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School climate and students' disruptive behavior: Perceptions of school professionals

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Abstract

School climate (SC) reflects the culture and norms of the school community, being a potential factor linked to students' disruptive behavior (DB). This study intended to characterize the Portuguese school professionals' perception on SC, analyzing the connections to the students' DB. Another objective was to explore the differences on SC based on the functions of school professionals and school geographic location. An exploratory study with 333 school professionals was carried out. Concerning SC, the participants were asked about *environmental-structural* and *relationships*, while absenteeism, behavior problems, and incivilities were included in the students' DB. Overall, the participants generally reported positive perceptions about SC. Differences were observed on DB, based on SC ratings. The participants rating poorer environmental-structural and relationships tended to report more DB. SC differed according to the school geographic location and to functions of school professionals. Additional research about the implications of SC on students' DB is needed to develop preventive strategies.

Keywords School climate (SC) · Perception of school professionals · Students' disruptive behavior (DB) · Environmental-structural · Relationships

Introduction

Notwithstanding the lacking consensus on literature about the concept of school climate (SC) (e.g., Aldridge & McChesney, 2018), perceived as related to the quality and nature of school life with regard to conveyed standards and values, interpersonal relationships and social partnerships, organizational, structural processes and cultural aspects (Wang & Degol, 2016). Indeed, SC has been considered a multidimensional construct (Lewno-Dumdie et al., 2019), integrating the most diverse characteristics observable in schools, the organizational behavior of the different school professionals, as well as the values shared between students and educational agents (Kuperminc et al., 1997). Accordingly, SC is a crucial factor in school life, able to regulate socially acceptable behaviors at school, which, in turn, can influence and shape the

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interactions between all members of the school community, i.e., students, teachers and parents, as well as their development at different levels (Orozco-Solis et al., 2016). Different factors could affect SC, such as the place where the school is implanted, the size of the school, the number of students, or specialization of the school, e.g., languages, sport, etc. (Kvintová et al., 2018).

Some models of SC have been proposed (e.g., Cohen et al., 2009; National School Climate Center [NSCC], 2012; Thapa et al., 2013). Four main dimensions have been identified and associated with SC: i) safety, referring to physical and emotional security, rules and norms existing in the school (Thapa et al., 2013); ii) teaching and learning, involving both the type of support inherent in the learning process and the quality processes underlying educational, social, emotional and ethical learning (e.g., Cohen et al., 2009); iii) relationships, involving the type of (positive) relationships between students and the school community, the degree of involvement and motivation, articulation and collaboration with the school community (e.g., Cohen et al., 2009); iv) environmental-structural, including satisfactory preservation of the school space, adequate space and materials, aesthetic quality and size of the school, curricular and extracurricular activities (Cohen et al., 2009), school connectedness/engagement, physical layout and surroundings (NSCC, 2012; Thapa et al., 2013). A meta-analytical review developed by Reaves et al. (2018) documented that consistence exists among the different works developed in the area of SC dimensions. In the present study, only two of the above-mentioned dimensions of SC will be focused: i) *environmental-structural* (e.g., access, space and materials; aesthetic quality and size of school; curricular and extracurricular offerings and ii) *relationships*, specifically involving the school community and collaboration (e.g., type of support and ongoing communication; commitment to school). In effect, the research has been demonstrating that there is a relationship between the institutional environment, interpersonal relationships and disruptive behavior (DB) in school. The same does not occur with safety, teaching and learning dimensions, as they were not equally considered in other studies (Reaves et al., 2018) on this topic. In fact, the *environmental-structural* and *relationships* dimensions appear to be the most addressed by studies centered on SC (e.g., Caridade et al., 2021; Caridade et al., 2020; Cohen et al., 2009; Kohl et al., 2013) or even a single construct (Johnson, 2009). The assessment of the SC and its inherent multidimensionality is of crucial importance as it provides indicators of changes to be implemented in the school (Lewno-Dumdie et al., 2019).

School Climate and Students' Disruptive Behavior

Considering that the school may have an impact on the individual and social functioning of children, it should seek to identify and manage significant DB (Nunes et al., 2017b). In this study, the DB expression has a generic meaning, including disturbing, antisocial, delinquent or externalizing behavior (Caridade et al., 2021; Caridade et al., 2020; Reaves et al., 2018), as well as the degree of absenteeism and incivilities occurring in the school. School-centered research has documented multiple behavioral problems, such as violence and indiscipline, aggression (Nunes et al., 2015), drug use (Nunes et al., 2017a; Radliff et al., 2012), delinquent and antisocial behaviors and incivilities (Nunes et al., 2017b), or even absenteeism (Caridade et al., 2015; Nunes et al., 2015).

In addition, the literature has been demonstrating an association between SC and DB (Caridade et al., 2021; Caridade et al., 2020; Reaves et al., 2018). Longitudinal studies show that the decline in ratings of SC was related with more frequent DB at school (Dorio et al., 2019), such as the use of lies and violation of established norms (Way et al., 2007) and other deviant behaviors (Kuperminc et al., 2001). It has been suggested that a deterioration of physical space conditions (e.g., insufficient lighting, graffiti, poor supervision of corridors and inadequate school maintenance) can lead to opportunities for conflict and violence, as well as also contributing to promote some tolerance for aggressive behavior (Vagi et al., 2018).

School-centered research has also consistently demonstrated the benefits of the SC on the prevention of school violence. In this sense, it is shown that positive SC is associated with healthy relationships, school connectedness/engagement, dropout prevention (Centers for Disease Control and Prevention (CDC), 2009), lower levels of absenteeism (e.g., Van Eck et al., 2017) and reduced rates of violence and aggression (Gregory et al., 2010). The literature review by Johnson (2009) and the meta-analysis by Steffgen et al. (2013) aiming to analyze the connection between SC and school violence found some association between the two phenomena. The nature and strength of the connection between SC and school violence appears to be difficult to assess due to the multiple measures used by the included studies to assess the SC and school violence (Johnson, 2009). The great diversity in terms relating the theoretical and methodological issues of SC and school violence in the studies (Steffgen et al., 2013) can also contribute to this difficulty.

Therefore, the need to redesign schools to make them safer and more secure, as well as welcoming and comfortable, has been documented. Crime Prevention through Environmental Design (CPTED) is a promising approach at this respect, requiring changes in the architectural configuration of spaces, aiming to prevent crime or deviant behavior through SC, focusing in the natural surveillance, access control and territorial reinforcement, as originally presented by Jeffery (1977). According to the CPTED approach, intervention in the environment requires meeting four mechanisms: the structural aspects of space; the use of space, circulation patterns; territorial

characteristics; and the degree of deterioration of the space. Thus, the enhancement of the design conditions of the space and the patterns of its use and circulation will have impact in the rates of violence within the school area, reducing interactions and the shield of anonymity in violence (National Crime Prevention Council (NCPC), 2003). Recent research (e.g., Lamoreaux & Sulkowski, 2019; Vagi et al., 2018) demonstrated the potential of CPTED in reducing the incidence of behavioral problems and violence in schools. A study developed by Vagi et al. (2018) reported that the adequate physical attributes of schools were associated with a lower probability of students missing school due to safety issues.

