

The relationships between school climate, bullying and delinquent behaviours

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Conflicts of interest

The authors declare that they have no conflict of interest.

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Abstract

Given that schools are, potentially, powerful sites for influencing adolescent behaviour, it is important that there is increased understanding of the psychosocial aspects of the school climate that can be leveraged for this purpose. The research reported in this article used structural equation modelling (with data from a sample of 6120 students at Australian high schools) to examine the influence of the psychosocial school-level environment on students' self-reported experiences of bully victimisation (that is, being victims of bullying) and engagement in delinquent behaviours. Further, the research examined whether bully victimisation mediated the relationships between the school climate variables and delinquent behaviours. The results indicated that school connectedness and rule clarity were negatively associated with both bully victimisation and delinquency ($p < .05$), and teacher support was negatively associated with bully victimisation ($p < .01$), confirming the importance of these aspects of the school-level environment. However, affirming diversity and reporting and seeking help both had positive influences on bully victimisation ($p < .05$), raising concerns about the ways in which these aspects of the school-level environment may have been promoted. Importantly, bully victimisation was found to mediate the influence of five of the six school climate constructs on delinquent behaviours ($p < .001$). The results of this study advance our understanding of how specific aspects of the school climate influence the prevalence of bullying and delinquent behaviour, adding weight to the call for educators to actively monitor and enhance psychosocial aspects of the school climate to improve student behavioural outcomes.

Keywords

School climate, school-level environment, delinquency, risk behaviour, bullying, What's Happening In This School? (WHITS) survey

The relationships between school climate, bullying and delinquent behaviours

Delinquent behaviours among adolescents have serious and far-reaching consequences, both for the adolescents involved and for society at large. Engagement in substance abuse, criminal activities, or health-risk behaviours may result in: adverse physical and mental health consequences; teen pregnancy; addiction; poor educational and employment outcomes; reduced quality of life; and, ultimately, premature mortality (see, for example, Chang et al. 2003; Crosby et al. 2009; Valois 2014). The economic costs to society that result from such behaviours are large; for example, in the US alone, adolescent incarceration costs over \$2 billion annually (Valois 2014), while teen childbearing costs over \$9 billion (The National Campaign 2013). Given the significant consequences of adolescent delinquency, reducing and preventing such delinquent behaviours should be an important social priority (Crosby et al. 2009).

Since adolescents spend much of their time at school, schools are, potentially, a powerful site for influencing adolescent behaviour (Harris et al. 2002; Masten et al. 2008). Existing research has indicated that aspects of the psychosocial school climate are negatively associated with adolescent delinquency and risk behaviour (see, for example, Bond et al. 2004; Carter et al. 2007; Harris et al. 2002; Klein et al. 2012; Reid et al. 2006). As such, schools can contribute to the prevention and reduction of adolescent delinquent behaviours by intentionally optimising their climates.

Unfortunately, alongside their potential for positively influencing adolescents, schools can also be the context for an additional source of strain upon adolescents: bully victimisation (that is, being a victim of bullying behaviour). Such victimisation has been shown to increase the likelihood of adolescents engaging in delinquent behaviours (see, for example, Chang et al. 2003; Haynie et al. 2001; Klein et al. 2012; Shetgiri 2013). Estimates of bullying prevalence vary greatly (Shetgiri 2013); however, a recent meta-analysis estimated that 36% of adolescents are victimised (Modecki et al. 2014).

Considering the three factors: school climate, bully victimisation and delinquent behaviours, school climate is the variable that educators can directly influence. Given the evidence demonstrating

the influence of school climate on both victimisation and delinquency, school climate has the potential to be a powerful lever for preventing and reducing these negative outcomes.

Present study

The study reported in this article investigated how the school climate might impact on bully victimisation and delinquent behaviours among adolescents. Although three prior studies have explored the relationships between school climate, bully victimisation and delinquent behaviours (Bond et al. 2006; Klein et al. 2012; Reid et al. 2006), our research extended these existing studies through our finer-grained and more comprehensive examination of the relative contributions of six aspects of school climate to bully victimisation and delinquent behaviours. As such, our study makes a valuable contribution to existing literature involving these constructs.

The study had two objectives. First, since school climate is known to be a complex and multidimensional construct (Wang and Degol 2016), we sought to determine which aspects of school climate influenced bully victimisation (*hypothesis 1*) and delinquent behaviours (*hypothesis 2*). To this end, we examined six specific aspects of school climate, namely: teacher support, peer connectedness, school connectedness, affirming diversity, rule clarity, and reporting and seeking help. These aspects of school climate are defined in the next section. The second objective sought to determine whether bully victimisation functioned as a mediator of the relationship between school climate and delinquent behaviours; that is, whether increased bully victimisation would lead to increased delinquency (*hypothesis 3*). The conceptual framework used for the study is summarised in Figure 1.

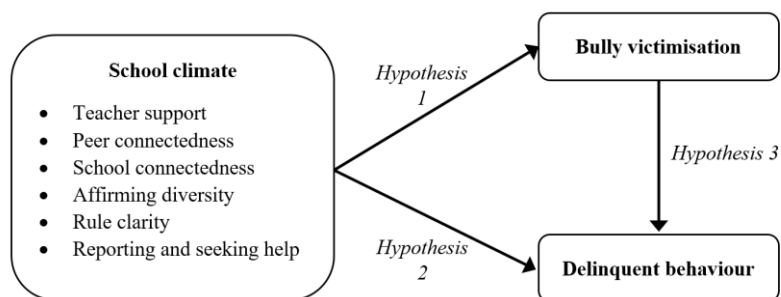


Figure 1 The conceptual framework used in the study

The next section of provides a brief review of literature related to school climate, bully victimisation, and delinquent behaviours and defines how these constructs were interpreted for the present study. This is followed by details of the methods used and the results obtained. Finally, the findings of the study are discussed and key conclusions, limitations, and implications are identified.

