .000$), Aggression among students ($p < .000$) and Aggression toward materials ($p < .000$). Cohen's d demonstrated a strong effect for Disobedience ($d = 1.92$; $[-0.71--0.51]$ 95% CI) and Aggression toward professors ($d = 2.05$; $[-0.77--0.51]$ 95% CI), and a mean effect for Aggression among students ($d = 1.29$; $[-0.57--0.33]$ 95% CI) and Aggression toward material ($d = 1.38$; $[-0.68--0.40]$ 95% CI).
- (3) Boys with low levels of DB (cluster 2) differed significantly from girls (cluster 3), who showed higher scores in Disobedience ($p < .001$), Aggression among students ($p < .000$), and Aggression toward material ($p < .000$) and without significant differences in Aggression toward professors ($p < .294$). Cohen's d showed a strong effect for Aggression among students ($d = 1.15$; $[0.36--0.59]$ 95% CI) and a small to medium effect for Disobedience ($d = 0.42$; $[0.05--0.26]$ 95% CI), and Aggression toward materials ($d = 0.44$; $[0.10--0.37]$ 95% CI).

These results confirmed significantly different profiles between boys with higher and lower frequencies of DB and girls with intermediate values. This finding suggests that, given the high variability in the frequency of the DB of boys, analyzing them as a homogeneous group differentiated from girls can lead to interpretative errors.

Discussion

The main objective of this study was to explore the direct and (or) indirect explanatory and predictive capacity of sex and CS on the frequency of different types of DB, as well as

to examine the idiosyncratic profile of the students concerning the different DB and their sex.

Our descriptive results showed that girls and boys presented medium levels of Aggression toward professors, among students, toward materials, and Disobedience. However, we found slightly higher mean values in girls in all DB evaluated, except for Aggression among students, where our findings showed slightly higher values in boys. These results, in line with UNESCO data (2018), confirmed that the majority of the students evaluated recognized that they have experienced violent events in their schools. They are also in line with data from the Fundación ANAR (2021), which highlights that in cases of bullying between students, boys are identified as aggressors more frequently than girls (Fundación ANAR, 2021), as well as those that confirm a higher prevalence of these acts among boys compared to girls (Elgar et al., 2015; Geven et al., 2017; Gómez-Nashiki, 2017; Hadjar & Buchmann, 2016). The data are also in line with those studies that are controversial about the relationship between sex and the prevalence of disruptive behaviours, as girls report a higher frequency of some disruptive behaviours, while boys report a higher frequency of others (Domínguez-Alonso et al., 2019). These findings reinforce the idea that it is necessary to explore different typologies of conflictive adolescents without necessarily considering their sex.

Regarding CS assessed, students show adequate levels, although girls reported report more frequent use of Problem-focused CS (Problem avoidance) and Emotion-focused CS (Emotional expression, Social support, and Social withdrawal). On the other hand, boys outperform girls in the use of Problem-focused CS (Problem-solving, Cognitive restructuring, and Desiderative thinking), as well as the Emotion-focused coping strategy (Self-criticism). These results are in line with research that suggests that boys are more likely to use Problem-focused CS, while girls are more likely to use Emotion-focused CS (Martínez et al., 2011; Puigbó et al., 2019). However, our results suggest that both boys and girls use both types of strategies.

The results of the mediation analyses seemed to confirm our first hypothesis, supporting that sex and CS globally explained a percentage of each of the DB studied. However, after the evaluation of the direct and indirect influence of sex and CS on DS, we found various results.

Concerning the influence of sex, our results showed that sex explained 4.57% of Disobedience, 6.26% of Aggression toward professors, 1.62% of Aggression toward materials, and no percentage of Aggression among students. Thus, girls engaged more frequently in Disobedience, Aggression toward professors, and toward materials, but not in Aggression among students, which does not seem to be related to sex. These findings are not consistent to the data provided

by Fundación ANAR (2021) or with the studies that indicate that boys are more restless and disruptive (Glock & Kleen, 2017), while girls tend to be more proactive and less problematic (Driessen, 2011). On the contrary, once again, our results expand existing knowledge regarding the influence of sex on DB and reinforce the need to explore possible profiles of disruptive adolescents regardless of their sex.

Regarding the influence of the use of CS, their influence on some DB is confirmed regardless of the sex of the students:

