

School connectedness, school climate and emotional and behaviour disorders in students: Examining relationships

Aini Mahabbati^{a*}, Universitas Negeri Yogyakarta, Graduate School, Educational Sciences Department, Special Education Concentration, Sleman 55281, Indonesia

Wening Prabawati^b, Universitas Negeri Yogyakarta, Special Education Departement, Sleman and 55281, Indonesia

Ibnu Syamsi^c, Universitas Negeri Yogyakarta, Special Education Department, Sleman and 55281, Indonesia

Edi Purwanta^d, Universitas Negeri Yogyakarta, Special Education Department, Sleman and 55281, Indonesia

Purwandari Purwandari^e, Universitas Negeri Yogyakarta, Special Education Department, Sleman and 55281, Indonesia

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Abstract

Students with emotional and behaviour disorders (EBDs) have challenging school connectedness experiences related to their social, behaviour and academic problems. They need accommodative school climate. Therefore, it is necessary to know the relationship between variations in EBDs, school connectedness and school climate. This was a survey research on students with EBDs (N = 60) from 14 inclusive elementary schools. Questionnaires about EBD types, school connectedness and school climate were filled out by teachers as data. The data analysis technique used was descriptive statistics with product-moment correlation test. The results indicate that EBDs have a medium significant negative correlation with school connectedness (-0.591) and school climate (-0.521). School climate has a positive correlation with school connectedness (0.438). This study suggests positive school climate improvement to increase school connectedness of students with EBDs, because it can affect the reduction of problem behaviour.

Keywords: Student, emotional disorder, behaviour disorders, school connectedness, school climate, inclusive schools;

* ADDRESS FOR CORRESPONDENCE: Aini Mahabbati, Universitas Negeri Yogyakarta, Special Education Departement, Sleman and 55281, Indonesia

E-mail address: aini@uny.ac.id / Tel.: +62 817-4100-926

1. Introduction

Students with emotional and behaviour disorders have characteristics that affect learning difficulties that are not caused by learning methods or sensory and health problems, but because of emotional, behaviour and social problems (Ogundele, 2018). Emotional and behaviour disorders (EBDs) that impact other people are called externalising problem behaviour, and those that affect the child themselves are called internalising problem behaviour (Ogundele, 2018; Poulou, 2015), like attention deficit and hyperactivity disorder (Ogundele, 2018). EBDs have an impact on several aspects that support learning activities in schools. Students with EBDs often experience cognitive problems such as lack of language skills, cognitive abilities (attention and memory problems), self-regulation and learning commitment and experience mental and mood disorders (Keller et al., 2016; Kumara et al., 2017; Marsh et al., 2019). Problem behaviours in school that appear are often absent with or without permission (Finning et al., 2020); violation of learning and school rules and conduct disorder; lack of learning motivation and difficulty in concentrating (Mattison, 2015; Mattison & Blader, 2013); low involvement and commitment to learning (Kumara et al., 2017); and low academic achievement, also likely to fail in school and even drop out (Garwood & Moore, 2020). In the social area, the impact of EBDs is the low social skills of students towards teachers, friends and others (Marsh et al., 2019).

Based on the academic and social problems in school experienced by students with EBD, it is necessary to understand how they respond to school. This is because negative emotional experiences, such as feeling lonely, which are commonly associated with emotional and behaviour problem, were found to have a negative relationship with student life satisfaction (Gokaydin & Ozcan, 2018). Uncomfortable feeling in school is also caused by how the school responds to their problems in a repressive way, such as time out or exclusionary discipline, school suspension, office discipline referral or giving them removal experience from class activity (Lewis et al., 2017). The practice of applying these responses as consequences to negative behaviour is one of school disorder. On the other hand, the quality of life of students with emotional and behaviour disorders enhancement is significantly influenced by positive support from the school team, good social relationships, mentoring provided and the provision of major fidelity interventions (Kern, 2015).

Supportive and protective schools will reduce the influence of school disorder on student achievement (Hurd et al., 2015). Additionally, a comfortable school environment – with a sense of belonging, feeling safe and fairness – is one of the preventive efforts or antecedents' strategies for the emergence of student problem behaviour and other psychosocial disorders (Kern, 2015; Pikulski et al., 2020). Students' externalising or internalising problem behaviour that is related to reduce connectedness to school can be predicted from students' perception of school disorder (Hurd et al., 2015).

School connectedness is everything related to students' feeling about how adults and their friends in the school environment care about them as individuals, their academic success and their well-being in general (Marsh et al., 2019). Various literature studies have mentioned that school connectedness has strong psychological attributes. These include high motivation in school activities, feelings of autonomy and competence, sense of belongingness with peers and teachers and feelings involved with activities at school (Hodges et al., 2018). Aspects of school connectedness include school bonding and attachment, school engagement and school climate (Centre for Disease Control and Prevention [CDC], 2009). Therefore, the connectedness of students with EBDs with school is important for their behaviour and academic improvement.

School climate is one of the school connectedness components that has different perspectives from two others (school bonding or attachment and school engagement,). If the indicators of school engagement, school attachment and school bonding are seen from students' personal responses, then the indicators of school climate come from the nature of the school. School climate is the quality life of students and all school members that can be raised by implementation of social norms, positive values and practise and good sharing experience among school member (Marsh, 2018). Gage et al. (2016) mentions that school climate has several factors that are sourced by school-based activities, including school characteristic, all school members' values and perception of school safety and effectiveness and how are students and all school members' behaviour and attitudes.

