



Bullying and delinquency. The mediating role of anger

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ARTICLE INFO

Article history:

Received 11 September 2009

Received in revised form 25 October 2009

Accepted 30 October 2009

Available online 8 December 2009

Keywords:

Bullying

Victimisation

Delinquency

Anger

ABSTRACT

The principal aim of the study was to examine the relationship between bullying, both studying those who bully and those who are victims of bullying, and non-violent delinquency (i.e., theft and burglary). We used structural equation modelling, while controlling for sex of participants, family structure and parental education, to examine the relationship between bullying and bully victimisation and delinquent behaviour, and whether this association is mediated through anger. The data for the analysis were drawn from a cross-sectional, population-based sample of 7149 15- and 16-year-old adolescents in Iceland. Results revealed that: (1) bullying behaviour and bully victimisation both increased the likelihood of delinquent behaviour, but the effects were significantly stronger for bullying behaviour than bully victimisation, explaining 40% and 30% of the variance in delinquency, respectively; and (2) the association between bullying behaviour and bully victimisation and delinquent behaviour was in both groups partly mediated through anger. The findings support Agnew's revised general strain theory that emotions such as anger are important in delinquency.

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1. Introduction

Research and understanding of bullying behaviour and bully victimisation has progressed greatly since Olweus (1978) produced his seminal work in Scandinavia in the 1970s into bullying in schools. The main focus of research continues to be in school settings (Farrington, 1993; Nitz, 2009; Olweus, 1994; Solberg, Olweus, & Endresen, 2007), although in recent years bullying has also received attention in other settings, such as prisons (Ireland, 2002; Wood, Moir, & James, 2009). The fact that bullying typically occurs in peer group settings, makes it a group phenomenon (Espelage, 2003). Indeed, Ireland (2002) found that bullying often involves more than one perpetrator and points to the importance of peer influence in bullying incidents.

Farrington (1993) points to the frequency with which bullying occurs among children and adolescents and states that "Like offending, bullying arises from interactions between potential offenders and potential victims in environments that provide opportunities" (p. 383). Within a school setting, bullying is an aggressive act where children or a group of children use or abuse their position of power or circumstances to intimidate and harm other children (Craig & Pepler, 2007). Bullying is a destructive interpersonal behaviour, which adversely affects both the bullies

and their victims in terms of their development and mental health (Farrington, 1993; Juvonen, Graham, & Schuster, 2003). Victims of bullying are at heightened risk of making false confessions to police during questioning (Gudjonsson, Sigurdsson, & Sigfusdottir, *in press*; Gudjonsson, Sigurdsson, Sigfusdottir, & Asgeirsdottir, 2008).

Bullying is not an isolated form of behaviour; it is one type of aggression, which is related to general antisocial behaviour (Farrington, 1993). Sourander et al. (2007) showed in a longitudinal study of 2551 boys from ages 8 to 16–20 years in Finland that being childhood bullies and victims of bullying are both significant predictors of later criminality. It significantly predicted the most common type of offences (property, violence, traffic violation). Bullies and bully-victims only comprised 8.8% of the total sample, but they were responsible for 33.0% of the total number of offences at follow-up. However, there were significant interactions with conduct disorder and hyperactivity. This means that risk of later offending was only predicted by bully and victim status if there was comorbid conduct disorder or hyperactivity. What has not been researched is the possible role of anger as a mediating factor between bullying and delinquency.

Gudjonsson and Sigurdsson (2007) suggested on the basis of their research into motivation for offending that acting in the pursuit of self-interest and angry disposition are salient factors in offending among young people. Sigfusdottir, Asgeirsdottir, Gudjonsson, and Sigurdsson (2008) found, drawing on Agnew's (1992) general strain theory of offending, that anger was a more

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important mediating factor than depression between history of childhood sexual abuse and offending, whereas depression was a more important mediator than anger in relation to suicidal behaviour. The authors suggested that anger is a particularly important mediating variable in relation to outwardly-directed forms of delinquency, such as theft, burglary, vandalism and violence.

