British Journal of Social Psychology (2007), 46, 299–322
© 2007 The British Psychological Society

The British Psychological Society

www.bpsjournals.co.uk

Differences between bullies and victims, and men and women, on aggression-related variables among prisoners

John Archer*, Jane L. Ireland and Christina L. Power
University of Central Lancashire, UK

This study assessed how behaviour indicative of bullying in prison settings is related to a variety of measures associated with aggression. Adult offenders (728 men and 525 women) from 11 prisons in the UK completed a 99-item checklist measuring behaviour indicative of 'bullying others' and of 'being bullied', as well as a range of other behavioural measures. They also completed a 43-item Response to Victimization Scale (RVS), asking about their responses to a scenario involving bullying; and measures of impulsiveness, and attributions about their aggression. Those classed as bullies showed, in response to the scenario, higher scores than non-bullies on direct verbal and physical aggression, indirect aggression, verbal and physical displaced aggression, and revenge plans and fantasies; and lower values for fear/avoidance; they also showed higher impulsiveness and instrumental and expressive attributions. Those classed as victims showed higher scores than non-victims for fear/avoidance, displaced physical aggression and impulsiveness. These main effects of bullying or victimization, with no interactions, are discussed in relation to hypotheses based on a previous four-category classification of those involved in bullying. There were large sex differences in the male direction for direct physical aggression, and in the female direction for fear/avoidance. There were smaller differences in the male direction for revenge, indirect aggression and direct verbal aggression. These are discussed in relation to an evolutionary theory of sex differences in aggression.

The main purpose of this study was to assess how behaviour indicative of bullying in prison is related to measures associated with aggression. Although school bullying is viewed as a form of aggression (Olweus, 1996; Smith & Brain, 2000), involving repetition and an imbalance of power, among prisoners the term has a wider meaning, to encompass both single and repeated acts, and not necessarily involving an imbalance of power (Ireland & Ireland, 2003). The range of acts considered to be bullying in a prison context is also wider than most definitions of aggression, involving, for example, stealing, extortion and ostracism (Ireland & Archer, 1996). Only a few studies have

* *Correspondence should be addressed to John Archer, Department of Psychology, University of Central Lancashire, Preston PR1 2HE, Lancashire, UK (e-mail: jarcher@uclan.ac.uk).*

DOI:10.1348/014466606X114083

assessed the characteristics of those involved in bullying in relation to measures that are theoretically and practically important in research on aggression. Several studies, of adults and of children, have found that bullies show the expected higher scores on measures of direct aggression, such as violent crime and involvement in fighting (Farrington, 1993), proactive and reactive aggression (Roland & Idsøe, 2001) and physical aggression (Craig, 1998). In a study of bullying among British prisoners, Ireland and Archer (2004) found that all four subscales of the Aggression Questionnaire (AQ; Buss & Perry, 1992) were moderately correlated with measures of different forms of bullying behaviour, for both juvenile and young offenders. Similar findings were reported in a study of adult offenders (Palmer & Thakordas, 2005). We should note that although these studies show an association between measures of bullying and aggression, the size is moderate, indicating that they are partially overlapping but not identical concepts.

A four-category classification of those involved in bullying is widely used in studies of school bullying (e.g. Baldry & Farrington, 1998; Boulton & Smith, 1994; Craig, 1998; Hanish & Guerra, 2004; Unnever, 2005). The categories are as follows: (1) pure bullies, who bully others; (2) pure victims, who are victims of others' bullying; (3) bully-victims (or aggressive victims), who both bully others and are victims; (4) not-involved, who are neither bullies nor victims. Studies of prison bullying have used the same categories, derived from a checklist that enquires about behaviour indicative of bullying,[1] rather than explicitly using the term bullying (Ireland, 1999a; Ireland & Ireland, 2000). The four bully categories differ on a range of characteristics. When presented with scenarios involving bullying, and asked to choose between several responses, pure bullies (but not bully-victims) were more likely to choose physical or verbal aggression, compared with the overall mean (Ireland, 2001a). Both pure bullies and bully-victims were more likely (again compared with the overall mean) to evaluate using aggression as a favourable solution to some bullying situations (Ireland & Archer, 2002). Pure bullies and bully-victims both showed higher overall scores on the AQ than those who were pure victims or not involved in bullying (Ireland & Archer, 2004).