Students with EBDs have a risk associated with low school connectedness than other students. This risk is related to the nature of their problem that affects their difficulties to start and maintain a positive relationship with teachers and peers (Marsh, 2019). School positive relationship circumstance is part of the school climate. Schools that have a positive school climate have a high level of school connectedness and close peer relationships, and support increased assertiveness and empathy (Acosta et al., 2018), and can be the strongest protective factor for students' well-being (Lester & Cross, 2015). For students with EBDs, a positive school climate can be a protective factor for academic, social and behaviour problem prevention (Gage et al., 2016).

Many studies discuss the relationship between school connectedness and school climate on various student-specific matters related, for example, with school disorders and students' psychosocial aspects (Hurd et al., 2015), bullying behaviour and student well-being (Acosta, et al, 2018), violent behaviour of students (Chung-Do et al., 2015), mental health of students with emotional and behaviour disorders (La Salle, 2018) and children anxiety (Pikulski et.al, 2020). Other studies explored general evidence of school connectedness and school climate in students with emotional and behaviour disorders compared to students without special needs (Marsh et al., 2019); school climate associated with school violence and academic behaviour (Benbenishty et al., 2016); teachers' perceptions of students' school connectedness with emotional and behaviour disorders (Marsh et al., 2021). Therefore, this study focuses on examining the relationship between three aspects of school connectedness (school bonding, school attachment and school engagement) and three main types of emotional and behaviour disorders in students (externalising behaviour, internalising behaviour and hyperactivity) in correlation study. The findings and implications of this study are expected to be the basis actions for school that have students with EBDs to think further about school programmes, especially behaviour support programmes. Behaviour support programmes can increase a positive school climate and school connectedness which is closely related to increasing academic behaviour and learning achievement and decreasing problem behaviour.

2. Method

2.1. Research model

This study involved the survey design to find out the correlation between research variables: type of EBDs, school connectedness and school climate. The correlation findings also include each sub-variables of school connectedness and school climate. The data collected were analysed using the product-moment correlation. Previously, the instruments used were tested for reliability and validity.

2.2. Setting and participants

This study involved 16 inclusive elementary schools having students with EBD in Yogyakarta District. The schools and initial identification of students with EBDs were obtained from the Disability Service Unit and Resource Centre of the Education Authorities of Yogyakarta District in 2019. Then, classroom

teachers and/or special teachers verified the data based on teacher interactions with those students for at least a year and determined 60 students with EBDs: a 1-year interaction period based on the existing EBD criteria in children for a minimum of 6–12 months (APA, 2013).

Table 1. Data of students with emotional and behavioural disorder

Students	Frequency (<i>f</i>)	Percentage (%)
Age (y.o)		
8	11	18.3
9	7	11.7
10	10	16.7
11	12	20.0
12	16	26.7
13	4	6.7
Total	<i>n</i> = 60	100
Grade		
2	12	20.0
3	5	8.3
4	13	21.7
5	13	21.7
6	17	28.3
Total	<i>n</i> = 60	100

2.3. Data collection process

The data collected consisted of the types of EBDs of students, their school connectedness and school climate. The data are filled in by classroom teachers or special teachers or other teachers who interacted with students for at least 1 year. The research instrument was proposed to the teachers in paper form and submitted to the researchers in a closed folder. The researcher explained directly to the teacher how to fill in the research instrument. The teacher filled out the instrument within 3–6 days.

2.4. Data collection tools

There were three scales used in this study: emotional and behaviour disorders identification; school connectedness of students with emotional and behaviour disorders; and school climate.

2.4.1. Identification of emotional and behaviour disorders

The purpose of the EBD identification scale was to obtain the type of students' EBDs. The scale is adapted from the Social Skills Rating System by Gresham et al. (2011) in the Problem Behaviours Scale section. It consists of three types of EBDs: externalising problem behaviour (six items), internalising problem behaviour (six items) and hyperactivity (seven items). Teachers choose one of three numbers provided: 0 = never, 1 = sometimes and 2 = always. The total score is determined by adding up the numbers on all items.

2.4.2. School connectedness of students with emotional and behaviour disorders

This scale has three subscales: school bonding (nine items), school attachment (six items) and school engagement (five items). The scale formulation is based on the three components of school connectedness (Marsh et al., 2018). Measurements were made by the teacher according to the students' school connectedness, with ranges of 1 = never, 2 = rarely, 3 = sometimes and 4 = always. The total score was gained by adding up the numbers on all items.

2.4.3. School climate

The school climate scale consists of four aspects (Marsh et al., 2018): physical and emotional safety (13 items), learning climate (four items), relationship between school members (four items) and the school’s physical environment (three items). Teachers filled the scale based on their perception of the school climate in their schools. The measurement scale was in the range of 1 = strongly disagree, 2 = disagree, 3 = somewhat agree and 4 = strongly agree. The total score was determined by adding up the numbers of all items.

Reliability analyses for all the scales were conducted in SPSS version 24.0. Cronbach’s alpha value in a scale reliability was >0.70. This means that each aspect of the variable has high reliability.