Literature Review

School climate

For the purpose of this study, school climate was defined as the attitudes, norms, beliefs, values, and expectations that underpin school life and affect the extent to which members of the school community feel safe (Aldridge et al. 2016; Cohen et al. 2009). Our focus was on the psychosocial, school-level climate (and not, for example, on the physical environment or the classroom-level climate).

School climate was operationalised for the present study using six constructs; these were defined as follows (Aldridge and Ala'i 2013; Riekie et al. 2017):

- *Teacher support* examined the quality of student-teacher relationships and students' perceptions of whether their teachers valued and supported them;
- *Peer connectedness* examined the quality of inter-student relationships, including relationships across different groups of students;
- *School connectedness* examined the degree to which students felt a sense of attachment, belonging and connectedness to the school;
- *Affirming diversity* examined the degree of acknowledgement, acceptance, inclusion and value perceived by students of differing backgrounds and experiences;
- *Rule clarity* examined the extent to which students felt that the school rules were clear and appropriate; and
- *Reporting and seeking help* examined students' awareness of school procedures for reporting issues and their willingness to make use of these.

The six aspects of school climate that were selected for the present study are supported within the literature. A recent review by Berkowitz et al. (2017) noted that teacher support, school connectedness and school safety (reflected in our two dimensions of rule clarity and reporting and seeking help) are “central components that recur in the majority of definitions and measurements” of school climate (p. 7). The same review also recommended that future studies investigate relational trust and respect for diversity; these correspond to our peer connectedness and affirming diversity dimensions. Aldridge and Ala’i (2013) provided further information regarding the importance of the six aspects of school climate that were selected for the present study.

Positive school climates are associated with improvements in students’: self-esteem and self-concept, mental and physical health, academic achievement, attitudes toward schooling, and behaviour (for reviews, see Cohen et al. 2009; Jamal et al. 2013; Thapa et al. 2013; Wang and Degol 2016). Despite the strong research evidence supporting these associations, however, the climates of many schools still do not reflect the characteristics of optimal school climates (Cohen et al. 2009; Felner et al. 2001). According to Cohen et al. (2009, p. 181), “this gap undermines ... students’ ability to learn and develop in healthy ways”; further, at-risk students are disproportionately vulnerable to the effects of negative school climates (Center for School Health and Education 2011; Felner et al. 2001; Hopson and Lee 2011). Given this evidence of the importance of school climate, the present study sought to extend existing understandings of how school climate affects student outcomes in the areas of bully victimisation and delinquent behaviour.

Bully victimisation

Bullying is commonly defined using three conditions: Bullying is (a) repeated negative behaviour that is (b) perpetrated by either an individual or a group of students towards another individual or group of students and (c) involves a power imbalance such that the victimised students struggle to resist or defend themselves against the negative behaviour (National Center for Injury Prevention and Control 2014; Olweus 1994). Students can be involved in bullying as: perpetrators of the negative behaviour (bullies); victims; bully-victims (students who bully some students but are also bullied themselves by other students); and bystanders. There are both similarities and differences

between the causes and effects of these possible experiences of bullying (Haynie et al. 2001; National Center for Injury Prevention and Control 2014); therefore, careful definition of the experience/s of interest is important. The present study focused on students' experiences of bully victimisation (that is, being the victim of behaviour that meets the definition of bullying provided above).

Adolescent experiences of bully victimisation have both short- and long-term consequences. In the short term, victimised students can experience fear and stress (Singh and Steyn 2014), reductions in self-esteem (Singh and Steyn 2014) and decreased social competence and adjustment (Haynie et al. 2001). Further, victimised adolescents are at increased risk of more serious mental health issues such as anxiety or depression (Haynie et al. 2001; Luk et al. 2010; Singh and Steyn 2014; M. G. Turner et al. 2013) as well as suicidal ideation or attempts (National Center for Injury Prevention and Control 2014; Singh and Steyn 2014; M. G. Turner et al. 2013). Experiences of bully victimisation are also associated with increased substance use (Luk et al. 2010; Sullivan et al. 2006; Valdebenito et al. 2015) and delinquent behaviour (Haynie et al. 2001; Sullivan et al. 2006) in adolescence. Some of these short-term effects of bullying also persist over the life course; for example, there is evidence that bully victimisation in adolescence is associated with delinquent or criminal behaviour (Hoffman et al. 2016; M. G. Turner 2013), substance use (Hoffman et al. 2016; M. G. Turner 2013) and violent victimisation (M. G. Turner 2013) in adulthood.

Research to date has indicated that a positive school climate is negatively associated with the prevalence of bullying. Specific aspects of school climate that have been found to reduce bullying rates include: supportive peer relationships (Demaray and Malecki 2003; Li et al. 2011; I. Turner et al. 2014); supportive relationships with teachers (Demaray and Malecki 2003; Li et al. 2011; Olweus 1994); school connectedness and engagement (Li et al. 2011; I. Turner et al. 2014); clear boundaries and consequences for unacceptable behaviour (Olweus 1994) and school-wide normative beliefs regarding bullying (Gendron et al. 2011). School climate may also mitigate the effects of bullying on victims' mental health and wellbeing (Toomey et al. 2011) or influence how victimised students respond to instances of bullying (for example, their willingness to seek help from teachers; see Eliot et al. 2010).