In the present study we investigate the relationship between group bullying among pupils in their final two years of compulsory education and delinquency. We draw on Agnew's (1992) general strain theory to examine the relationship between bullying and delinquency, and specifically test the possible mediating role of anger in accordance with Agnew's (2005) recently revised social-psychological general strain theory. The theory proposes that adolescents who experience adverse circumstances are pressed into delinquency by negative emotional reactions, such as anger. We hypothesised that there is a significant relationship between bullying (whether bullies, victims or both) and offending, because both form a part of a delinquent life style (Farrington, 1993; Sourander et al., 2007). We further hypothesise, in accordance with Agnew's (2005) theory, that the relationship between bullying and delinquency is partly mediated by anger.

The focus in the present study is on group bullying rather than one individual bullying another. Both are important in bullying research (Roland, 1989). Roland defines bullying in the following terms: "Bullying is longstanding violence, physical or psychological, conducted by an individual or a group and directed against an individual who is not able to defend himself in the actual situation" (p. 21). We chose group bullying in the current study because it is very common in schools. For example, Gudjonsson et al. (in press) found that group bullying during the previous 12 months was reported by 22.9% and 42.7% of large Icelandic and European samples, respectively, suggesting that group bullying is a serious problem among many pupils in schools. We have separately studied individual bullying in this school leavers' age group, which typically occurred within a family setting and perpetrated by carers and siblings (Gudjonsson et al., 2008).

2. Methods

2.1. Participants

The data for this investigation came from the 2006 Icelandic study, *Youth in Iceland*. The participants were 7149 pupils enrolled in the 9th and 10th grades, or in the final two years of their compulsory education in Iceland. The mean age was 15.5 (SD = 0.50, range 15–16 years). There were 3507 (49.9%) boys and 3528 (50.1%) girls in the study (114 participants did not indicate their sex).

2.2. Instruments

The questionnaires used in the study are described in detail by Gudjonsson et al. (2008).

We tested two separate structural equation models: (1) where we examined the association between bullying behaviour and delinquency, similarly also looking at whether this link was mediated through anger; and (2) where we investigated the association between bully victimisation and delinquent behaviour and whether this relationship was mediated through anger.

Three latent variables and three observed variables were specified for each model and used in the analysis. All latent constructs were measured with multiple indicators. Three additional variables were used as control variables for each model in the study: sex of participants; parental education (a proxy measure of family

socioeconomic status); and family structure, i.e., whether adolescents lived with both biological parents or in other arrangements. About 94% of the estimated 320,000 inhabitants of Iceland are of Norse-Celtic decent and over 80% of the population belongs to the Lutheran State Church (Hagstofa Íslands, 2007). Because of this homogeneity, other exogenous variables, such as race, ethnicity and religion, which are often used in research in the US and other countries, were not included in this analysis.

The following measures related to bullying were constructed and developed by the Icelandic Institute for Educational Research and Icelandic Centre for Social Research and Analysis (Gudjonsson et al., in press).

Victim of bullying. Being a victim of bullying was measured by three items, which were preceded by the following question: 'During the last 12 months, how often have you...?':

- (a) Been individually teased by a whole group of people.
- (b) A group attacked you and hurt you when you were alone.
- (c) Been in a group that was attacked by another group.

Each item was rated on a five-point scale ('Never': 0, 'Once': 1, 'Twice': 2, '3–4 times': 3, '5 times or more': 4)

Bullying. Bullying behaviour was measured by three items, preceded by the following question: 'During the last 12 months, how often have you...?'

- (a) Participated in a group teasing an individual.
- (b) Participated in a group hurting an individual.
- (c) Participated in a group starting a fight with another group.