Table 2. Variable reliability test results

No	Variables	Items	Cronbach’s alpha
	Identification of emotional and behaviour disorder	19	0.862
1	Externalising problem behaviour	6	0.879
2	Internalising problem behaviour	6	0.925
3	Hyperactivity	7	0.873
	School connectedness	20	0.937
1	School bonding	9	0.896
2	School attachment	6	0.834
3	School engagement	5	0.883
	School climate	24	0.963
1	Written and unwritten class rules	13	0.927
2	Teaching–learning climate	4	0.881
3	Relationship between school member	4	0.878
4	Physical environment	3	0.801

Resource: Primary data conducted, 2021.

The validity test was carried out using a bivariate relationship with the help of SPSS Statistics 24.0. The results can be seen from the results in the corrected item-total correlation column. The test used a 95% confidence level or 5% significance (α). The questionnaire is valid if it meets the testing parameters through the corrected item–total correlation value >0.30 and invalid if corrected item – total correlation was <0.30. The validity of the items on each aspect of the variables of EBDs, school connectedness and school climate is because the corrected item-total correlation value was >0.30. This means the instrument in this study can measure what it actually wants to measure, as shown in Table 3.

Table 3. Emotional and behavioural disorder scale validity test results

Items	Corrected item – Total correlation		
	1	2	3
ext1	0.558		
ext 2	0.657		
ext 3	0.762		
ext 4	0.721		
ext 5	0.739		
ext 6	0.681		
int1		0.703	
int2		0.851	
int3		0.863	

Items	Corrected item – Total correlation		
	1	2	3
int4		0.689	
int5		0.876	
int6		0.736	
hyp1			0.524
hyp2			0.792
hyp3			0.757
hyp4			0.617
hyp5			0.697
hyp6			0.439
hyp7			0.749

Resource: primary data conducted, 2021.

Note: ext = externalising problem behaviour; int = internalising problem behaviour; hyp = hyperactivity.

Table 4. School connectedness scale validity test results

Items	Corrected item – Total correlation		
	1	2	3
bon1	0.660		
bon2	0.640		
bon3	0.761		
bon4	0.633		
bon5	0.590		
bon6	0.721		
bon7	0.603		
bon8	0.706		
bon9	0.623		
att1		0.755	
att2		0.681	
att3		0.670	
att4		0.611	
att5		0.570	
att6		0.411	
eng1			0.610
eng2			0.776
eng3			0.657
eng4			0.778
eng5			0,795

Resource: primary data conducted, 2021.

Note : bon = School bonding, att = School attachment;, eng = School engagement.

Table 5. School climate scale validity test results

Items	Corrected item – Total correlation			
	1	2	3	4
pes1	0.527			
pes 2	0.453			
pes 3	0.499			

Items	Corrected item – Total correlation			
	1	2	3	4
pes4	0.740			
pes5	0.717			
pes6	0.858			
pes7	0.748			
pes8	0.765			
pes9	0.840			
pes10	0.712			
pes11	0.788			
pes12	0.700			
pes13	0.614			
lc1		0.841		
lc2		0.739		
lc3		0.730		
lc4		0.668		
rhm1			0.715	
rhm2			0.668	
rhm3			0.787	
rhm4			0.839	
spe1				0.718
spe2				0.778
spe3				0.477

Resource: primary data conducted, 2021.

Note: pes = physical and emotional safety; lc = learning climate; rbm = relationships between school members; spe = school's physical environment.

2.5. Analyses

All data were analysed using the Pearson product–moment correlation formula with SPSS version 25. Pearson’s product–moment correlation was used to measure the strength of the linear relationship between variables that have been tested to be normally distributed (Senthilnathan, 2019). Correlation test was conducted on each type of EBD with school connectedness and school climate, and between each sub-variable of school connectedness and each sub-variable of school climate.

Prior to correlation analysis, data regarding the emergence of characteristics of EBD in students were described through percentage analysis. Percentage analysis was used to provide an initial description of the various characteristics of problem behaviour that have been identified by the teacher according to the scale. In addition, to provide a clearer picture of the level of interference, an analysis was carried out by calculating the hypothetical mean standard deviation of the hypothetical standard deviation. The steps to determine the hypothetical mean and hypothetical standard deviation for each type of behaviour disorder are shown in Table 6.

Table 6. Score range of the level of emotional and behaviour disorder based on hypothetical mean values

	Externalising behaviour	problem	Internalising behaviour	problem	Hyperactivity
Hypothetical mean values (μ)	$\frac{1}{2} (X_{\max} + X_{\min}) \times \text{total items}$ $= \frac{1}{2} (2 + 0) \times 6$ $= 6$		$\frac{1}{2} (X_{\max} + X_{\min}) \times \text{total items}$ $= \frac{1}{2} (2 + 0) \times 6$ $= 6$		$\frac{1}{2} (i_{\max} + i_{\min}) \times \text{total items}$ $= \frac{1}{2} (2 + 0) \times 7$ $= 7$

Hypothetical deviation standards	$\frac{1}{6} (X_{\max} - X_{\min})$ = $\frac{1}{6} (12 - 0)$ = 2	$\frac{1}{6} (X_{\max} - X_{\min})$ = $\frac{1}{6} (12 - 0)$ = 2	$\frac{1}{6} (X_{\max} - X_{\min})$ = $\frac{1}{6} (14 - 0)$ = 2.33
Severe	$X > 8$	$X > 8$	$X > 9.33$
Moderate	$4 \leq X \leq 8$	$4 \leq X \leq 8$	$4.67 \leq X \leq 9.33$
Low	$X < 4$	$X < 4$	$X < 4.67$

Note: X = total score.