1. Higher use of Emotion-focused CS, Emotional expression and Social withdrawal, predicted an increase in Disobedience while higher use of Problem-focused CS, Problem avoidance and Desiderative thinking reduced it. These findings are in line with contributions suggesting that adolescents who use Problem-focused CS are more efficient, aware of social norms, and tend to avoid situations that are unpredictable for them, thus facilitating better adjustment in the area of discipline problems (Figueroa et al., 2005; Griffith et al., 2000). Furthermore, as Abbott et al. (2008) noted, Problem-focused CS are applied when stressful environmental conditions are perceived as susceptible to change, as opposed to Emotion-focused CS used in situations of helplessness.
2. Higher use of Emotion-focused CS, Emotional expression and Self-criticism, predicted an increase in the frequency of Aggression towards professors, while the use of Problem-focused coping strategy, Desiderative thinking, reduced it. Thus, our findings seem to display that Problem-solving strategies lead to lower levels of aggression (Mestre et al., 2012), which would favor a good climate of coexistence, allowing students to establish good relationships in which dignity and respect for humans rights are considered essential (Uruñuela, 2016).
3. Higher use of Emotion-focused CS, Emotional expression, predicted an increase in the frequency of Aggression among students, while greater use of the Problem-focused CS, Desiderative thinking, reduced it. These findings, in turn, are consistent with Mestre et al. (2012), who found in a sample of 1557 boys and girls that the most aggressive students were characterized by unproductive coping, which groups another less effective or maladaptive coping, such as escaping from the situation, evading, attacking, or producing an emotional response.
4. Finally, a higher use of the Emotion-focused CS, social support, predicted an increase in the frequency of Aggression toward materials, whereas a higher use of the Problem-focused CS, Cognitive restructuring, Problem avoidance, and Desiderative thinking, predicted a

lower frequency of this type of DB. These results could be explained because Aggression towards material is carried out to achieve a certain notoriety or recognition by the group (Galtung, 1998). Thus, according to Torner (2017), “a vandalism action, therefore, becomes an action that revindicates the role of the person who does it, since it can reinforce the members of the equals who are participants in the vandalism act” (p. 182). In addition, the derivations produced by inadequate social support from people’s social networks can increase the level of stress and make it difficult to implement appropriate coping responses (Lehman et al., 1999).

Finally, our results confirmed that sex did not predict the frequency of the use of CS. These findings did not coincide with the results that highlighted that, due to differential socialization patterns (Puigbó et al., 2019), men use problem-solving strategies more frequently while women use emotion-focused ones (Martínez et al., 2011; Puigbó et al., 2019). However, these traditional patterns may be changing. In this sense, boys do not have to inhibit their emotions to show themselves strong and Problem-solving focus, allowing them to express themselves as girls do.

Our second hypothesis is also confirmed, given that the cluster analysis revealed the existence of 3 differentiated groups: i) boys with low levels of DB (low Disobedience, Aggression toward professors, among students, and materials); ii) boys with high levels of Disobedience, Aggression among students and materials, and iii) girls with high levels of Disobedience, Aggression among students, and materials and medium levels of Aggression toward professors. In this sense, our findings were not in line with previous evidence since the literature has shown only two profiles regarding DB, one for girls with low levels of all types of aggression and the other for boys with high levels of Aggression toward professors, materials, and Disobedience. However, regarding aggression toward professors, our results seem to show that this type of DB is more predominant in boys, showing average levels in girls. Even though the majority of the available data indicates that most of the aggressors are boys, there is also evidence showing that girls, still to a lesser extent, increasingly report higher levels of DB in school (Glock & Kleen, 2017; Oñate & Piñuel, 2007), thus matching sexes, but with a different frequency and (or) intensity of DB (Currie et al., 2007; Schrock & Schwalbe, 2009). In addition, previous research does not contemplate the possibility that different behavior profiles are found within the same sex (Elgar et al., 2015; Geven et al., 2017; Gómez-Nashiki, 2017; Hadjar & Buchmann, 2016). Due to the tendency to equalize socialization processes by sex, more studies are needed to explore these differentiated idiosyncratic profiles.

Conclusions

This study highlights the importance of addressing both sex and the use of problem-focused CS to reduce the incidence of DB in adolescents at school and confirms that boys are not more disruptive than girls. Regarding boys, we found two distinct groups: one comprising males, who are more likely to engage in all kinds of DB (disruptive boys), and the other group, including boys who are less likely to do so. The girls seem to be a more homogeneous group—resembling the disruptive boys—being more Aggressive toward professors and materials and a little Disobedient, although not as much as the disruptive boys. Girls differ from both boys groups, showing intermediate levels of Aggression among students. On the other hand, it seems to be confirmed that boys tend to use Problem-focused CS, while girls are more likely to use Emotion-focused CS. However, our findings suggest that both boys and girls use both types of strategies.

Regardless of the adolescent’s sex, the use of Problem-focused CS predicts a lower frequency of the different DB assessed, whereas the use of Emotion-focused CS seems to increase them. Knowledge of the specific CS that reduces or increases this type of behavior enables the implementation of educational programs in educational Institutions for both boys and girls, focusing on training in the use of the former and reducing the latter. Undoubtedly, this would facilitate a harmonious coexistence in the classroom, which is valuable for learning activities inducing positive impact on the physical and mental health of the entire educational community, offering a more inclusive, equitable, and higher-quality education.

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Data availability The data analysed are not publicly available due to ethical or privacy restrictions but are available upon reasonable request.

Declarations

Ethical approval The study was conducted in accordance with the Declaration of Helsinki (World Medical Association, 2001) and approved by the School Principals.

Informed consent Informed consent was obtained from school principals or representatives, parents/guardians, and adolescents included in the study.

Conflict of interest The authors declare that there is no conflicts of interest.

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