Each item was rated on a five-point scale ('Never': 0, 'Once': 1, 'Twice': 2, '3–4 times': 3, '5 times or more': 4)

Anger. Feelings of anger were measured by five items from a scale designed to assess the severity of anger problems (Sigfusdottir, Farkas, & Silver, 2004). Participants were asked how often during the previous week the following statements applied to them:

- (a) I was easily annoyed and irritated.
- (b) I experienced outbursts of anger that I could not control.
- (c) I wanted to break or damage things.
- (d) I had a row with someone.
- (e) I yelled at somebody or threw things.

Answers to each statement ranged from 0 = 'never', 1 = 'seldom', 2 = 'sometimes' to 3 = 'often'. The scale ranged from 0 to 15.

Delinquency. To assess respondents' delinquent behaviour, they were asked how often they had done something of the following in the past 12 months (Sigfusdottir et al., 2004):

- (a) Stolen something that was worth less than 5000 Icelandic kroners (approximately \$50).
- (b) Stolen something that was worth more than 5000 Icelandic kroners.
- (c) Committed a burglary to steal.

Answers ranged on a Likert scale from 1 = 'never', 2 = 'once', 3 = '2–5 times', 4 = '6–9 times', 5 = '10–13 times', 6 = '14–17 times', 7 = '18 times or more often'.

In this study, we focused only on theft and burglary offences. We did also have measures of vandalism and violence (Sigfusdottir et al., 2004; Sigfusdottir et al., 2008), but they overlapped with the measure of bullying and would have contaminated the results.

2.3. Procedures

All aspects of the data collection were supervised by the Icelandic Centre for Social Research and Analysis at Reykjavik University. The Centre distributed anonymous questionnaires and envelopes for returning completed questionnaires to all secondary schools in Iceland. Teachers at individual school sites supervised the participation of the students in the study and administered the survey questionnaire. Students who attended school on the day that the questionnaire was scheduled to be administered completed the questionnaire inside their classrooms. Students were instructed not to write their names or social security numbers, or any other identifying information, anywhere on the questionnaire. They were instructed to complete the entire questionnaire, but to ask for help if they had any problems or had any questions for clarification. Once students had completed the questionnaires, they were asked to place their completed questionnaire in the envelope and seal it before returning the questionnaire to the supervising teacher.

2.4. Measurement model and data analysis

Our analysis sought to answer the following specific questions: (1) Is bullying behaviour directly related to delinquent behaviour when controlling for the possibly confounding impact of anger and the background variables? (2) Does anger play a mediating role in the influences of bullying behaviour on delinquent behaviour? (3) Is being a victim of bullying directly related to delinquent behaviour when controlling for the possibly confounding impact of anger and the background variables? (4) Does anger play a mediating role in the influences of victimisation on delinquent behaviour? and (5) Does anger have an independent relationship with higher levels of delinquent behaviour when controlling for other variables in the model? Our analysis was based on structural equation modelling (SEM) and was conducted by using AMOS (Arbuckle & Wothke 1999). SEM allowed us to explicitly model both direct and indirect effects using both measured and latent variables.

We treated the following three variables as control variables in the analysis:

Sex of participant: The adolescents were asked whether they were a boy or a girl. Answers were either 0 = 'boy', or 1 = 'girl'.

Family structure: Family structure measures whether adolescents live with both biological parents or in other family arrangements. Answers were either 1 = "living with both biological parents", or 0 = "living in other family arrangements" i.e. living with a single mother, mother and stepfather, a single father, father and stepmother or in other settings.

Parental education: As an indicator of socioeconomic status, respondents were asked about the educational attainment of each of their parents. The response format was 1 = 'finished elementary school or less', 2 = 'started a school on the secondary level', 3 = 'finished secondary level', 4 = 'started university level', and 5 = 'has a university degree'.

Confirmatory factor analysis was used to test the fit of the hypothesized factor structure to the covariance matrix of the observed variables. The structural equation models we tested can be expressed as the following equation:

$$\eta = \beta\eta + \Gamma\xi + \zeta$$

where β is the matrix of regression weights interrelating the endogenous (η) variable, delinquent behaviour, as well as the mediating variable anger. Γ is the matrix of regression weights relating the exogenous (ξ) variables, sex, parental education and family structure, to the endogenous (η) ones and ζ is a vector of error terms.