Formulas: High = $\mu + 1 \text{ SD} < X$;

Moderate = $\mu - 1 \text{ SD} \leq X \leq \mu + 1 \text{ SD}$;

Low = $X < \mu - 1 \text{ SD}$.

3. Results

3.1. Initial description of students' emotional and behavioural disorders

EBD types of students in this study consist of externalising problem behaviour, internalising problem behaviour and hyperactivity. Findings regarding the dynamics of EBD are detailed based on the criteria for disorders which are the basis for compiling the sub-variables/indicator instruments. The dynamics of external behaviour disorders are shown in Figure 1.

Figure 1. Externalising problem behaviour. Notes: a = fighting with friends; b = threatening and disturbing other friends; c = arguing with adults; d = denying (countering to) an adult's advice or correction in a negative way; e = easy to get angry; and f = temper tantrums

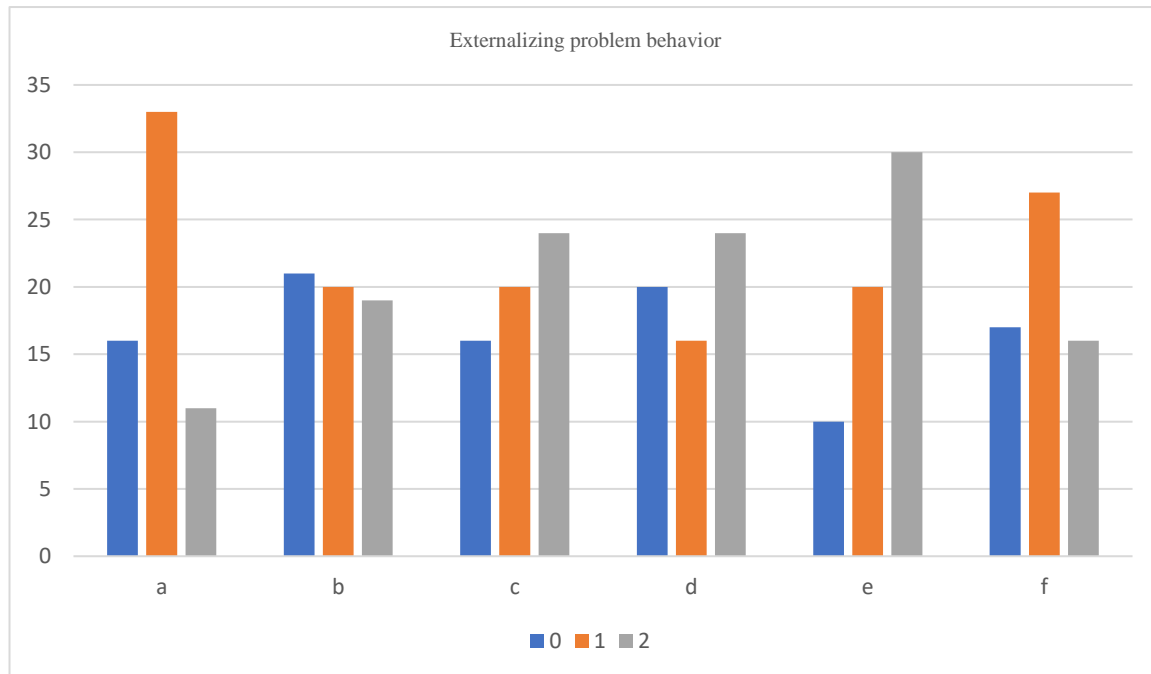


Figure 1. Externalising problem behaviour

Table 7. Percentage of externalising problem behaviour occurrence based on the scales

Scales	a		b		c		d		e		f		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%

0 = never	16	27	21	35	16	27	20	33	10	17	17	28	100	28
1 = sometimes	33	55	20	33	20	33	16	27	20	33	27	45	136	38
2 = always	11	18	19	32	24	40	24	40	30	50	16	27	124	34

Figure 1 shows that, from various externalising problem behaviours, students most often do on a scale sometimes and then always do it with a slight difference (4%). Irritable behaviour is the behaviour on the always scale that appears the most (50%). The most frequent behaviour on the occasional scale was fighting with friends (55%). The dynamics of internalising problem behaviour can be seen in Figure 2.

Figure 2. Internalising problem behaviour. Notes : a = low self-estimation; b = seems often alone; c = looks anxious when with friends; d = like to be alone; e = shy; f = shows behaviour that always looks sad/moody