The present study goes beyond this research in two ways. First, it involves a different way of analysing bullying and victimization: in addition to dividing the sample into these four categories, we analysed separately the effects of being a bully (or not), and being a victim (or not), and then the interaction between these, using a 2×2 factorial design. This enabled us to assess whether there were any characteristics of being both a bully and a victim beyond those that can be predicted from the additive effects of being a bully or a victim. If there are not, this weakens the argument for emphasizing bully-victims as a separate category, and it would have implications for anti-bullying programs based on the four categories. A second novel aspect of the present study is that it involves a wider variety of responses to provocation than the direct forms of aggression investigated previously, and two characteristics associated with aggression, impulsiveness and attributions people make about their own aggression. We analysed these measures using both the factorial analysis of bully and victim status and the four categories described above, and also continuous measures within the bully and victim categories. The measure of people's tendency to respond to provocation (bullying by another prisoner) was similar to the scenario method that has been used in previous studies of aggression

[1] *The items were based on responses to open-ended questions asking about the types of bullying that take place in prison (Ireland & Archer, 1996).*

(e.g. O'Connor, Archer, & Wu, 2001; van Goozen, Frijda, Kindt, & van de Poll, 1994), in that it involves a multiple-response format, enabling aggressive and non-aggressive responses to be selected.

The scenario method has typically yielded similar sex differences in direct aggression to those in self-report questionnaires (Archer, 2004b). Three additional types of aggression responses were assessed in the present study. The first was indirect aggression[2] (Archer & Coyne, 2005), for example spreading malicious rumours behind the person's back. It is of interest to aggression researchers because it represents a less obvious, but nonetheless damaging way of harming another individual. Indirect aggression is also noteworthy because girls show higher levels than boys (Archer, 2004b; Björkqvist, Lagerspetz, & Kaukiainen, 1992; Lagerspetz, Björkqvist, & Peltonen, 1988), although studies of young adults show no sex differences (Archer, 2004b; Forrest, Eatough, & Shevlin, 2005). In most of these studies, indirect aggression involves verbal forms, although its definition includes physical aggression, such as damaging another's property (Underwood, 2003). We therefore included items of indirect physical aggression, such as 'Smash something of theirs later', and indirect verbal aggression, such as 'Make false accusations about the person later'. Since the method used to assess bullying behaviour included direct and indirect acts, we predicted that bullies and bully-victims would show higher levels of indirect aggression to the scenario than would victims or not-involved groups.

Displaced aggression involves aggression directed towards a target other than the source of the provocation. It was transferred from psychoanalysis to empirical psychology by Dollard, Doob, Miller, Mowrer, and Sears (1939). Experimental studies involving humans have investigated aggression displaced on to another person, available as a target shortly afterwards (Marcus-Newhall, Pedersen, Carlson, & Miller, 2000). Miller, Pedersen, Earleywine, and Pollock (2003) further underlined the importance of this type of delayed aggressive response, showing that a later triggering event can produce a disproportionate aggressive response in such circumstances: two mechanisms are involved, short-term arousal and longer-term rumination over the provoking event. Displaced aggression is a low-cost outlet for aggressive impulses in that there is no danger of retaliation (although there may be a danger from self-injury). For this reason, we would expect it to be a preferred aggressive response of victims. It is also ineffective in gaining compliance from another, and for this reason we would expect it to be endorsed to a lesser extent by bullies. Since there is some evidence of higher levels of displaced aggression in women than men from questionnaires containing both displaced and indirect aggression (Archer, 2004b), we also assessed whether this was the case for a purer measure of displaced aggression in prison samples. We used items such as 'Slammed or kicked the door afterwards' to assess displaced physical aggression, and items such as 'Sworn at them after they had gone' for verbal forms. Although this is not strictly displaced aggression in that it was directed at the same target, it shares the features of being ineffective, low-cost, aggression.