Delinquent behaviours

Much research has investigated ‘antisocial’, ‘problem’, ‘delinquent’, ‘deviant’, and ‘risk’ behaviour among adolescents (Valois 2014). While these terms are used to reflect different combinations of behaviours in different studies, the common thread is the acknowledgement that some adolescents engage in undesirable behaviours that may have serious negative consequences for either themselves or others. For the purpose of this study, delinquent behaviours were considered to be legal or moral misdeeds and offences, such as stealing or taking drugs. In examining delinquent behaviours, we sought to assess the extent to which adolescents were engaged in acts that were illegal or would be unacceptable to most people.

Delinquent behaviours threaten the present health, wellbeing, social relations and academic achievement of adolescents (Masten et al. 2008; Valois 2014). Preventable behaviours, such as those considered in this article, are among the leading causes of death and ill-health among adolescents (see, for example, Blum and Qureshi 2011; World Health Organization 2014). Delinquent behaviours are also associated with reduced social and psychosocial wellbeing among adolescents (Valois 2014).

Some past studies suggest that adolescents’ perceptions of school climate may be associated with their engagement in delinquent behaviours (see, for example, Bond et al. 2004; Carter et al. 2007; Hopson and Lee 2011; Klein et al. 2012; Loukas et al. 2006; Reid et al. 2006; Resnick et al. 1997); however, other studies have reported contradictory or mixed results (for example, Maes and Lievens 2003; McNeely and Falci 2004). These conflicting findings could reflect the inconsistent ways in which school climate has been operationalised, which include through: the selection of a single aspect of school climate (for example, Reid et al. 2006); a series of sub-constructs, all measured separately (for example, Klein et al. 2012; McNeely and Falci 2004); or an aggregate measure that combines several constructs that other literature indicates are distinct (for example, Cornell and Huang 2016; Denny et al. 2011).

In contrast to the mixed results described above, there is a clear body of evidence indicating that experiences of bully victimisation are associated with adolescent delinquent behaviours (see, for example, Chang et al. 2003; Haynie et al. 2001; Klein et al. 2012; Shetgiri 2013). Specific forms of delinquency that have been linked to experiences of bullying victimisation include: substance abuse

(Hoffman et al. 2016; Luk et al. 2010; Mitchell et al. 2007; National Center for Injury Prevention and Control 2014; Sullivan et al. 2006; M. G. Turner 2013; Valdebenito et al. 2015); weapon carrying (Shetgiri 2013); violence (Hoffman et al. 2016; National Center for Injury Prevention and Control 2014); and crime (Chang et al. 2003; Hoffman et al. 2016; Mitchell et al. 2007; Shetgiri 2013; M. G. Turner 2013). There is also evidence to suggest that experiences of bully victimisation predict delinquent behaviours not only immediately but throughout the life course (Hoffman et al. 2016; M. G. Turner 2013).

Overall, the existing literature indicates that there are important associations between school climate, bully victimisation and delinquent behaviours. However, given the varying conceptualisations of school climate used within the literature and the inconsistent findings to date, the relationship between school climate and adolescent delinquent behaviours requires further investigation. Therefore, our study makes a valuable contribution to the field due to our more comprehensive assessment of school climate using six distinct sub-constructs and our examination of whether bully victimisation mediates the relationships between aspects of school climate and delinquent behaviours.

Research Methods

Participants

The sample involved a total of 6120 students enrolled at 17 public ($n=8$) and private ($n=9$) co-educational high schools in South Australia and Western Australia. The selection of schools for inclusion in the study was based on their willingness to be involved. The schools were all located in the metropolitan areas of the respective state capitals (Adelaide and Perth) and ranged in terms of socio-economic status, as indicated by the Index of Community Socio-Educational Advantage (ICSEA¹). For the schools involved in the sample, the ICSEA value ranged from 947 to 1163, with

¹ ICSEA - ICSEA scores, calculated by the Australian Curriculum, Assessment and Reporting Authority, are based on a range of factors including family background information (such as parental occupation and education level) and geographical location. These scores are available on the 'My Schools Website' (www.myschool.edu.au).

eight of the schools being below the Australian average of 1000 and nine being above the average. The school also varied in terms of enrolment size (ranging from 454 to 1353 students).

To capture a range of academic abilities and year levels (ranging from year 7 to year 12), in each of the schools, all of the students who were present at the time of administration were invited to participate in the survey. A total of 6120 students chose to respond; given the enrolment numbers for the schools, it is estimated that this represented a response rate of no less than 75%. The sample was examined in terms of the students' gender, birthplace, and first language; when compared to the distribution of the Australian population in these respects (reported in Table 1), the sample was considered to be generally representative of the population.

Table 1 Demographic breakdown of the study sample compared to the Australian population

Demographic variable	Study sample	Australian population
<i>Gender</i>		
Male	41.2%	49.7%
Female	53.8%	50.3%
<i>Birthplace</i>		
Australia	79.6%	71.5%
Overseas	20.4%	28.5%
<i>First language / Language spoken at home*</i>		
English	83.2%	76.7%
Other	16.8%	18.3%

Source for Australian population statistics: www.abs.govt.au

Percentages that do not sum to 100% are due to participants not providing responses.

*The Australian census collects data on the primary language spoken at home, not the first language spoken. However, for most people, the primary language spoken at home will be their first language; as such, this data is still useful for providing an indication of the representativeness of the sample compared to the Australian population.