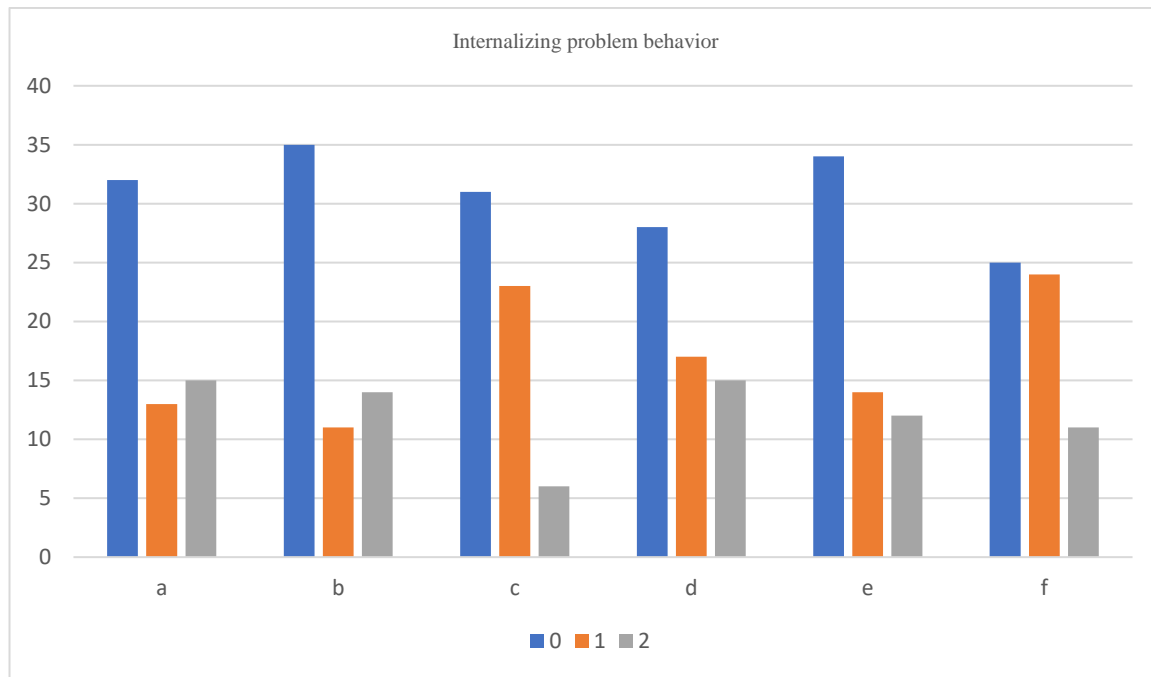


Figure 2. Internalising problem behaviour

Table 8. Internalising problem behaviour

Scales	a		b		c		d		e		f		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
0 = never	32	53	35	58	31	52	28	47	34	57	25	42	185	51
1 = sometimes	13	22	11	18	23	38	17	28	14	23	24	40	102	28
2 = always	15	25	14	23	6	10	15	25	12	20	11	18	73	20

In internalising problem behaviour, even though the teacher marks the students as the type of students who experience internalising problem behaviour, half of their behaviours are in the 'never' category and the other half are in the 'sometimes' and 'always' categories. The dynamics of students' hyperactivity disorder can be seen in Figure 3.

Figure 3. Hyperactivity. Notes: a = interrupting other people's conversation; b = easily distracted; c = shows behaviour that causes ongoing activities to be disrupted; d = does not seem to be listening to

what other people are talking about; e = impulsive behaviour; f = restless or moving excessively; g = talks a lot but does not mean anything

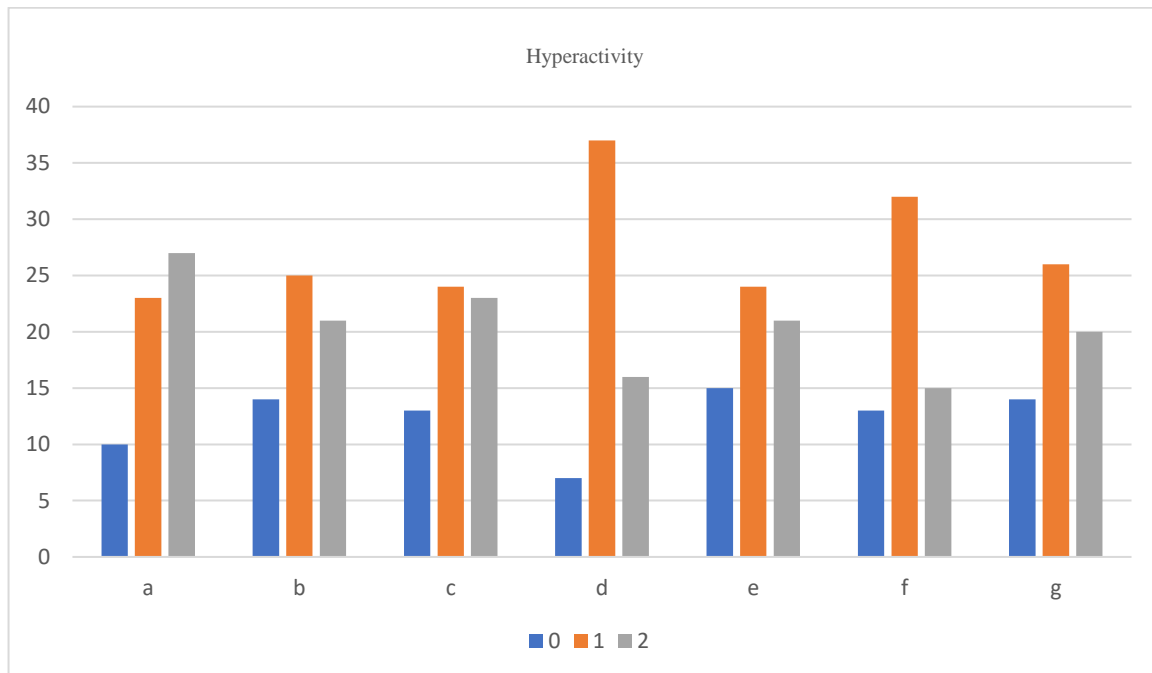


Figure 3. Hyperactivity

Table 9. Hyperactivity

	a		b		c		d		e		f		g		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
0 = never	10	17	14	23	13	22	7	12	15	25	13	22	14	23	14	23
1 = sometimes	23	38	25	42	24	40	37	62	24	40	32	53	26	43	26	43
2 = always	27	45	21	35	23	38	16	27	21	35	15	25	20	33	20	33