We used a combination of goodness-of-fit indices to assess fit of the models to the data. Models are considered a good fit if the CFI measure is above .90 and the RMSEA, a measure of lack of fit of the

model to the population covariance matrix per degree of freedom for the model, is about or less than .05.

It is important to control for the possible confounding influences of sex, parental education (as a proxy for socioeconomic status) and family structure in the models, as all three variables have been shown to confound with emotional problems (Turner, Finkelhor, & Ormrod, 2006) and delinquency (Hoffmann, 2006). All the measures, apart from sex and family structure, which are categorical variables, are scales.

3. Results

Table 1 presents the standardized factor loadings of items on each of the latent constructs. As can be seen, factor loadings were robust and ranged from .55 (participation in a group teasing an individual) to .86 (participation in a group hurting an individual). All of the factor loadings are statistically significant ($p < .01$).

In order to identify whether or not having been a victim of bullying influenced delinquent behaviour when controlling for the possibly confounding impact of the background variables, we tested the structural model shown in Fig. 1.

As can be seen, the results shown indicate that both models met the CFI and RMSEA criteria for fit. The final models had a CFI value of .94 (victimisation on delinquency) and .95 (bullying behaviour on delinquency) and an RMSEA's of .054 (victimisation on delinquency) and .055 (bullying behaviour on delinquency) which implies that the proposed models fit the data quite well. Table 2 shows each of the goodness-of-fit measures for the structural equation models tested. Because we analyzed data from a large sample ($N = 7035$), the chi-square tests turned out to be significant ($p < .05$). Fit indices other than the chi-square test revealed that the models fit the data well.

In the context of the hypothesized relationships of our models, the standardized (β) and unstandardized regression weights from the structural equation models are shown in Tables 3 and 4.

3.1. Standardized effects of bully victimisation on delinquency through anger

To analyze whether or not bully victimisation affects delinquency when controlling for the possibly confounding impact of the background variables, we tested the structural model shown in Fig. 1 and Table 3.

First, when the direct and indirect effects that victimisation had on delinquent behaviour are examined, it can be seen that victimisation has direct positive impact on delinquency ($\beta = .31, t > 1.96$), and to a lesser extent, but none the less significant, indirect impact on delinquency ($\beta = .02, t > 1.96$) through anger. In line with that Table 4 shows that there exists a direct positive link between victimisation and anger ($\beta = .24, t > 1.96$). Hence, adolescents who have been individually teased or hurt by a group of people, or who have experienced a group attacking a group they were a part of, are more likely than other adolescents to partake in delinquent behaviour. The effects of bully victimisation both affect delinquency directly as well as lead to emotional reactions in the form of anger, which hence affects delinquent behaviour. Furthermore, anger is directly positively linked to delinquency ($\beta = .12, t > 1.96$).

3.2. Standardized effects of bullying behaviour on delinquency through anger

To examine whether or not bullying behaviour affects delinquency when controlling for the possibly confounding impact of the background variables, we tested the structural model shown in Fig. 2 and Table 4.

Table 1
Standardized factor loadings for latent constructs.

	Bully victim	Bullying behaviour	Anger	Delinquency
Individually teased by a whole group of people	.64			
Individually hurt by a whole group of people	.81			
A group attacked a group you were a part of	.82			
Participation in a group teasing an individual		.55		
Participated in a group hurting an individual		.86		
Participated in a group starting a fight with another group		.73		
I was easily annoyed and irritated			.60	
I experienced outburst of anger that I could not control			.80	
I wanted to break or damage things			.76	
I had a row with someone			.70	
I yelled at somebody or threw things			.72	
Stolen something worth less than 5000 kroners				.68
Stolen something worth more than 5000 kroners				.65
Committed a burglary to steal				.85

Note: All factor loadings are statistically significant, $p < .01$.