Current Study

Despite considerable existing international research on SC, the majority of studies has focused on students (e.g., Koiv, 2014; Vagi et al., 2018; Way et al., 2007) and only a few studies focus on parents and even less in teachers (e.g., Soliman, 2017) or school professionals (e.g., Caridade et al., 2021; Caridade et al., 2020). Similarly, most measures used to assess SC variables focus on student and/or teacher perceptions (Kohl et al., 2013). This study aims to focus on school professionals to analyze the perception about the SC and students' DB, filling a gap in the Portuguese literature. The specific objectives are: i) to characterize the school professionals' perception about SC and its dimensions, i.e., *environmental-structural* and *relationships*; ii) to analyze the relationship between SC, its dimensions and DB (including absenteeism, behavior problems, and incivilities); and iii) to analyze the variability in the school professionals' perception, studied according to the role played, and the geographic location of schools, in Lisbon and Porto, Portugal. Specifically, these aims addressed three research questions: i) how do school professionals perceive the existing *environmental-structural* and *relationships* variables in school to promote a positive and effective SC? ii) what is the relationship between school professionals' perception about SC and student's DB? iii) how does school professionals' perception vary according to the role played and the school geographic location?

Based on past research (Caridade et al., 2020; Caridade et al., 2021), it is hypothesized that:

> Hypothesis 1: School professionals perception rated positive SC and its dimensions;
> Hypothesis 2: School professionals rating more positive SC and its dimensions also report fewer school behavior problems, absenteeism and incivilities;
> Hypothesis 3: The connection between SC and students' behavior would vary according to the school professionals' functions and the school geographic location and so location-specific associations were tested.

Methods

333 school professionals, with a mean age of 50.84 years ($SD = 7.54$, range = 29–66), were analyzed. The majority of the participants are female (78.7%, $n = 262$). Nearly three quarters had higher education (72.7%, $n = 242$), 18.0% ($n = 60$) secondary education, and less than 10% (9.3%, $n = 31$) basic education. Nearly 71% of the school professionals were teachers and the modal category was having more than 20 years of professional experience (42.9%). Most questions were mandatory and, thus, there were few missing answers (N ranged between 331 and 333, Tables 1 and 2).

Data were collected from three main locations in Portugal: Lisbon (22.5%, $n = 75$), Porto (39%, $n = 130$) and Porto adjacent municipalities (38.4%, $n = 128$). This comparison was related to multiple factors: first, the fact that this study follows a current research project conducted in the city of Porto[1]; second, since this project is based on the Porto city, and it is interesting to compare the findings with those of adjacent municipalities; and third, according to Internal Security System (2019), Lisbon and Porto, the two main Portuguese cities, are the Portuguese cities with the highest crime rates. Globally, the assessed schools were heterogeneous, comprising public schools from urban and suburban areas.

Procedures and Measure

Data was collected using an internet-administered survey to a convenience sample, in the school years of 2017/2018 and 2018/2019. At a first stage, and in order to recruit participants, each School Principal, from public schools only ($N = 55$), was contacted by e-mail or phone, requesting approval and help to disseminate the survey among the school community. Before answering the questions, participants were fully informed about the aims of the study and conditions of participation (e.g., voluntary nature, anonymity, not mandatory). The responsible University Institutional Review Board and the Portuguese Ministry of Education approved the study protocol.

The questionnaire applied consisted in the "Diagnosis of School Context" (Nunes, Caridade, & Sani 2015), developed and validated specifically for the purpose of assessing the school environment. The final version resulting from an exploratory study mainly encompassed open-ended questions, further coded into closed-ended questions, organized in four sections: i) sociodemographic information; ii) school environment and surroundings; iii) school functioning and dynamics; and iv) school behavior. Concerning the internal reliability of the questionnaire, the Cronbach alpha was 0.80.

[1] "LookCrim - Looking at crime: Communities and Physical Spaces" Projetc, which is financed by National Funds through FCT – Fundação para a Ciência e Tecnologia under the project PTDC / DIR-DCP / 28,120/2017.

Table 1 Frequencies about school climate, by dimensions

Environmental-structural variables	School surroundings (*N*=332)
	Poor: 7.2% (*n*=24)
	Inserted in poor/degraded environment: 70.8% (*n*=17)
	Little/badly guarded: 25.0% (*n*=6)
	Poor access: 16.7% (*n*=4)
	Poorly served transport: 12.5% (*n*=3)
	Peripheral/isolated area: 8.3% (*n*=2)
	Fair: 33.4% (*n*=111)
	Good: 59.3% (*n*=197)
	Good access: 77.8% (*n*=151)
	Well served transport: 66.0% (*n*=128)
	Fundamental services for operation: 65.5% (*n*=127)
	Well inserted in the community: 61.9% (*n*=120)
	Well-guarded: 30.9% (*n*=60)
	Organization/quality of school spaces (*N*=332)
	Poor: 3.6% (*n*=12)
	Personnel deficit: 66.7% (*n*=8)
	No maintenance: 66.7% (*n*=8)
	Equipment and organization deficit: 58.3% (*n*=7)
	Lacking services: 33.3% (*n*=4)
	Fair: 33.1% (*n*=110)
	Good: 63.3% (*n*=210)
	Well-equipped/organized spaces: 80.3% (*n*=167)
	Fundamental services: 75.0% (*n*=156)
	Well maintained: 42.8% (*n*=89)
	Sufficient school personnel: 7.7% (*n*=16)
	Infrastructural conditions considering the number of students (*N*=331)
	Poor: 5.1% (*n*=17)
	Fair: 37.5% (*n*=124)
	Good: 57.4% (*n*=190)
Relationships variables	Dynamics of extracurricular activities developed at school (*N*=333)
	Poor: 3.6% (*n*=12)
	Problems in participation/motivation: 100% (*n*=12)
	Dissemination issues: 16.7% (*n*=2)
	Too much offer: 0% (*n*=0)
	Fair: 43.2% (*n*=144)
	Good: 53.2% (*n*=177)
	Community adherence and participation: 61.9% (*n*=109)
	Plan tailored to student and school personnel needs: 51.7% (*n*=91)
	Rich and dynamic plan: 39.2% (*n*=69)
	Dynamics of extracurricular activities involving the school and other institutions (*N*=333)
	Poor: 6.3% (*n*=21)
	Lack of time/coordination of school personnel: 71.4% (*n*=15)
	Poorly motivated: 57.1% (*n*=12)
	Lack of financial resources: 42.9% (*n*=21)
	Lack of knowledge of school reality: 23.8% (*n*=5)
	Fair: 48.0% (*n*=160)
	Good: 45.6% (*n*=152)
	Several partnerships: 69.7% (*n*=106)
	Knowledge about environment and community needs: 67.8% (*n*=103)
	Initiative: 65.1% (*n*=99)
	Proactive: 51.3% (*n*=78)
	School engagement with the community (*N*=333)
	Poor: 10.8% (*n*=36)
	Sporadic involvement: 72.2% (*n*=26)
	Lack of community support/interest:52.8% (*n*=19)
	Non-adherence/engagement: 30.6% (*n*=11)
	Fair: 64.9% (*n*=216)
	Good: 24.3% (*n*=81)
	Supported by local authority: 88.9% (*n*=72)
	Participation in community projects: 67.9% (*n*=55)
	Supported by educational institutions: 61.7% (*n*=50)