Compliance with ethical standards

Ethics approval to collect the necessary data was granted from Curtin University prior to the commencement of the study. The participants were provided with information related to the nature of

their participation and the purpose of the study. Their rights to participate voluntarily and to withdraw from the study at any time without prejudice were made explicit. Throughout the study, measures were taken to avoid identification (of both schools and participants) and protect confidentiality.

Instruments and measures

Data collection involved the administration of three instruments: the What's Happening In This School? (WHITS) questionnaire, to assess students' perceptions of the school climate; a bullying scale; and a delinquency index. Each of these instruments is described below; full details of the items in each instrument are available from the first author on request.

School climate

To assess students' perceptions of the school climate, a modified version of the What's Happening In This School? (WHITS) was used. The WHITS was originally developed in Australia and has been reported to have satisfactory reliability and validity (Aldridge and Ala'i 2013). The version of the WHITS used in the present study involved the same scales as the original version (teacher support, peer connectedness, school connectedness, affirming diversity, rule clarity, and reporting and seeking help); however, to make the instrument more economical, two items from each scale were removed, leaving six items per scale. The decision about which items to remove was based on the factor loadings in a past study (Aldridge and Ala'i 2013), with the items that contributed the least to each scale being removed.

Bully victimisation

To examine the frequency with which students perceived themselves to be victims of bullying behaviour, a bullying scale was modified from a survey developed by Bandyopadhyay et al. (2009). The scale used in the present study had six items that involved a retrospective self-report of bullying episodes that students had experienced over the previous three weeks. The items in the scale assessed the prevalence of different forms of bullying such as physical, verbal or written (for example, "I have experienced physical bullying" and "I was left out or ignored") and used a five-point frequency-response format (never, once, twice, three times, four or more times). In responding to the

items, students were asked to consider their experiences during the three weeks preceding administration of the survey.

Delinquent behaviours

To capture students' views of their involvement in delinquent behaviours, a scale, originally developed by Cornell and Loper (1998), was modified to suit the Australian context. The resulting index was made up of eight items that can be considered to be delinquent behaviours (for example, "I smoked cigarettes" and "I drank alcohol"). The items of the index were responded to using a five-point frequency-response format that took into account students' behaviours over the past three weeks (never, once, twice, three times, four or more times).

Data analysis

Structural equation modelling (SEM), with maximum likelihood estimation, using Analysis of Moment Structure (AMOS) version 22 software, was used to examine the hypotheses. As a first step, the data were screened for missing data and outliers, after which the convergent and discriminant validity of the data were examined to ensure appropriateness for further analysis. There were no missing values or outliers in the sample. The convergent validity of the measurement items, in relation to their constructs, was assessed by examining the: item reliability of each measure; composite reliability of each construct; and average variance extracted (AVE), as recommended by Fornell and Larcker (1981). Discriminant validity was determined by examining whether the shared variances between factors were larger than the square root of the AVE for the individual factors (Fornell and Larcker 1981).

Once the suitability of the data was established, the research hypotheses were tested using SEM. First, the model fit was examined. Because the chi-square goodness of fit test is sensitive to sample size (meaning that, as the sample size increases, there is a tendency for the chi-square to indicate significant differences, as detailed by Marsh and Balla 1994), the model fit was examined using the Tucker Lewis index (TLI), comparative fit index (CFI), standardised root mean square residual (SRMR) and root mean square error of approximations (RMSEA). To indicate a good

empirical fit, based on the recommendations of Kline (2011), the TLI and CFI values should be at least .90, the SRMR should be less than .08 and the RMSEA value should be less than .05.

The explanatory power of the research model was examined by estimating the variance associated with the two endogenous constructs (dependent variables or consequents), namely, bully victimisation and delinquent behaviour. To examine how much variance the constructs shared (that is, to assess the explanatory power of the research model), the coefficient of determination (R^2) of the endogenous variables was calculated. According to Cohen (1988), an R -value between .10 and .29 can be considered small, between .30 and .49 considered medium and between .50 and 1.0 considered large. Given these ranges, a minimum R^2 of .10 (as suggested by Falk and Miller 1992) would result from squaring a correlation coefficient (R) of .32 (medium). Finally, the path coefficients and t values for each of the hypothesised relationships were calculated to examine the statistical significance and magnitude of the relationships.

Results

Descriptive statistics

The descriptive statistics for the constructs, reported in Table 2, show that the mean scores were greater than 3.0 for all the school climate scales and below 3.0 for bullying victimisation and delinquent behaviours. The standard deviations ranged from 0.73 to 1.45, indicating a spread of scores around the mean. The skewness ranged from -0.33 to 3.21 and kurtosis ranged from 0.01 to 11.01. All of the variables, with the exception of delinquent behaviours, satisfied Kline's (2011) recommendations for the skewness and kurtosis indices. For the delinquent behaviours scale, the assumption of multivariate normality was violated, which, with maximum likelihood estimation, can cause several problems for model testing (Bollen and Stine 1993; Gomez and Fisher 2005). To overcome the presence of multivariate non-normal data, the 'bootstrap' procedure, which allows the researcher to assess the stability of parameter estimates and thereby report their values with a greater degree of accuracy, was used for all of the analysis (as recommended by Byrne 2010; Kline 2011; West et al. 1995; Yung and Bentler 1996).