Table 2

Goodness-of-fit measures for the model with bully-victimisation and bullying behaviour as independent factors.

	Structural model bully-victimisation	Structural model bullying behaviour
Number of distinct sample moments	119	119
Number of distinct parameters to be estimated	51	51
Degrees of freedom	68	68
Chi-square	1399	1605
CFI	.94	.94
RMSEA	.054	.055

strong ($\beta = .40$, $t > 1.96$). Hence, the association between bullying behaviour and delinquency is significantly stronger than the link we had previously seen between bully victimisation and delinquency (t -test = 3.429, $p < 0.01$).

The indirect effect of bullying behaviour on delinquency through anger is also significant ($\beta = .03$, $t > 1.96$). Similarly Table 3 shows that there exists a direct positive link between bullying behaviour and anger ($\beta = .27$, $t > 1.96$). Hence, adolescents who have been participating in a group in hurting another individual or attacking another group, are more likely than other adolescents to be angry. Furthermore, anger is directly positively linked to delinquency ($\beta = .08$, $t > 1.96$).

4. Discussion

We used structural equation modelling to test the direct and indirect relationship between bullying and delinquency while controlling for the effects of sex of participants, family structure and parental education. There were three main findings. Firstly, there was a significant direct relationship found between bullying (and bully victimisation) and delinquency. Secondly, this direct relationship was stronger for bullying than bully victimisation. Thirdly, for both bullying and bully victimisation the relationship with delinquency was significantly mediated by feelings of anger, which represents an important indirect effect predicted by Agnew's (2005) recently revised social-psychological general strain theory.

The finding that both bully behaviour and victimisation are related to delinquency (theft and burglary) is consistent with the findings of Sourander et al. (2007) and supports our first hypothesis. Bullying behaviour and victimisation are both vulnerabilities in terms of increased risk of offending. Bullying behaviour and victimisation explained 40% and 30% of the variance in delinquency, respectively. The findings demonstrate a strong link between bullying behaviour, whether related to bullies or their victims, and delinquency. The variance in delinquency explained is very high considering that we had excluded items directly related to bullying such as violence. We are justified in using only theft and burglary to measure delinquency, because these are by far the most common offences reported to police (Blackburn, 1993). The most likely reason is the peer group influence of bullies and their victims (Farrington, 1993), the role of delinquent friends in influencing vulnerable youngsters (Gudjonsson, Sigurdsson, Asgeirsdottir, & Sigfusdottir, 2006), and the delinquent life style of both bullies and their victims Gudjonsson et al., in press).

Bully victimisation can be construed as a strain in accordance with Agnew's model in that it is likely to cause distress, frustration and adversely affects mental health (Farrington, 1993). Strain cannot be interpreted in the same way for bullies. Unlike bully victims, they are typically aggressive and confident individuals (Farrington, 1993), are psychologically stronger than victims (Juvonen et al., 2003), and less likely to make false confessions during police ques-