Table 2 Descriptive statistics on school climate considering behavior problems and background characteristics

School climate	Behavior problems			School professionals function		School geographic location		
	IBP *M* (*SD*)	II *M* (*SD*)	GIDB *M* (*SD*)	Teachers *n* (%)	Non-teachers *n* (%)	Porto *n* (%)	Lisbon *n* (%)	Porto adjacent municipalities *n* (%)
Environmental-structural variables								
School surroundings (*N*=332)								
Poor (*n*=24)	4.25 (1.96)	3.04 (1.04)	7.96 (2.73)	22 (9.4)	2 (2.1)	18 (14.0)	0 (0.0)	6 (4.7)
Fair (*n*=111)	2.95 (1.71)	2.53 (1.03)	6.07 (2.65)	78 (33.2)	33 (34.7)	32 (24.8)	33 (44.0)	46 (35.9)
Good (*n*=197)	2.83 (1.71)	2.43 (1.07)	5.75 (2.63)	135 (57.4)	59 (62.1)	79 (61.2)	42 (56.0)	76 (59.4)
Organization/quality of spaces (*N*=332)								
Poor (*n*=12)	3.08 (1.78)	2.42 (1.08)	5.83 (2.29)	9 (3.8)	3 (3.2)	4 (3.1)	2 (2.7)	6 (4.7)
Fair (*n*=110)	3.01 (1.69)	2.60 (0.99)	6.16 (2.48)	75 (31.9)	33 (35.1)	25 (19.4)	32 (42.7)	53 (41.4)
Good (*n*=210)	2.93 (1.81)	2.46 (1.11)	5.94 (2.84)	151 (64.3)	58 (61.7)	100 (77.5)	41 (54.7)	69 (53.9)
Infrastructural conditions (*N*=331)								
Poor (*n*=17)	3.82 (2.01)	3.18 (1.02)	7.74 (2.74)	16 (6.8)	1 (1.1)	6 (4.7)	2 (2.7)	9 (7.0)
Fair (*n*=124)	3.03 (1.58)	2.53 (0.99)	6.13 (2.44)	84 (35.7)	39 (41.9)	35 (27.3)	40 (53.3)	49 (38.3)
Good (*n*=190)	2.86 (1.83)	2.43 (1.10)	5.83 (2.82)	135 (57.4)	53 (57.0)	87 (68.0)	33 (44.0)	70 (54.7)
Relationships variables								
Extracurricular activities developed at school (*N*=333)								
Poor (*n*=12)	4.25 (1.71)	3.08 (0.90)	7.83 (2.33)	11 (4.7)	1 (1.1)	5 (3.8)	0 (0.0)	7 (5.5)
Fair (*n*=144)	2.85 (1.63)	2.60 (1.03)	5.99 (2.48)	88 (37.4)	55 (57.9)	35 (26.9)	44 (58.7)	65 (50.8)
Good (*n*=177)	2.96 (1.85)	2.38 (1.09)	5.86 (2.86)	136 (57.9)	39 (41.1)	90 (69.2)	31 (41.3)	56 (43.8)
Extracurricular activities involving the school and other institutions (*N*=333)								
Poor (*n*=21)	3.81 (1.86)	3.10 (0.83)	7.57 (2.44)	16 (6.8)	5 (5.3)	4 (3.1)	5 (6.7)	12 (9.4)
Fair (*n*=160)	2.85 (1.63)	2.42 (1.00)	5.79 (2.36)	108 (46.0)	51 (53.7)	47 (36.2)	40 (53.3)	73 (57.0)
Good (*n*=152)	2.69 (1.86)	2.51 (1.14)	6.02 (2.99)	111 (47.2)	39 (41.1)	79 (60.8)	30 (40.0)	43 (33.6)
Engagement with the community (*N*=333)								
Poor (*n*=36)	3.11 (1.74)	2.94 (1.09)	6.64 (2.65)	24 (10.2)	12 (12.6)	7 (5.4)	12 (16.0)	17 (13.3)
Fair (*n*=216)	2.97 (1.67)	2.50 (0.99)	6.04 (2.49)	146 (62.1)	68 (71.6)	82 (63.1)	51 (68.0)	83 (64.8)
Good (*n*=81)	2.86 (2.02)	2.31 (1.20)	5.64 (3.19)	65 (27.7)	15 (15.8)	41 (31.5)	12 (16.0)	28 (21.9)

IBP Index of Behavior Problems, II Index of Incivilities, *GIDB* Global Index of Disruptive Behaviors

Variables

School Climate

Three variables were studied: i) school surrounding physical environment, ii) organization/quality of school spaces, and iii) school infrastructural conditions considering the number of students, to assess the *environmental-structural* dimension. Similarly, three other variables, i.e., i) dynamics of extracurricular activities developed at school, ii) dynamics of extracurricular activities involving the school and other institutions, and iii) school engagement with the community were collected to assess the *relationships* dimension. The participants were asked to rate each individual variable through a five-point Likert-type scale (ranging from 1 – *very poor* to 5 – *very good*) and then to explain their answer. These ratings were summed to estimate the *environmental-structural* (Cronbach $\alpha = .64$) and *relationships* (Cronbach $\alpha = .77$) dimensions. To create three distinct groups, namely *poor vs*. *fair vs*. *good* scores, the original five-point Likert scales were recoded into three-point scales joining the lowest (responses 1 and 2) and the highest (responses 4 and 5) values.