Table 2 Descriptive statistics for school climate scales (six constructs), bully victimisation and delinquent behaviours

Construct	Mean	Standard deviation	Skewness	Kurtosis
<i>School climate variables:</i>				
Teacher support	3.36	0.92	-0.33	-0.30
Peer connectedness	4.15	0.78	-1.12	1.42
School connectedness	3.64	0.96	-0.61	0.01
Affirming diversity	3.49	0.92	-0.35	-0.30
Rule clarity	4.01	0.86	-1.00	0.93
Reporting and seeking help	3.65	0.98	-0.55	-0.22
<i>Outcome variables:</i>				
Bully victimisation	2.09	1.17	-0.97	-0.18
Delinquent behaviours	1.33	0.72	3.21	11.01

All constructs used response scales ranging from 1 to 5 (described further in the 'Instruments and measures' section).

Validity of the assessment model

As a first step, confirmatory factor analysis was used to examine the convergent and discriminant validity of the assessment model. The standardised factor loadings, which indicate the reliability of the individual items, ranged from .61 to .91; the composite reliabilities for the eight constructs (reported in Table 3) ranged from .86 to .93. The AVE (also reported in Table 3) was .50 or above for each construct and, further, the AVE for each construct was larger than each of the corresponding inter-construct correlations. As such, the results indicated that the model satisfied all of the criteria (defined earlier in the research methods section) for convergent and discriminant validity.

Structural equation modelling

Prior to interpreting the paths of the structural model, the model fit was inspected. Several indices were used to measure model fit, as recommended by Kline (2011), including the TLI (.95), CFI (.96), SRMR (.04) and RMSEA (.04); all of these satisfied the recommended level of acceptable fit.

Table 3 Composite variance, average variance, inter-construct correlations and square roots of average variance extracted

Construct	Composite reliability	Average variance extracted	Inter-construct correlations and square roots of average variance extracted							
			TS	PC	SC	AD	RC	RSH	BV	DB
<i>School climate variables:</i>										
Teacher support (TS)	.91	.64	(.797)							
Peer connectedness (PC)	.87	.54	.377**	(.735)						
School connectedness (SC)	.93	.68	.617**	.622**	(.823)					
Affirming diversity (AD)	.86	.50	.537**	.390**	.520**	(.708)				
Rule clarity (RC)	.90	.60	.570**	.364**	.586**	.499**	(.773)			
Reporting and seeking help (RSH)	.88	.56	.555**	.387**	.534**	.517**	.632**	(.748)		
<i>Outcome variables:</i>										
Bully victimisation (BV)	.92	.64	.221**	.238**	.328**	.152**	.179**	.147**	(.802)	
Delinquent behaviours (DB)	.88	.56	.217**	.171**	.242**	.169**	.322**	.217**	.295**	(.747)

** $p < .01$

The bold elements in the main diagonal are the square roots of the average variance extracted (AVE) for each construct

Composite reliability is computed as $(\sum \lambda)^2 / (\sum \lambda)^2 + \sum (1 - \lambda^2)$; average variance extracted is computed as $\sum \lambda^2 / \sum \lambda^2 + \sum (1 - \lambda^2)$.

The relationships between the six school climate constructs and the two endogenous constructs (bully victimisation and delinquent behaviour) were tested. The resulting path coefficients showed that eight out of thirteen possible relationships were statistically significant ($p < .05$). Figure 2 reports the statistically significant relationships between the school climate constructs, bully victimisation and delinquent behaviours.