The data described in the figure show that the most characteristic of hyperactivity behaviour is in the 'sometimes' category and then in the 'always' category. Only a quarter of the behavioural traits of hyperactivity were in the 'never' category. The behaviour of appearing not to listen when spoken to by others was identified as the most frequent behaviour in the 'sometimes' category. The behaviour that often appears in the 'always' category is the behaviour of interrupting other people's conversations.

This study reveals the level of interference by using a hypothetical mean calculation. Based on the hypothetical mean value, the general findings of the level of each type of emotional and behavioural disorders are as shown in Table 10.

Table 10. Category level of emotional and behaviour disorders

	Values	Frekuensi	Presentase
Externalising problem behaviour			
Severe	$X > 8$	22	37%
Moderate	$4 \leq X \leq 8$	23	38%
Low	$X < 4$	15	25%
Internalising problem behaviour			
Severe	$X > 8$	10	17%

Moderate	$4 \leq X \leq 8$	20	33%
Low	$X < 4$	30	50%
Hyperactivity			
Severe	$X > 9.33$	24	40%
Moderate	$4.67 \leq X \leq 9.33$	26	43%
Low	$X < 4.67$	10	17%

The table shows that most students show moderate levels of externalising problem behaviour and hyperactivity, and only slightly differ from those in the high category (1% and 3%, respectively). As for students with internal behaviour disorders, most of them are in the low category (50%), followed by moderate (33%) and high (17%) categories.

Externalising problem behaviour and hyperactivity have the same level of proportion, because many students experience externalising problem behaviour along with hyperactivity behaviour disorder. It was found in this study that students with a high level of externalising problem behaviour and a high level of hyperactivity were 28.3% of the total respondents, and those who experienced these two disorders were at a moderate level of 21.6%. Students with externalising problem behaviour at a high level and hyperactivity at a moderate level and vice versa are 20%.

3.2. Hypothesis testing through Pearson's Product–Moment correlation

Data from the questionnaire of 60 respondents were collected and calculated using SPSS version 25; the p-value of significance of 0.000 is smaller than the significance value of 0.05. Correlation tests were conducted on each type of EBD with school connectedness and school climate, and between school connectedness and school climate. Table 11 presents the results of the hypothesis testing with the Pearson product–moment correlation.

Table 11. Product–moment correlation results between variable aspects

Aspects	ext	int	hyp	EBD	bon	att	eng	CONN	pes	lc	rbm	spe	CLI
ext	1	-0.060	0.732**	0.790**	-0.407**	-0.186	-0.546**	-0.429**	-0.436**	-0.350**	-0.427**	-0.413**	-0.444**
int	-0,060	1	-0.083	0.467**	-0.298*	-0.465**	-0.190	-0.358**	-0.162	-0.112	-0.149	-0.112	-0.154
hyp	0.732**	-0.083	1	0.784**	-0.327*	-0.307*	-0.468**	-0.405**	-0.452**	-0.402**	-0.462**	-0.452**	-0.476**
EBD	0.790**	0.467**	0.784**	1	-0.511**	-0.488**	-0.585**	-0.591**	-0.510**	-0.419**	-0.505**	-0.473**	-0.521**
bon	-0.407**	-0.298*	-0.327*	-0.511**	1	0.741**	0.621**	0.929**	0.493**	0.389**	0.446**	0.411**	0.488**
att	-0.186	-0.465**	-0.307*	-0.488**	0.741**	1	0.625**	0.886**	0.307*	0.213	0.218	0.287*	0.290*
eng	-0.546**	-0.190	-0.468**	-0.585**	0.621**	0.625**	1	0.817**	0.325*	0.261*	0.289*	0.358**	0.331**
CONN	-0.429**	-0.358**	-0.405**	-0.591**	0.929**	0.886**	0.817**	1	0.444**	0.343**	0.381**	0.407**	0.438**
pes	-0.436**	-0.162	-0.452**	-0.510**	0.493**	0.307*	0.325*	0.444**	1	0.832**	0.806**	0.742**	0.966**
lc	-0.350**	-0.112	-0.402**	-0.419**	0.389**	0.213	0.261*	0.343**	0.832**	1	0.869**	0.788**	0.921**
rbm	-0.427**	-0.149	-0.462**	-0.505**	0.446**	0.218	0.289*	0.381**	0.806**	0.869**	1	0.875**	0.918**
spe	-0.413**	-0.112	-0.452**	-0.473**	0.411**	0.287*	0.358**	0.407**	0.742**	0.788**	0.875**	1	0.857**
CLI	-0.444**	-0.154	-0.476**	-0.521**	0.488**	0.290*	0.331**	0.438**	0.966**	0.921**	0.918**	0.857**	1

Resource: primary data conducted, 2021.