Students' Disruptive Behavior

Three variables, namely: i) absenteeism, ii) behavior problems, iii) and incivilities were explored to study the students' DB. To assess absenteeism, participants were asked to rate their perceptions through a five-point Likert-type scale (ranging from 1 – *very low* to 5 – *very high*). This variable was dichotomized based on occurrence, i.e., *yes* for ratings 4 and 5 *vs*. *no* for all other ratings. To identify behavior problems, a list of seven items, i.e., widespread disrespect; disrespect for teachers; disrespect for school professionals; disrespect between students; manifestation of aggressive behavior; tobacco/drug abuse; and alcohol consumption, was presented to the participants, who were requested to select those experienced in their schools (*yes vs*. *no* responses). Through the sum of *yes* responses, the index of behavior problems (IBP) was created. A similar approach was used concerning incivilities, i.e., participants were requested to identify those that were usual at their schools (i.e., *yes vs*. *no* responses) upon a list of four items, i.e., scatter/throw trash around the school; destroy/damage equipment; disturbing school functioning; and use of inappropriate language. The index of incivilities (II) was then computed, adding the *yes* responses. Lastly, through the sum of the positive responses across assessed variables, i.e., absenteeism, behavior problems and incivilities, a global index of disruptive behavior (GIDB) was computed. The original ratings were added to estimate the reliability of *students' behavior dimension* (Cronbach $\alpha = .70$).

Demographic Background Characteristics

Sociodemographic characteristics, such as age, sex, marital status, education, school professionals' functions, school geographic location and years of professional experience, were collected from all the participants. In the current study, two variables were highlighted. First, the school professionals' functions, comparing teachers vs. non-teachers (e.g., administrative assistants, education assistants and psychologists). The second background variable was school geographic location (Porto *vs*. Lisbon vs. Porto adjacent municipalities). Other background characteristics were also analyzed for sociodemographic characterization.

Data Analysis

To characterize SC (objective 1), descriptive univariate analyses were carried out. Bivariate descriptive and inferential statistics were computed to clarify the relationship between SC and DB (objective 2). Specifically, and regarding absenteeism, a point-biserial correlation was computed aiming to clarify its association with the *environmental-structural* and *relationships* dimensions. Additionally, Chi-square tests were run to explore the association between *environmental-structural* and *relationships* dimensions with absenteeism. Concerning indexes and dimensions, Pearson's correlation coefficients were computed. Then, to check for differences on all indexes based on *environmental-structural* and *relationships* dimensions, one-way analyses of variance (ANOVA), considering that the dependent variables were positively correlated, were performed. To test differences on SC based on the background characteristics (objective 3), independent sample *t*-tests (school professionals' functions) and ANOVA (school geographic location) regarding the *environmental-structural* and *relationships* dimensions were computed. Differences on ratings of *environmental-structural* and *relationships* dimensions were analyzed through the Mann Whitney *U* tests (school professionals' functions) and Kruskal-Wallis *H* tests (school geographic location). To further clarify the differences identified by ANOVA and Kruskal-Wallis *H* tests, post-hoc tests were performed using the Bonferroni correction. Therefore, the critical value for significance used in other analyses ($p < .05$) was replaced by $p = .0167$. The normality and homogeneity were verified in all scale variables, i.e., indexes and *environmental-structural* and *relationships* dimensions, and, overall, assumptions were not met. Nonetheless, the strategy suggested by Fife-Schaw (2006) was applied, namely to compute both parametric and equivalent non-parametric tests. Considering that the conclusions drawn from both sets of tests were the same in all cases, with the exception of GIDB by dynamics of extracurricular

Table 3 Inferential tests between school climate, disruptive behaviors and background characteristics

School climate	Disruptive behaviors				Background characteristics	
	Absenteeism	IBP	II	GIDB	School professionals function	School geographic location
Environmental- structural dimension	$r_{pb}=-.04$, $p=.447$	$r=-.13$, $p=.019$	$r=-.14$, $p=.009$	$r=-.15$, $p=.006$	$t(324)=0.06$, $p<.955$, $d=.01$	$F(2,326)=7.90$, $p<.001$, $f=.39$
School surroundings	a	$F(2,329)=7.28$, $p=.001$ $f=.36$	$F(2,329)=3.68$, $p=.026$, $f=.16$	$F(2,329)=7.50$, $p=.001$, $f=.56$	$U=10{,}172.50$, $p=.198$, $\eta^2=.00$	$\chi^2(2)=0.107$, $p=.948$, $\eta^2=.01$
Organization/quality spaces	a	$F(2,329)=0.09$, $p=.910$, $f=.04$	$F(2,329)=1.69$, $p=.504$, $f=.07$	$F(2,329)=0.27$, $p=.766$, $f=.10$	$U=10{,}799.00$, $p=.708$, $\eta^2=.00$	$\chi^2(2)=17.30$, $p<.001$, $\eta^2=.05$
Infrastructural conditions	a	$F(2,328)=2.45$, $p=.088$, $f=.21$	$F(2,328)=3.98$, $p=.020$, $f=.16$	$F(2,328)=3.07$, $p=.048$, $f=.36$	$U=10{,}707.50$, $p=.744$, $\eta^2=.00$	$\chi^2(2)=9.87$, $p=.007$. $\eta^2=.02$
Relationships dimension	$r_{pb}=-.18$, $p<.001$	$r=-.20$, $p<.001$	$r=-.21$, $p<.001$	$r=-.25$, $p<.001$	$t(328)=0.46$, $p<.647$, $d=.06$	$F(2,330)=2.31$, $p=.101$, $f=.21$
Extracurricular activities developed at school	a	$F(2,330)=3.52$, $p=.031$, $f=.26$	$F(2,330)=3.49$, $p=.032$, $f=.16$	$\chi^2(2)=6.30$, $p=.043$, $\eta^2=.01$	$U=9543.50$, $p=.019$, $\eta^2=.01$	$\chi^2(2)=19.64$, $p<.001$, $\eta^2=.05$
Extracurricular activities involving other institutions	a	$F(2,330)=2.78$, $p=.064$, $f=.23$	$F(2,330)=3.81$, $p=.023$, $f=.16$	$F(2,330)=4.14$, $p=.017$, $f=.42$	$U=10{,}610.50$, $p=.430$, $\eta^2=.00$	$\chi^2(2)=21.38$, $p<.001$, $\eta^2=.06$
Engagement with the community	$\chi^2(4)=4.47$, $p=.347$, Cramer's $V=.08$	$F(2,330)=0.26$, $p=.775$, $f=.07$	$F(2,330)=4.53$, $p=.011$, $f=.17$	$F(2,330)=1.75$, $p=.176$, $f=.28$	$U=9777.50$, $p=.036$, $\eta^2=.01$	$\chi^2(2)=11.02$, $p=.004$, $\eta^2=.03$

IDB Index of Behavior Problems, *II* Index of Incivilities, *GIBP* Global Index of Disruptive Behaviors

[a] Chi-square values omitted due to limitations with expected count

activities developed at school, it was decided to present the parametric test results.

Data were analyzed through the software IBM Statistical Package for Social Sciences (IBM SPSS for Windows, version 27.0, IBM Corp, Armonk, NY, USA). Additionally, G*Power (Faul et al., 2007) and Calculation of Effect Sizes software (Lenhard & Lenhard, 2016), were used to compute the size effect.