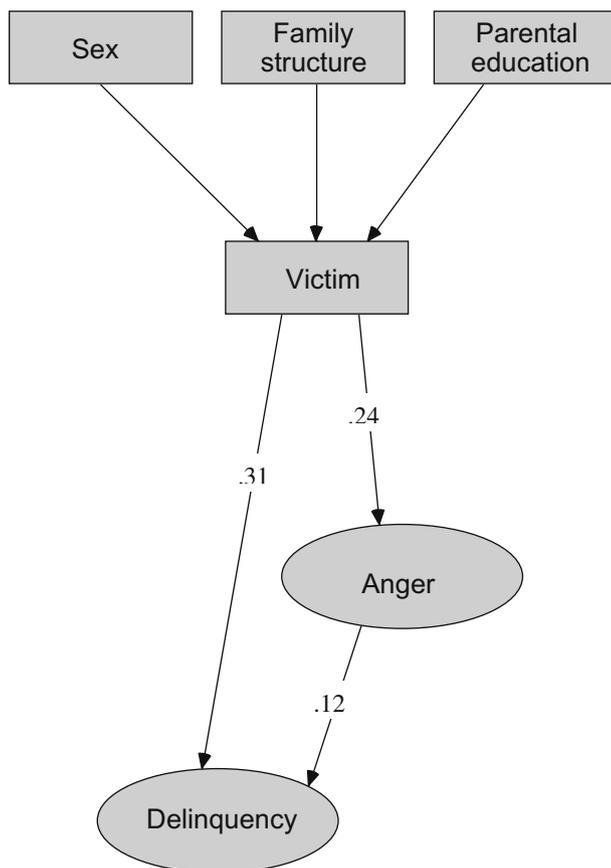


Fig. 1. The relationship between victimisation, anger and delinquency.

The results reveal that bullying behaviour had both a direct effect as well as an indirect effect on delinquency through anger. The direct positive effects of bullying behaviour on delinquency are

Table 3

Standardized and unstandardized regression weights for the model with bully-victimisation as independent factor.

Hypothesized relationships	Standardized coefficients	Unstandardized coefficients	SE	CR
Bully victim → Delinquency	.31***	.38	.020	18.725
Bully victim → Anger	.24***	.46	.029	15.600
Anger → Delinquency	.12***	.07	.009	7.982
<i>Control relationships</i>				
Gender → Bully victim	-.09***	-.05	.008	-6.358
Gender → Anger	.04**	.048	.015	3.243
Gender → Delinquency	-.09***	-.07	.010	-7.352
Family structure → Bully victim	.09***	.06	.009	7.939
Family structure → Anger	.09***	.11	.016	7.133
Family structure → Delinquency	.05***	.04	.010	3.871
Parental education → Bully victim	.00	.00	.980	.00
Parental education → Anger	-.02	-.00	.003	-1.882
Parental education → Delinquency	.00	.00	.002	-.226

** $p < .01$ *** $p < .001$ (2-tailed).**Table 4**

Standardized and unstandardized regression weights for the model with bullying behaviour as independent factor.

Hypothesized relationships	Standardized coefficients	Unstandardized coefficients	SE	CR
Bullying behaviour → delinquency	.40***	.39	.017	22.936
Bullying behaviour → anger	.27***	.40	.024	17.016
Anger → delinquency	.08***	.05	.009	5.937
<i>Control relationships</i>				
Gender → bullying behaviour	-.18***	-.14	.010	-13.213
Gender → anger	.07***	.08	.015	5.301
Gender → delinquency	-.05***	-.04	.009	-3.869
Family structure → bullying behaviour	.08***	.06	.011	5.862
Family structure → anger	.09***	.12	.016	7.326
Family structure → delinquency	.05***	.04	.010	4.102
Parental education → bullying behaviour	-.02	.00	.002	-1.221
Parental education → anger	-.02	.00	.003	-1.317
Parental education → delinquency	.01	.00	.002	.552

*** $p < .001$ (2-tailed).

tioning (Gudjonsson et al., in press). However, this does not mean that in cases of bullies there is not a general background strain that creates frustration and anger and drives their bullying and delinquent behaviour. Hence, low parental warmth and harsh physical discipline on behalf of parents, as well as lack of parental monitoring and neighborhood safety concerns, have been shown to explain bullying behaviour (Espelage, Bosworth, & Simon, 2000). All of these can be categorized as aversive circumstances or strains in the lives of adolescents according to Agnew's general strain theory (Agnew, 2005).

The present findings show that there is an indirect effect of anger on the relationship between bullying/bully victimisation and delinquency. The relationship is strongest between the bullying measures and anger, but it is also significant for both the bully groups in relation to delinquency, with anger accounting for 12% and 8% of the variance in delinquency. This gives support for the findings of Gudjonsson and Sigurdsson (2007) that much of property offending among young people is related to anger. Understanding the nature and cause of their anger and why it is channelled into delinquency would be important and should be the focus of future research.