Note: **. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed).

- ext = externalising problem behaviour; int = internalising problem behaviour; hyp = hyperactivity; EBD = emotional and behaviour disorder.

- bon = School bonding, att = School attachment; eng = School engagement; CONN= School connectedness.
- pes = physical and emotional safety; lc = learning climate; rbm = relationships between school members; spe = school's physical environment; CLI = school climate.

The result indicates that most of the aspects of each variable (emotional and behaviour disorders, school connectedness and school climate) have a significant value (<0.05). The value of the correlation coefficient with the SPSS 24.0 programme is obtained because of the correlation coefficient (r). R for social science ($r = 3.5$ or $r = -3.5$) and statistically significant is stated as a reasonable correlation because qualitative measurement of social variables is often fluctuating and inconsistent (Senthilnathan, 2019). The r -value shows the magnitude of the relationship of each aspect of the variable. The criteria for the closeness of the relationship between the two research variables include the following: $-0.20 < R < +0.20$ = very weak correlation (can be neglected); $-0.20 > R > -0.35$ / $+0.20 < R < +0.35$ = weak correlation; $-0.35 < R < +0.50$ / $+0.35 < R < +0.50$ = moderate correlation; $-0.50 < R < -0.70$ / $+0.50 < R < +0.70$ = high correlation; and $-0.70 < R < -1.00$ / $+0.70 < R < +1.00$ = very strong correlation (Senthilnathan, 2019).

The relationship between all aspects of each variable is positive (+) and negative (-). A positive value means that the better the aspect the better the variable, and vice versa. A negative value means that the better the aspect the worse the variable, and vice versa. Meanwhile, the large relationship is said to have a moderate relationship if the correlation value is between 0.400 and 0.599 according to the above-mentioned criteria. Thus, the research hypothesis H_a is accepted and H_o is rejected, meaning that there is a significant relationship between variable aspects.

The details of the correlation test results include within and between correlations of three variables. In the types of EBDs, the relationship between externalising problem behaviour and internalising problem behaviour has a negative high correlation (-0.060), which means that the higher the level of externalising problem behaviour, the lower the level of internalising behaviour that may be experienced by students; and internalising problem behaviour with hyperactivity has a very strong negative correlation (-0.083). The externalising problem behaviour with hyperactivity has a very strong positive correlation (0.732), which means that the stronger the externalising problem behaviour, the stronger the possibility of students experiencing hyperactivity.

The correlation between aspects of school connectedness shows that school bonding with school attachment (0.741) is a very strong positive correlation, and school engagement (0.621) has a high positive correlation, which is similar to school attachment and school engagement (0.625). Meanwhile, every aspect of school climate shows a very strong positive correlation ($r > 0.70$). All this indicates that the greater the value of the aspects of the variables the greater the others, and vice versa.

The correlation between each variable shows a high and negative correlation between EBDs with school connectedness (-0.591), i.e., the greater the EBD, the lower the student's school connectedness, which is similar to EBDs with school climate (-0.521). Moderate correlation is concluded to occur between school connectedness and school climate (0.438). This means that the higher the student's school connectedness the higher the school climate value, and vice versa.

The general results of the correlation test on the variables of EBD, school connectedness and school climate are presented in Table 12.

Table 12. Pearson's correlation

	GEP	CON	CLI
GEP	1	-0.591**	-0.521**
CON	-0.591**	1	0.438**
CLI	-0.521**	0.438**	1

**Correlation is significant at the 0.01 level (2-tailed).

4. Discussion

4.1. Dynamics between variables

Most of the students with externalising problem behaviour in this research also have hyperactivity problem behaviour, especially for severe and moderate level disorders. The finding of the categorisation level of disorder based on the hypothetical mean was confirmed by the correlation test finding that externalising problem behaviour with hyperactivity has a very strong positive correlation (0.732). Externalising problem behaviour is often identified in children with severe hyperactivity problem behaviour (Barra et al., 2020). Hyperactivity problem behaviour is related to externalising problem behaviour based on the risk of social problems, mood and emotion regulation difficulties, tendency to irritability, over reaction and impulsivity (Al-Yagon et al., 2020; Barra et al., 2020).

In the disturbance process, a significant relationship was found between hyperactivity problem behaviour and externalising/internalising problem behaviour based on symptoms of sluggish cognitive tempo as an influencing neurological factor (Sevincok et al., 2020). Behaviour symptoms and processes of hyperactivity problem behaviour and externalising problem behaviour, which are similar, are because most students with externalising problem behaviour also experience hyperactivity problem behaviour (Barra et al., 2020). This affects the results of identification by teachers who find students with externalising behaviour also experience hyperactivity problem behaviour.

The correlation test on externalising problem behaviour with internalising problem behaviour shows a negative high correlation (-0.060), and with hyperactivity it shows a very strong negative correlation (-0.083). Based on the results of the categorisation of the disorders level, it was found that a few students experienced internal behaviour disorders along with externalising behaviour disorders/hyperactive behaviour. There is a relationship between hyperactivity problem behaviour/externalising problem behaviour and internalising problem behaviour, apart from tendency of sluggish cognitive tempo symptoms (Sevincok et al., 2020). It is also associated with the possibility that students with attention deficit hyperactivity disorder experience social risk factor such as being bullying victims at school (Fogleman et al., 2018), parenting and attachments problems and negative family/environmental experiences (Al-Yagon et al., 2020). This causes students to tend to experience several symptoms of internalising problem behaviour identified by the teacher, such as symptoms of anxiety and depression.