Results

Characterization of School Climate

Detailed results concerning the *environmental-structural* dimension are presented in Table 1. Almost 60% of the participants rated as good the school surrounding physical environment, organization/quality of school spaces, and infrastructural conditions. The mean for the *environmental-structural* dimension was 11.13 ($SD = 1.84$, *range* = 6–15).

Descriptive results about the *relationships* dimension are shown in Table 1. Nearly 50% of the participants rated the dynamics of extracurricular activities developed at school, as good, while the dynamics of extracurricular activities involving the school and other institutions were primarily rated as fair. Moreover, nearly 65% of the participants rated the school connectedness/engagement with the community, as good. The mean for the *relationships* dimension was 9.23 ($SD = 1.74$, *range* = 5–15).

School Climate and Students' Disruptive Behavior

Descriptive data about SC and DB are presented in Table 2, while inferential statistics are shown in Table 3.

Absenteeism

There was a significant negative association between the absenteeism and *relationships* dimension, suggesting that those participants perceiving absenteeism as an issue tended to present lower scores on the *relationships* dimension.

Index of Behavior Problems (IBP)

There was a significant negative correlation between the IBP and the *environmental-structural* dimension. Participants with higher scores on the *environmental-structural* dimension tended to report a lower number of DB. Moreover, there were differences on the IBP based on the school surroundings' ratings. Participants assessing school surroundings as poor reported the highest mean of DB, while those participants rating school surroundings as good reported the lowest mean of DB. Post-hoc tests, using the Bonferroni correction, suggested that there were significant differences on the IBP between those participants assessing the school surroundings as poor and the other groups (poor *vs*. fair: $p = .003$; poor *vs*. good: $p < .001$), opposite to the other pair (fair *vs*. good: $p = 1.00$). There was also a significant negative correlation between the IBP and the *relationships* dimension, suggesting that those with higher *relationships* scores tend to report fewer DB. Considering the *relationships* dimension, there were significant differences on the IBP and ratings of extracurricular activities developed at school, with those participants who rated them as poor reporting a higher mean of DB. Post-hoc tests, using the Bonferroni correction, did not reveal significant differences between the groups (poor *vs*. fair: $p = .025$; poor *vs*. good: $p = .042$; fair *vs*. good: $p = 1.00$).

Index of Incivilities (II)

The II correlated significantly with the *environmental-structural* dimension, suggesting that school professionals with higher scores on the *environmental-structural* dimension tended to report fewer incivilities. Additionally, there were differences between the II and ratings of school surroundings. As shown in Table 2, the group rating school surroundings as poor reported the highest mean number of incivilities, while the group that rated it as good reported the lowest. Post-hoc tests, using the Bonferroni correction, did not found significant differences between the groups (poor *vs*. fair: $p = .098$; poor *vs*. good: $p = .022$; fair *vs*. good: $p = 1.00$). There were also significant differences between the II and ratings of infrastructural conditions. Specifically, those participants rating infrastructural conditions as poor reported a higher mean of incivilities than the other groups. Post-hoc tests, using the Bonferroni correction, revealed significant differences on the II between those that rated infrastructural conditions as poor *vs*. good, $p = .016$, opposite to the other pairs (poor *vs*. fair: $p = .058$; fair *vs*. good: $p = 1.00$). There was a significant correlation between the II and the *relationships* dimension, which indicates that those with lower scores on the *relationships* dimension tended to report higher incivilities. There were significant differences between the II and extracurricular activities developed at school, extracurricular activities involving the school and other institutions, and connectedness/engagement with the community. Overall, groups that rated the variables as poor reported the highest mean of incivilities. Post-hoc tests, using the Bonferroni correction, only found significant group differences on engagement with the community, when comparing poor vs. good ratings, $p = .008$. All other pairwise comparisons were not significant, namely extracurricular activities developed at school: poor vs. fair: $p = .382$, poor vs. good: $p = .082$, and fair vs. good: $p = .221$; extracurricular activities involving the school and other institutions: poor vs. fair: $p = .018$, poor vs. good: $p = .052$, and fair vs. good: $p = 1.00$; and connectedness/engagement with

the community: poor vs. fair: $p = .060$, and fair vs. good: $p = .494$.

Global Index of Disruptive Behavior (GIDB)

There was a significant negative correlation between the GIDB and the *environmental-structural* dimension. Specifically, those participants that presented lowest scores on the *environmental-structural* dimension tended to report more global DB. There were significant differences between the GIDB and the school surroundings and infrastructural conditions, namely participants rating those variables as poor reported the highest mean of global DB. Post-hoc tests, using the Bonferroni correction, revealed significant differences between poor *vs*. fair, $p = .005$, and poor *vs*. good, $p < .001$, but not between fair *vs*. good, $p = .921$. There was also a significant negative correlation between the GIDB and the *relationships* dimension, suggesting that those participants that presented the lowest scores on the *relationships* dimension tended to report more global DB. Concerning the *relationships* dimension, there were significant differences between the GIDB and extracurricular activities developed at school and extracurricular activities involving the school and other institutions. Again, those rating the variables as poor reported a high mean of global DB than other groups. Post-hoc tests regarding the extracurricular activities developed at school, using the Bonferroni correction, revealed that the group that rated it as poor significantly differ from the group that rated it as good on the GIDB, $p = .012$. There were no significant differences on the other pairwise comparisons (poor *vs*. fair: $p = .022$, fair *vs*. good: $p = .521$). Post-hoc tests, using the Bonferroni correction, concerning extracurricular activities involving the school and institutions, found similar results, revealing only significant differences between poor vs. good: $p = .013$ (poor *vs*. fair: $p = .039$, and fair *vs*. good: $p = 1.00$).

School Climate and Demographic Background Characteristics

As shown in Table 3, there were significant differences between the school professionals' functions and the two *relationships* variables, namely on the ratings of extracurricular activities developed at school and connectedness/engagement with the community. In both *relationships* variables, ratings from teachers tended to be greater than from non-teachers (Table 2).

There were significant differences on the *environmental-structural* dimension considering the school geographic location (Table 3). The mean values were 11.63 ($SD = 1.86$) for Porto, 10.71 ($SD = 1.53$) for Lisbon, and 10.91 ($SD = 1.89$) for Porto adjacent municipalities. Post-hoc tests, using the Bonferroni correction, clarified that there were significant differences between Porto and Lisbon, $p = .001$, and between Porto and Porto adjacent municipalities, $p = .005$, but not between Lisbon and Porto adjacent municipalities, $p = 1.00$. Concerning the *environmental-structural* variables, there were geographic differences on the organization/quality of school spaces and infrastructural conditions (Table 3). Post-hoc tests, using the Bonferroni correction, revealed that were significant differences on the ratings of organization/quality of school between Porto and Lisbon, $p = .006$, and between Porto and Porto adjacent municipalities, $p < .001$, but not between Lisbon and Porto adjacent municipalities, $p = .835$. Additionally, post-hoc tests, using the Bonferroni correction, clarified that there were significant differences on the ratings on infrastructural conditions between Porto and Lisbon, $p = .003$, but not on the other pairwise comparisons (Porto vs. Porto adjacent municipalities: $p = .031$, Lisbon vs. Porto adjacent municipalities: $p = .258$).