In the present study we had measures related to group bullying. That is, the extent of bullying group behaviour and bully victimisation. Some studies exploring the characteristics associated with self-reported bullying use a 'quadrant' classification: pure bullies, pure victims, bully-victims (i.e., those who are both bullies and victims of bullying), and those not involved in bullying (Gudjonsson et al., in press; Juvonen et al., 2003; Solberg et al., 2007; Sourander

et al., 2007). There is some overlap between the two bully measures used in the present study. Gudjonsson et al., in press used the current sample and bully measures to investigate the relationship between bullying and false confessions. They used 'quadrant' classification and found that 22.1% of the total sample fell into three bully groups (pure bullies, 11.9%; pure victims 4.7%, bully-victims, 6.3%). However, in the present study we were more interested in how the two bully measures (bullying behaviour and victimisation) were related to delinquency and the role of anger in mediating this relationship. The findings give strong support for both direct and indirect effects of bullying/bully victimisation and delinquency; the indirect effects were significantly mediated by anger. Future research into bullying and delinquency should include measures of salient background variables (e.g., family conflict and dysfunction, physical and sexual abuse, school performance), conduct disorder and post-traumatic stress symptoms, which may help to explain the anger of bullies and their victims and its relationship with offending. Anger and hostility are important factors in the development of conduct disorder (Dodge, 1993).

The main strengths of the study are the large sample size, representing both boys and girls, and the robustness of the statistical analyses conducted. There are a number of limitations, including the self-report nature of the data, the non-violent offending was limited to theft and burglary, only group bullying was measured, the popular quadrant classification of pure bullies, pure victims, bully-victims, and neither bullies nor victims, could not be used in the current methodology, no data were available on the intellec-

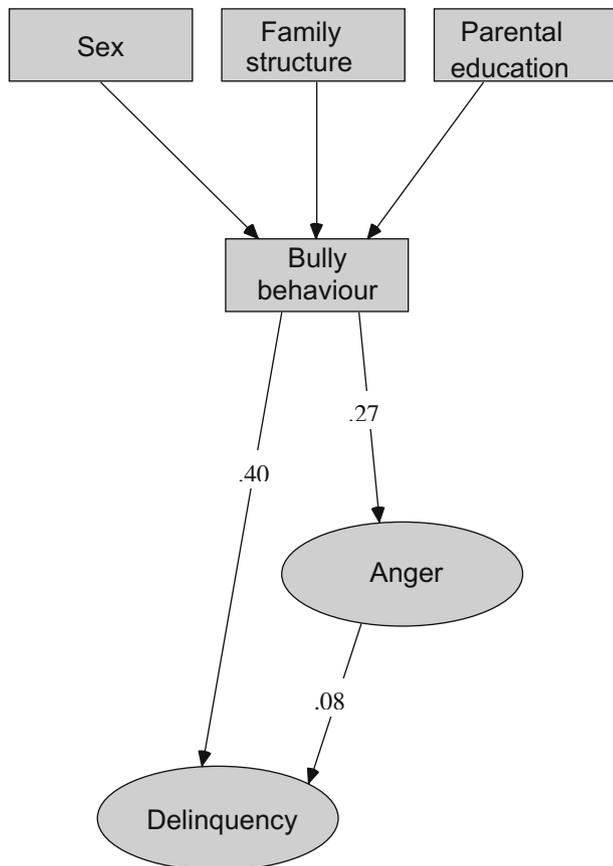


Fig. 2. The relationship between bullying behaviour, anger and delinquency.

tual functioning of the participants, conduct disorder was not specifically assessed, and the cross-sectional nature of the study means that one needs to be careful about drawing inferences about cause and effect (e.g., it is possible that increased displays of anger leads in some cases to greater level of victimisation). In spite of these limitations the study adds to the scientific understanding about the relationship between bullying behaviour, victimisation and delinquency, and the mediating role of anger in this relationship.

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