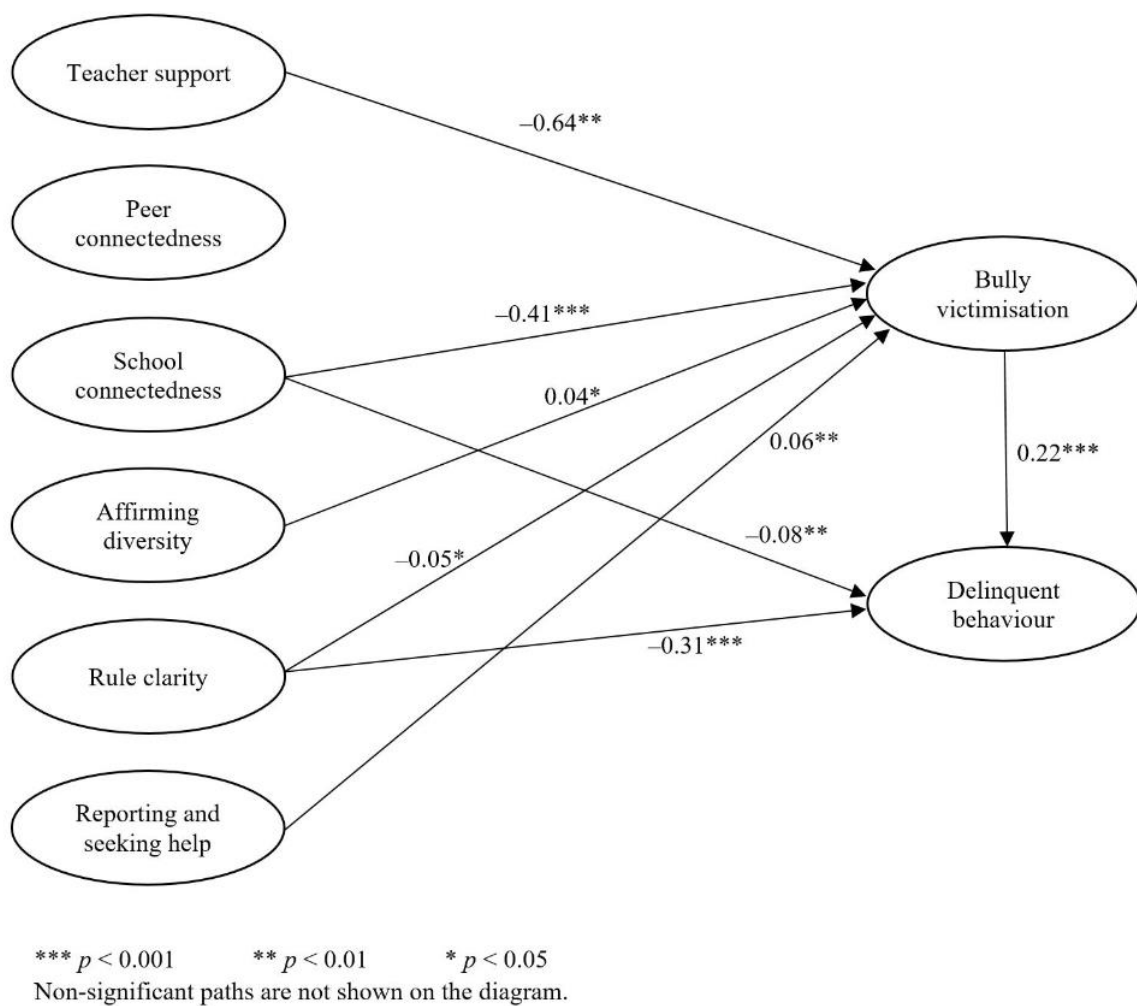


Figure 2 Structural equation modelling results

The coefficient of determination (R^2) indicated that the model explained 16% of the variance in bully victimisation, which exceeded the minimum value specified by Falk and Miller (1992). Students' perceptions of teacher support ($\beta = -.06, p < .01$), school connectedness ($\beta = -.41,$

$p < .001$), affirming diversity ($\beta = .04, p < .05$), rule clarity ($\beta = -.05, p < -.01$), and reporting and seeking help ($\beta = .06, p < .01$) were all related to their self-reports of bully victimisation. The relationships between bully victimisation and three school climate scales (teacher support, school connectedness and rule clarity) were negative, whilst the relationships between bully victimisation and two school climate scales (affirming diversity and reporting and seeking help) were positive.

The coefficient of determination (R^2) for delinquent behaviours was .145, indicating that the school climate explained 14.5% of the variance in this construct; again, this exceeded the minimum value specified by Falk and Miller (1992). Students' perceptions of both school connectedness ($\beta = -.08, p < .01$) and rule clarity ($\beta = -.31, p < .001$) were statistically significant and negatively related to self-reports of delinquent behaviour.

Finally, students who reported increased bully victimisation reported increased delinquent behaviours ($\beta = .22, p < .001$). This result indicates that bully victimisation could have a mediating effect on the impact of school climate on delinquent behaviours.

Discussion and Recommendations for Further Research

This study extended past research by examining the impact of school climate on bully victimisation and delinquent behaviours, as well as the mediating effect of bully victimisation on the relationships between school climate and delinquent behaviours. While school climate, bullying and delinquent behaviours, together, have been incorporated in three prior studies (Bond et al. 2006; Klein et al. 2012; Reid et al. 2006), our study differed from all of these studies through our use of a more comprehensive operationalisation of the psychosocial school climate. Further, our study: differed from that of Bond et al. (2006) in that we examined concurrent (rather than longitudinal) influences on delinquent behaviours, differed from that by Klein et al. (2012) in that we considered students' personal experiences of bully victimisation as a variable distinct from the school climate, and differed from that by Reid et al. (2006) through our broader conceptualisation of adolescent risk behaviours (in contrast to their specific focus on adolescent drug use).

The SEM results revealed statistically significant relationships between aspects of the school climate and students' self-reports of both bully victimisation and delinquent behaviours. These

findings are important as they suggest that aspects of the school-level environment could be leveraged to improve schools in ways that reduce both bully victimisation and delinquent behaviours. These findings are discussed below in relation to the three research hypotheses, and directions for future research are identified.

Hypothesis 1 – The impact of school climate on bully victimisation

Statistically significant relationships with bully victimisation were reported for five of the six school climate scales (see Figure 2). Three of the relationships (those involving teacher support, school connectedness and rule clarity) were negative, indicating that, the more positive students' perceptions of these aspects of the school climate were, the less bullying they experienced. Two of the relationships (those involving affirming diversity and reporting and seeking help) were positive, indicating that, the more positively that students perceived these aspects of the school climate, the more bullying they experienced.

The negative associations that our study identified (between three aspects of the school climate and bully victimisation) are consistent with much past research. First, we found that increased teacher support was associated with decreased bullying, as did Demaray and Malecki (2003), Ertesvåg (2016), Flaspohler et al. (2009), Li et al. (2011) and Olweus (1993). Second, our finding that higher levels of school connectedness (that is, students' sense of belonging and feeling valued at school) were associated with decreased bullying confirms the findings of others including Li et al. (2011), I. Turner et al. (2014), D. Wilson (2004), and You et al. (2008). Third, we found that increased rule clarity was also associated with decreased bullying, in line with the findings of Gottfredson and Gottfredson (1985), Gottfredson et al. (2005), Gregory and Cornell (2009), Olweus (1993), and Orpinas et al. (2003).