There were significant differences on the *relationships* variables attending to school geographic location (Table 3). Regarding the ratings on extracurricular activities developed at school, post-hoc tests, using the Bonferroni correction, revealed significant differences between Porto and Lisbon, $p = .001$, and between Porto and Porto adjacent municipalities, $p < .001$, but not between Lisbon and Porto adjacent municipalities, $p = .975$. Similar results were obtained regarding extracurricular activities involving the school and other institutions (Porto vs. Lisbon: $p = .004$; Porto vs. Porto adjacent municipalities: $p < .001$; Lisbon vs. Porto adjacent municipalities: $p = .318$) and connectedness/engagement with the community (Porto vs. Lisbon: $p = .002$; Porto vs. Porto adjacent municipalities: $p < .016$; Lisbon vs. Porto adjacent municipalities: $p = .304$). As it can be observed in Table 2, the school professionals from Porto tended to rate the *relationships* variables more positively.

Discussion

SC seems to play an important role in how school professionals perceive DB at school. The results in this study revealed that those individuals presenting a better perception about SC tended to report less DB, which is in line with a meta-analysis developed by Reaves et al. (2018), reporting a relationship between the institutional environment, interpersonal *relationships* and DB. Other empirical studies (e.g., Kuperminc et al., 2001; O'Brennan et al., 2014; Way et al., 2007) have also established the connection between SC and DB, underlining the importance of SC on school life and its impact to reduce DB (Caridade et al., 2020; Wang & Degol, 2016). Opposite, other authors (e.g., Cohen et al., 2009; Thapa et al., 2013) did not observe a significant relationship when analyzing other SC dimensions, such as safety, teaching and learning, and DB.

Focusing on the *environmental-structural* variables, the school professionals perceiving school surroundings as poor reported the highest mean of the IBP, II and GIDB. A similar trend was found for the infrastructural conditions' perception and two indexes, i.e., II and GIDB. These results are consistent with a previous study from Vagi et al. (2018), which found that the poor school characteristics (e.g., poor maintenance, inadequate lighting, hiding places, gang or hate-related graffiti or inadequate supervision of space), of the school environment could increase conflict and violence, as well as tolerance towards aggressive behavior. Regarding the *relationships* variables, the school professionals rating extracurricular activities developed at school as poor reported a higher mean on IBP, II and GIDB. Similar results were found for the school professionals' perception about the dynamics of extracurricular activities involving other institutions and the II and GIDB. The results in this study substantiate previous findings in other studies (e.g., Driessens, 2015; Ruvalcaba et al., 2017; Samek et al., 2015), highlighting the positive impact on DB related to the participation on extracurricular activities, that seems to act as a protective factor.

Overall, SC perception seems not to differ among teachers and non-teachers, with the exceptions of dynamics of extracurricular activities developed at school and connectedness/engagement with the community. On both aforementioned *relationships* variables, the teachers presented better ratings. To the best of the authors' knowledge, no previous Portuguese study has until now analyzed this problem, and the obtained results seem to be reasonable and in line with the expectations of the authors and the searched literature. Public transportation, classrooms, services, etc., included in the *environmental-structural* dimension, are realities equally shared and experienced by teachers and non-teachers, while the development and implementation of extracurricular activities and the connectedness/engagement with the community are issues mainly handled by teachers, which may be better informed. Another potential explanation may be related to previous expectations from school professionals regarding the interaction between the school and the community. Valli et al. (2016) identified four types of school-community partnerships, i.e., family and interagency collaboration, full-services schools, full-service community schools, and community development, differing significantly on scope and purpose, requirements, and underlying theory of action. Therefore, and considering that general questions were enquired in this study, the teachers may differ from non-teachers on the type of the school-community partnerships expected at school.

Differences on the *environmental-structural* and *relationships* variables considering the school geographic location are also important. Generally, the school professionals from Porto perceived more positive organization/quality of school spaces, infrastructural conditions, dynamics of extracurricular activities (developed at school and involving other institutions), and school connectedness/engagement with the community, than the school professionals from Lisbon and Porto adjacent municipalities. Some geographic idiosyncrasies seem to exist concerning the SC assessments and practices, at least between Porto and Lisbon. A more detailed comparative analysis should be additionally carried out, intending to understand these marked differences, since available data need further clarification. As example, and according to the Lisbon Educational Charter (Lisbon City Hall, 2008), the school requalification was a major local purpose, while the *relationships* dimension was qualified only as a complementary issue. The situation in Porto is somehow distinct. In the latest Porto Educational Charter, each school was assessed in detail, specifically relating the *environmental-structural* issues, and the intervention plan now includes several dimensions of SC, being particularly emphasized the improvements at the *environmental-structural* level and strengthening of the *relationships* inside and outside the school context (Rego et al., 2017a, 2017b). Some useful indicators that could help to explain the differences on SC based on school geographic location, such as the number of libraries or education spending, are only available at national level, through Statistics Portugal (INE), the official Institution responsible for handling statistical Portuguese data, or the Organization for Economic Co-operation and Development (OECD). This is a limiting factor to the supplementary data analysis on the importance of SC within the school functioning context.

Limitations and Future Directions

Several potential limitations should be addressed. This study focused on two SC dimensions, neglecting others, e.g., safety, teaching and learning, which may also assume particular relevance within the school context, a limitation that has also been identified by other authors, such as Reaves et al. (2018). This is an exploratory study focused on the school professionals' perception, mainly teachers or other school professionals as mono-raters, without considering parents, students and community members' points of view, which should be further studied. This study relied on the school professionals self-report of DB, and it would be informative to include other sources of information, such as the absenteeism records or the students' DB notifications. The sociodemographic characterization, e.g., school professionals' functions, can be a potential limitation, considering that teachers represented nearly 70% of the participants, a significant number because this professional group is the most frequently represented in Portuguese schools. The potential selection effects, such as personal involvement in the development of extracurricular activities, were not assessed and may also limit the findings in this study. The sole reliance on observable DB is also a limitation, particularly considering that

not all disruptive problems are easily observable, i.e., internalizing behavior. Lastly, some bias may be related to the application of an online questionnaire, since it introduces the possibility of responses not made by the target respondents/participants.