All aspects of school connectedness correlation indicate that school bonding and school attachment have a very strong positive correlation (0.741), with school engagement having a high positive correlation (0.621) and between school attachment and school engagement having a high positive correlation (0.625). This is in accordance with the attributes of school connectedness which develop students' activities, experiences/thoughts and positive feelings as a personal and social member in school (Hodges et al., 2018). Students who have strong school bonding would create and maintain positive relationships and trust with teachers, friends and all school member, so that they will develop strong attachments with the school because their comfortable feeling, then would increase engagement with all school activities (Marsh, 2018). Strong school connectedness is also shown from

the well-being and high resilience of students in dealing with school assignments because they believe that the school environment and all its regulations are made in a fair, orderly, positive discipline and help them to learn comfortably and successfully (Hodges et al., 2018).

Meanwhile, between every aspect of school climate, it also shows a very strong positive correlation ($r > 0.70$). School climate is a school member's perception about positive school circumstances. Positive school climate is characterised by the existence of a real school programme to create a conducive environment that develops academic learning outcomes and student behaviour. This is implemented by applying the rules of behaviour for students and all of school members with more emphasis on reinforcing appropriate behaviour and providing support for social and academic behaviour that is appropriate to the needs of students (Gage et al., 2016).

There is a high negative correlation between EBDs with school connectedness (-0.591). The higher the level of EBD the higher their school attachment problems. Students with EBDs experience many problems that cause their school bonding, such as problems in learning abilities (Keller et al., 2016; Marsh et al., 2019), problematic behaviour in learning (Finning et al., 2020; Mattison, 2015; Mattison & Blader, 2013) and social skills in schools (Marsh et al., 2019). In internalising problem behaviour, school connectedness affects the frequency and intensity of anxiety symptoms at school (Pikulski et al., 2020). Students with EBDs also often have a perception of a lack of school climate in school because of the unpleasant experience of implementing behaviour consequences that are applied to them in school (Lewis et al., 2017). This is confirmed by the results of the correlation test which shows a high negative correlation between EBDs and school climate (-0.521).

4.2. Implication for teachers and schools

School connectedness with school climate has a moderate potential correlation (0.438). School-based supports are needed to develop a school climate, which will increase the sense of attachment marked by feeling comfortable and successful in school (Hodges et al., 2018). Classroom management strategies based on an assessment system and the application of behaviour management are related to improving the quality of learning and student engagement in schools (Lekwa et al., 2019). Classroom management practices and positive behaviour management that can be applied by teachers to improve school engagement and overall student connectedness are carried out by implementing active and interactive learning, providing support, supervision and feedback, generating positive emotional expressions by listening and being optimistic about students' abilities (Gage et al., 2017; Lester & Cross, 2015). It is important for teachers to accept and think that students with emotional and behaviour disorders have the ability to develop school connections, even though they still engage in problem behaviour (Marsh & Cumming, 2021). The provision of special services such as counselling with collaboration between teachers, families and the environment is also needed to overcome students' emotional and behaviour problems (Gokaydin & Ozcan, 2018).

The focus of learning on students with EBD is oriented towards academic achievement and behaviour support. This is because some of the special characteristics of students' academics are related to emotional and social problems. For example, gifted students often experience emotional problems, such as mood disorders, feelings of loneliness, meaninglessness, low self-esteem and difficulties in self-expression, and social problems, such as adaptation problems, difficulties in peer relationships, being excluded and feeling not understood and accepted (Gokaydin, & Ozcan, 2018). Therefore, efforts that can be practiced in schools are integrating general learning in the classroom or at school with social emotional learning. The application of social emotional learning by applying the principles of interdisciplinary learning, differentiated learning and engagement learning was found to be successful

in increasing student engagement in learning even though it was less structured, more interested in challenging academic activities and practicing the social emotional skills they achieved in learning (Morris et al., 2017). Interdisciplinary learning is applied by integrating social emotional development materials with academic learning. Differentiated learning is implemented by adjusting the curriculum, process and learning resources to the individual abilities of students. As for student engagement in learning, it is carried out by encouraging students to be active in expressing emotional social learning outcomes in academic learning through various interesting and unconventional learning activities.

Differentiated learning is very suitable to accommodate the unique and individual needs of students with EBDs. The keywords of differentiated instruction/learning are how the whole learning is designed and implemented in high quality, from lesson planning, learning implementation and evaluation (Smale-Jacobse et al., 2019). The implementation of differentiated instruction with a structured arrangement, development driven by school leaders and integrated with a positive culture in schools will support the development of school quality (De Neve & Devos, 2017). Good school quality leads to a positive school climate, which is a factor that is positively correlated to students' school attachment and can reduce student behaviour problems.

5. Conclusion

These research findings demonstrate that school connectedness and school climate have a positive correlation, and both have a negative correlation with the overall type of emotional and behavioural disorders. Increasing school climate will support the improvement of students' school connectedness. The implication of this study indicates that improvement of positive school climate will increase students' school connectedness, and it can be associated with reduced students' problem behaviour in school.

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