On the other hand, it was unexpected – and of concern – that two of the six school climate constructs (namely, affirming diversity and reporting and seeking help) had statistically significant *positive* effects on bully victimisation. These results indicate that, the more that students perceived these constructs to be present, the more that they experienced bullying. This contradicts past research in terms of both affirming diversity (Hatzenbuehler and Keyes 2013; Norwich and Kelly 2004) and

reporting and seeking help (Bandyopadhyay et al. 2009; Gregory et al. 2010; Klein et al. 2012); however, we note that the body of research related to the effects of schools' efforts to promote positive attitudes toward diversity is, as yet, limited.

It is possible that the unexpected results obtained in our study, in terms of the role of affirming diversity, could be related to the school-wide normative beliefs about diversity or the approaches that schools use in this regard. For example, it is possible that, if teachers and students lack intercultural competence, the complex issues related to diversity and inclusivity may be over-simplified, leading to approaches that, in fact, highlight differences rather than promoting acceptance (see also Aldridge et al. 2016). Given the existing research evidence indicating that members of ethnic or sexual minorities are more likely to be victims of bullying (Kosciw et al. 2008; Llorent et al. 2016; Scherr and Larson 2010), further research, related to effective ways for schools to effect positive change in terms of affirming diversity, is important.

In terms of reporting and seeking help, it is possible that, if schools were already experiencing high levels of bully victimisation, there may have been a focus on reporting and help-seeking mechanisms at the school (e.g. through placing posters in toilet cubicles). If this were the case, then, despite improved awareness of reporting mechanisms, school-wide normative beliefs about bullying (which have a greater influence than aspects of the school climate on bullying behaviour; see Gendron et al. 2011) may not have changed. Alternatively, the relationship between reporting and seeking help might be mediated by teacher support; that is, regardless of the facilities for reporting and seeking help, students may be unlikely to access these if they do not perceive their teachers to be supportive (Eliot et al. 2010; Unnever and Cornell 2004; C. J. Wilson and Deane 2001). Future research should explore each of these possibilities.

Finally, our finding that peer connectedness was not statistically significantly related to reports of bully victimisation was contrary to past research, which has shown that social support among peers can mitigate experiences of bully victimisation (see, for example, Demaray and Malecki 2003; Flaspohler et al. 2009; Li et al. 2011; Smith et al. 2004; I. Turner et al. 2014). The reasons for this non-significant relationship are not clear, but it is possible that factors that were not measured within our study may have confounded or over-ridden any association between these variables such

that a consistent effect was not observable across the students in our sample. For example, past studies have noted that other variables, such as self-esteem (Gendron et al. 2011), hope (You et al. 2008) or participation in extracurricular activities (Langille et al. 2012), have interacted with the effects of the psychosocial school climate on various student outcomes. Further research is needed in this respect.

Hypothesis 2 – The impact of school climate on delinquent behaviours

In terms of the second research hypothesis, our results indicated that two of the six school climate scales (namely, school connectedness and rule clarity) were statistically significantly and negatively related to delinquent behaviours. These results suggest that students who perceived a greater sense of attachment, belonging and connectedness to their school, and students who felt that school rules were clear and appropriate, were likely to report fewer delinquent behaviours. Our finding in regard to school connectedness is consistent with several other studies (Bond et al. 2006; Hawkins et al. 1999; Resnick et al. 1997; Simons-Morton et al. 1999), as is our finding in regard to rule clarity (Cornell and Huang 2016; Gottfredson et al. 2005; Maes and Lievens 2003; Reid et al. 2006). Further, our findings also support past studies that, while not specifically examining these aspects of the school climate, have, nonetheless, confirmed that schools with more positive psychosocial climates are characterised by lower levels of delinquent behaviours (Bryk and Driscoll 1988; Denny et al. 2011).

It was of interest that, in the present study, four aspects of the school climate (namely, teacher support, peer connectedness, affirming diversity, and reporting and seeking help) were *not* found to directly affect students' engagement in delinquent behaviour. To date, understanding the ways in which such aspects of the school climate influence delinquent behaviours has proved problematic for the field, with a lack of consistency among research findings. For example, in the area of peer connectedness, Klein et al. (2012) found that negative peer relationships (in terms of aggressive attitudes and the general prevalence of bullying and teasing) were associated with increased delinquency, whereas McNeely and Falci (2004), as well as Carter et al. (2007), found the opposite, with peer connectedness being associated with increased delinquency. Given this lack of clarity, our findings in regard to the mediating effect of bullying on the relationship between school climate and

delinquent behaviours may be significant in terms of suggesting a productive direction for further research.

Hypothesis 3 – The mediating effect of bully victimisation on the relationships between school climate and delinquent behaviours

Our study showed that bully victimisation was positively associated with delinquent behaviours, suggesting that when students are bullied, they are more likely to be involved in delinquent behaviours. This finding supports much past research, which has demonstrated the association between experiences of bully victimisation and delinquent behaviours both concurrently (see, for example, Chang et al. 2003; Haynie et al. 2001; Hinduja and Patchin 2007; Klein et al. 2012; Shetgiri 2013) and subsequently (Bond et al. 2006; Hoffman et al. 2016; M. G. Turner 2013).

Of greater interest, however, is our finding that experiences of bully victimisation mediate the relationship between school climate and delinquent behaviours. Although just two of the six school climate constructs influenced delinquent behaviours directly, five of the six constructs (the exception being peer connectedness) had indirect effects on delinquent behaviours through the mediating variable of bully victimisation. This finding is a major contribution of our study; it extends the existing literature and sheds new light on the previously poorly-understood associations between aspects of the school climate and delinquent behaviours.