Practical Implications

These results may have several practical implications for all involved in the school context. The study findings related to the *environmental-structural* dimension highlight the need to improve the physical space according to the CPTED principles, a strategy which is implemented to reduce DB rates and destructive interactions in school (NCPC, 2003). Attending to the positive impact associated with this type of intervention (e.g., Lamoreaux & Sulkowski, 2019; Vagi et al., 2018), additional efforts can be made to assess the school characteristics, to develop proper intervention plans and to implement grounded measures at this level. Concurrently, preventive and educational campaigns about CPTED and school violence can be promoted, targeted to school professionals and parents, in particular and aiming to raise school awareness, to improve knowledge and to motivate to change in the context of SC.

The results about the *relationships* dimension are encouraging to promote interactions and partnerships between the school and the community. It is known that some reasons may negatively affect the development of extracurricular activities by the school professionals, such as the professionals' demotivation, economical constraints or even as a punishment strategy for students' misbehavior or poor learning achievement. However, and as mentioned by Driessens (2015), evidence about involvement in extracurricular activities and DB seems to sustain the Erikson's psychosocial developmental theory (Erikson, 1950) and the Bronfenbrenner's developmental ecological model (Bronfenbrenner, 2005), supporting a positive child/adolescent development (for a systematic literature review, see Aldridge & McChesney, 2018). It seems that through extracurricular activities, students not only have the opportunity to extend academic knowledge, but also to explore new topics and to develop important life and social skills within the school context. Measures aimed to improve school engagement with the community, straightening communication and interaction between all involved, are of significant importance. Specific programs, advisory boards, or discussion forums, could also be implemented to address both school and community problems.

Code Availability SPSS syntax is available upon request to the authors.

Authors' Contributions Conceptualization: Vanessa Azevedo, Sónia Caridade; Methodology: Vanessa Azevedo, Sónia Caridade; Formal analysis and investigation: Vanessa Azevedo, Sónia Caridade; Writing - original draft preparation: Vanessa Azevedo, Sónia Caridade; Writing - review and editing: Maria Alzira Pimenta Dinis, Laura M. Nunes, Ana Sani; Funding acquisition: Laura M. Nunes, Ana Sani, Sónia Caridade, Maria Alzira Pimenta Dinis.

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Data Availability Available upon request to the authors.

Declarations

Conflict of Interests/Competing Interests None.

Ethics Approval The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of University Fernando Pessoa (UFP) Porto, Portugal, Project "Diagnosis of the school climate", 20 April 2017, no specific reference assigned, date acting as reference ID. The research project was also submitted and approved by the Portuguese Ministry of Education (Ref. No. 0498800002).

Consent to Participate Informed consent was obtained from all individual participants included in the study.

Consent for Publication Participants agreed with informed consent regarding publishing their data.

References

Aldridge, J., & McChesney, K. (2018). The relationship between school climate and adolescent mental health and wellbeing: A systematic literature review. *International Journal of Educational Research, 88*, 121–145. https://doi.org/10.1016/j.ijer.2018.01.012

Bronfenbrenner, U. (2005). *Making human beings human: Bioecological perspectives on human development*. Sage Publications Ltd..

Caridade, S., Nunes, L., & Sani, A. (2015). School diagnostic: Perceptions of educational professionals. *Psychology, Community & Health, 4*(2), 75–85. https://doi.org/10.5964/pch.v4i2.120

Caridade, S., Sousa, H. F. P., & Dinis, M. A. P. D. (2020). The mediating effect of parental involvement on school climate and behavior problems: School personnel perceptions. *Behavioral Sciences, 10*, 129. https://doi.org/10.3390/bs10080129

Caridade, S., Azevedo, V., Dinis, M. A. P., Sani, A., Nunes, L. M. (2021). School personnel perception of parental involvement and students' behavior problems: Pratical implications. Education and Urban Society, 53(3), 491-514. https://doi.org/10.1177/0013124520950335

Centers for Disease Control and Prevention (CDC) (2009). *School connectedness: Strategies for increasing protective factors among youth*. Retrieved from: http://www.cdc.gov/HealthyYouth/AdolescentHealth/pdf/connectedness.pdf

Cohen, J., McCabe, L., Michelli, N. M., & Pickeral, T. (2009). School climate: Research, policy, practice, and teacher education. Teachers College Record, 111(1), 180–213.

Dorio, N., Clark, K., Demaray, M., & Doll, E. (2019). School climate counts: A longitudinal analysis of school climate and middle school bullying behaviors. *International Journal of Bullying Prevention,*

Online Publication. https://doi.org/10.1007/s42380-019-00038-2, 2, 292, 308.

Driessens, C. M. E. F. (2015). Extracurricular activity participation moderates impact of family and school factors on adolescents' disruptive behavioural problems health behavior, health promotion and society. *BMC Public Health, 15*(1), 1–14. https://doi.org/10.1186/s12889-015-2464-0

Erikson, E. H. (1950). *Childhood and society*. Norton.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175–191. https://doi.org/10.3758/BF03193146

Fife-Schaw, C. (2006). Levels of measurement. In G. M. Breakwell, S. Hammond, C. Fife-Schaw, & J. A. Smith (Eds.), *Research methods in psychology* (pp. 50–63). Sage.

Gregory, A., Cornell, D., Fan, X., Sheras, P., Shih, T., & Huang, F. (2010). Authoritative school discipline: High school practices associated with lower student bullying and victimization. *Journal of Educational Psychology, 102*, 483–496. https://doi.org/10.1037/a0018562

Internal Security System (2019). Relatório Anual de Segurança Interna 2018 [annual report of internal security]. Lisboa: Ministério da Administração Interna. Retrieved from https://www.portugal.gov.pt/download-ficheiros/ficheiro.aspx?v=ad5cfe37-0d52-412e-83fb-7f098448dba7

Jeffery, C. R. (1977). *Crime prevention through environmental design*. Sage Publications.

Johnson, S. L. (2009). Improving the school environment to reduce school violence: A review of the literature. *Journal of School Health, 79*(10), 451–465. https://doi.org/10.1111/j.1746-1561.2009.00435

Kohl, D., Recchia, S., & Steffgen, G. (2013). Measuring school climate: An overview of measurement scales. *Educational Research, 55*(4), 411–426. https://doi.org/10.1080/00131881.2013.844944

Koiv, K. (2014). Comparison and connections between school climate, school safety and adolescents' antisocial behavior across three types of schools. *Social Education, 39*(3), 203–213. https://doi.org/10.15823/su.2014.13

Kuperminc, G. P., Leadbeater, B. J., Emmons, C., & Blatt, S. J. (1997). Perceived school climate and difficulties in the social adjustment of middle school students. *Applied Developmental Science, 1*, 76–88. https://doi.org/10.1207/s1532480xads0102_2

Kuperminc, G. P., Leadbeater, B. J., & Blatt, S. J. (2001). School social climate and individual differences in vulnerability to psychopathology among middle school students. *Journal of School Psychology, 39*(2), 141–159. https://doi.org/10.1016/S0022-4405(01)00059-0

Kvintová, J., Cakirpaloglu, S., & Čech, T. (2018). The perception of school climate by workplace bullying victims and bystanders. *Proceedings of EDULEARN18 Conference*. https://doi.org/10.21125/edulearn.2018.1574

Lamoreaux, D., & Sulkowski, M. L. (2019). An alternative to fortified schools: Using crime prevention through environmental design (CPTED) to balance student safety and psychological well-being. *Psychology in the Schools*, 1-14. https://doi.org/10.1002/pits.22301.