Educational Implications

The findings of this study offer a number of important implications for educators. At the broadest level, our findings emphasise the importance of considering psychosocial aspects of the school-level environment and acknowledging the significant impact that these factors can have on student behavioural outcomes. Unfortunately, despite past research demonstrating that the normative beliefs developed and promoted at the school level have a greater influence than individual students' beliefs on violent or aggressive behaviour (Felson et al. 1994; see also Harris et al. 2002), there is evidence that many schools pay little attention to monitoring and enhancing their psychosocial climates (Cohen et al. 2009; Felner et al. 2001). Our findings add to a growing body of research that calls for increased attention to these matters, with an associated shift from individual-deficit

conceptualisations of the causes of problem behaviour to a perspective informed by a theory of environmental influences (that is, an approach that acknowledges the important influence of contextual factors on student behaviour; Gottfredson et al. 2005).

Gregory and Cornell (2009) have suggested that the psychosocial school climate can be thought of in terms of two domains: structure and support. Our findings affirm the importance of both these domains; the constructs of rule clarity and reporting and seeking help reflect the structure that is provided within the school climate, whereas the constructs of teacher support, school connectedness, and affirming diversity reflect the support that is provided (see also Aldridge and Ala'i 2013).

Our findings particularly highlight the importance of school connectedness and rule clarity, indicating that these aspects of the school climate were associated with both decreased bullying and decreased delinquent behaviours. As such, educators should actively seek to enhance the levels of school connectedness and rule clarity in their schools. In terms of improving school connectedness, resources have been developed, based on reviews of research and the opinions of experts, that provide practical guidance for schools (see, for example, Centers for Disease Control and Prevention 2009; Mind Matters n.d.). In terms of improving rule clarity, schools should consider how they can: gain consensus on rules; effectively communicate the norms for behaviours across all members of the school community; consistently enforce the rules; and reinforce desired behaviour (see, for example, Gottfredson and Gottfredson 2001; Gregory and Cornell 2009; Olweus 1993; Orpinas et al. 2003). Further, to enhance both rule clarity (structure) and school connectedness (support), schools might consider restorative justice approaches, which involve engaging offending students in consideration of the impact that their behaviour has on those harmed (Hopkins 2002). Restorative justice, with its notion that there is 'bad behaviour' as opposed to 'bad people', may enhance the psychosocial school climate through the preservation and promotion of relationships, empathy, understanding and social capital for both offenders and victims.

The strongest effect in our study was associated with the influence of teacher support on reducing bully victimisation. This highlights the importance, for schools, of examining closely the support that teachers provide to students – particularly in terms of caring and respectful relationships – and acknowledging that the ways in which teachers treat students, in terms of caring and taking time

to know students, are important (Blum 2005; Flaspohler et al. 2009; LaRusso et al. 2008; McNeely and Falci 2004; Plenty et al. 2014).

Finally, our results suggest the need for caution and wisdom in relation to efforts to affirm diversity within schools. In our study, as in a previous study by Aldridge et al. (2016), a greater degree of affirming diversity was associated with increased bullying. Given these unexpected findings, we suggest that it may not be adequate for schools simply to *acknowledge* diversity. For example, a recent study by Halse (2017, p. 6), which shares our study's Australian context, found that, although students demonstrated "that they ha[d] been 'taught to accept' that Australia is 'a multicultural society' and repeatedly assert[ed] their understanding of multiculturalism as 'alike but different'", the same students nonetheless maintained that racism was "a universal human characteristic and an inescapable fact of everyday life that cannot be controlled or prevented" and "insist[ed] that ethnic minorities adopt the Australian 'way' and abandon alien and confronting cultural practices". As such, although our finding in regard to the association between affirming diversity and bullying requires further research, it could point to the need to invest more deeply in building more sophisticated understandings of, and attitudes toward, diversity among both staff and students (Aveling 2007; Deardorff 2006; Quinlivan 2006) and to move beyond consideration of surface behaviours related to inclusion, attending instead to the more deeply-rooted deep-rooted beliefs and social discourses that may perpetuate prejudice towards those who are deemed to be 'other' (Avramidis et al. 2002; Halse 2017).

Limitations of the study

As with all studies, this study is not free of limitations. Although the schools involved in the present study reflected a range of socio-economic backgrounds, they were drawn only from metropolitan regions of the capital of two states. Therefore, generalisation of the results to different states in Australia or to non-metropolitan areas should be made with caution. It is recommended that future studies involve both regional schools and schools from different states within Australia.

The hypothesised model used in the study involved a one-directional approach. It is acknowledged that the direction of the relationships could have been different to those hypothesised

(for example, experiences of bully victimisation could have influenced students' perceptions of the school climate).

Despite these limitations, this study makes a distinct contribution to the understanding of the importance of the psychosocial school climate for influencing bully victimisation and delinquent behaviours.

Concluding remarks

The study reported in this article offers important insights into the influence of school climate on bully victimisation and delinquent behaviours. The findings demonstrate to educators that malleable factors within the school climate can play a role in decreasing the prevalence of bullying and delinquent behaviours. Although there can be a tendency for schools to focus on discipline aspects of the school climate rather than attempting to alter psychosocial characteristics of the environment (Gottfredson and Gottfredson 2001), our work adds weight to the call for schools to consider strengthening both the relationships and support structures within schools as well as aspects related to rule clarity and how infractions are dealt with (see, for example, the work of Gottfredson et al. 2005; Gregory and Cornell 2009; McNeely et al. 2002). Finally, understanding the interplay between bullying and delinquent behaviours adds weight to the call for schools to examine how best to change factors within the school-level environment to address bullying.

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