Lenhard, W. & Lenhard, A. (2016). *Calculation of effect sizes.* Retrieved from: https://www.psychometrica.de/effect_size.html. Psychometrica. https://doi.org/10.13140/RG.2.2.17823.92329.

Lewno-Dumdie, B., Mason, B., Hajovsky, D., & Villeneuve, E. (2019). Student-report measures of school climate: A dimensional review. *School Mental Health*, Published Online. https://doi.org/10.1007/s12310-019-09340-2, 12, 1, 21.

Lisbon City Hall (2008). *Carta Educativa de Lisboa* [Lisbon Educational Charter]. Retrieved from http://bit.ly/Q3wTXd

National Crime Prevention Council (NCPC). (2003). *Crime prevention through environmental design guidebook*. Public Affairs Department, Police Headquarters.

National School Climate Center (NSCC) (2012). *The 12 dimensions of school climate measured*. Retrieved from https://www.schoolclimate.org

Nunes, L., Caridade, S., & Sani, A. (2015). Avaliação do meio escolar: um estudo exploratório [School evaluation: an exploratory study]. *Revista Lusófona de Educação, 30*, 141–158.

Nunes, L., Beça, S., & Dinis, A. (2017a). Drug abuse and trafficking in universities: An emerging social phenomenon. In J. A. Jaworaski (Ed.), *Advances in sociology research* (pp. 179–192). Nova Science Publishers.

Nunes, L., Caridade, S., & Sani, A. I. (2017b). Incivilities and delinquency in schools: An analysis of a social phenomenon. In J. A. Jaworaski (Ed.), *Advances in sociology research* (pp. 193–208). Nova Science Publishers.

O'Brennan, L. M., Bradshaw, C. P., & Furlong, M. J. (2014). Influence of classroom and school climate on teacher perceptions of student problem behavior. *School Mental Health, 6*(2), 125–136. https://doi.org/10.1007/s12310-014-9118-8

Orozco-Solis, M. G., Colunga-Rodriguez, C., Vazquez-Colunga, J. C., Vazquez-Juarez, C. L., Angel-Gonzalez, M., Johnson, S. L., & Bradshaw, C. P. (2016). Characterization of school climate perception in Mexican middle school students. *Psychology, 7*, 1562–1574. https://doi.org/10.4236/psych.2016.713151

Radliff, K., Wheaton, J., Robinson, K., & Morris, J. (2012). Illuminating the relationship between bullying and substance use among middle and high school youth. *Addictive Behaviors, 37*, 569–572. https://doi.org/10.1016/j.addbeh.2012.01.001

Reaves, S., McMahon, S., Duffy, S., & Ruiz, L. (2018). The test of time: A meta-analytic review of the relation between school climate and problem behavior. *Aggression and Violent Behavior, 39*, 100–108. https://doi.org/10.1016/j.avb.2018.01.006

Rego, G., Magalhães, A. M., Costa, B. S. Lima, B., & Moura, A. (2017a). *Carta educativa do Porto. Uma abordagem multidimensional do sistema educativo: Maior integração, melhores resultados* [Porto Educational Charter. A multidimensional approach of the education system: Increased integration, better results]. Câmara Municipal do Porto. Retrieved from: http://www.cm-porto.pt/assets/misc/documentos/Educacao/CARTA%20EDUCATIVA%20DO%20PORTO.pdf

Rego, G., Magalhães, A. M., Costa, B. S., Lima, B., & Moura, A. (2017b). *Carta educativa do Porto. Uma abordagem multidimensional do sistema educativo: Maior integração, melhores resultados, Vol.II*, Fichas Técnicas. [Porto Educational Charter. A multidimensional approach of the education system: Increased integration, better results, Vol. II, Technical Factsheets]. Porto: Câmara Municipal do Porto. Retrieved from: http://www.cm-porto.pt/assets/misc/documentos/Educacao/VOLUME%20II%20-%20CARTA%20DO%20PORTO%20DO%20PORTO.pdf

Ruvalcaba, N. A., Gallegos, J., Borges, A., & Gonzalez, N. (2017). Actividades extraescolares y pertenencia al grupo como factor protector en la adolescencia. *Psicologia Educativa, 23*(1), 45–51. https://doi.org/10.1016/j.pse.2016.09.001

Samek, D. R., Elkins, I. J., Keyes, M. A., Iacono, W. G., & McGue, M. (2015). High school sports involvement diminishes the association between childhood conduct disorder and adult antisocial behavior. *Journal of Adolescent Health, 57*(1), 107–112. https://doi.org/10.1016/j.jadohealth.2015.03.009

Soliman, H. (2017). School social workers' perception of school climate: An ecological system perspective. *International Journal of School Social Work, 2*(1). https://doi.org/10.4148/2161-4148.1017

Steffgen, G., Recchia, S., & Viechtbauer, W. (2013). The link between school climate and violence in school: A meta-analytic review. *Aggression and Violent Behavior, 18*(2), 300–309. https://doi.org/10.1016/j.avb.2012.12.001

Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of Educational Research, 83*(3), 357–385. https://doi.org/10.3102/0034654313483907

Vagi, K. J., Stevens, M. R., Simon, T. R., Basile, K. C., Carter, S. P., & Carter, S. L. (2018). Crime Prevention Through Environmental Design (CPTED) characteristics associated with violence and safety in middle schools. *Journal of School Health, 88*(4), 296–305. https://doi.org/10.1111/josh.12609

Valli, L., Stefanski, A., & Jacobson, R. (2016). Typologizing school–community partnerships: A framework for analysis and action. *Urban Education, 51*(7), 719–747. https://doi.org/10.1177/0042085914549366

Van Eck, K., Johnson, S. R., Bettencourt, A., & Johnson, S. L. (2017). How school climate relates to chronic absence: A multi-level latent profile analysis. *Journal of School Psychology, 61*, 89–102. https://doi.org/10.1016/j.jsp.2016.10.001

Wang, M. T., & Degol, J. L. (2016). School climate: A review of the construct, measurement, and impact on student outcomes. *Educational Psychology Review, 28*(2), 315–352. https://doi.org/10.1007/s10648-015-9319-1

Way, N., Reddy, R., & Rhodes, J. (2007). Students' perceptions of school climate during the middle school years: Associations with trajectories of psychological and behavioral adjustment. *American Journal of Community Psychology, 40*(3–4), 194–213. https://doi.org/10.1007/s10464-007-9143-y

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