Revenge plans and fantasies are also linked to ruminative thoughts about a provoking event. We therefore included items such as 'Do nothing at the time but think about taking revenge' and 'Have fantasies of killing the person'. Using a series of scenarios

[2] *Indirect aggression was the term originally applied to this behaviour (Lagerspetz et al., 1988). The alternative terms 'relational aggression' and 'social aggression' have subsequently been used, but these are essentially the same group of activities (Archer, 2001; Archer & Coyne, 2005).*

assessing hypothetical responses to different types of provoking situations, with opponents of different levels of retaliatory power, Archer and Benson (in press) found that the combination of high provocation and high retaliatory power of the opponent produced a response termed 'delayed hostility'. This consisted of doing nothing at the time, but feeling frustrated and planning to avenge the provocation later. Using a measure of the degree to which people ruminated over anger-inducing events, Sukhodolsky, Golub, and Cromwell (2001) found that men tended to hold thoughts of revenge longer than women did. This is consistent with findings that men report more homicidal fantasies than women do (Crabb, 2000; Kenrick & Sheets, 1993).

The main alternative non-aggressive response to provocation we assessed was fear and avoidance. Similar situations can produce either aggression or fear depending on the intensity of the provocation, and internal variables affecting the threshold for fear responses in that individual (Archer, 1976; Berkowitz, 1962). We would therefore predict more fear responses to a bullying situation among those who have themselves been victims of bullying than in those who have not, and fewer fear responses among those who are themselves perpetrators than those who are not perpetrators. Those who are both bullies and victims may show intermediate levels. We used items such as 'Deliberately avoid going to activities', 'Feel scared' and 'Burst into tears', to assess fear and avoidance responses. In an evolutionary analysis, Campbell (1999, 2006) argued that women show greater levels of fear in situations that are likely to result in injury: if this were the case, women would be more likely to report fear and avoidance in response to a bullying scenario.

The bullying scenario items also included smaller numbers of other types of response, aggression towards the staff, self-harm and minimizing or making light of the incident, all of which have been studied in relation to prison bullying (e.g. Ireland, 2000, 2002b, 2005; Livingston & Chapman, 1997). Since these did not feature in the subscales derived from the scenario responses, their background is not described here.

We also assessed the level of impulsiveness among the sample. Impulsiveness involves a lack of inhibition, the inability to delay the immediate response to a situation, and it is consistently associated with higher levels of direct aggression (Archer & Webb, 2006; Barratt, 1994; O'Connor, Archer, Hair, & Wu, 2002; Stanford, Houston, Villemarette-Pittman, & Greve, 2003). Despite this association, Ireland (2002a, 2004) has suggested that pure bullies are more likely to show proactive and instrumental aggression than are bully-victims, thus demonstrating more control over their aggressive behaviour. They may, therefore, be less impulsive than other prisoners. It is also possible that bully-victims may show more impulsive forms of aggression, particularly if this is a consequence of their prior victimization (at present there is no way of telling whether their victimization is a consequence or cause of their bullying). This reasoning leads to the prediction that bully-victims will be the most impulsive of the four categories, and pure bullies will not be particularly different from pure victims and not-involved prisoners. In the analysis of the separate effects of being a bully or a victim, we would predict a significant interaction between being a bully and a victim but no main effects.

The final measure concerned attributions people made about their own aggression, whether these are instrumental or expressive, on which the sexes show large sex differences: men tend to make instrumental attributions about their aggression, i.e. that others' actions had made it necessary; women tend to make expressive attributions, i.e. that they lost control. The sex differences have been found in a range of studies in several countries, using different versions of a questionnaire originally designed by Campbell, Muncer, and Coyle (1992), termed the Expagg or Expressions of Aggression

(Archer, 2004a; Archer & Haigh, 1997a; Campbell *et al.*, 1992; Campbell, Muncer, McManus, & Woodhouse, 1999). They are typically found for direct confrontations with people of the same sex who are not friends or relatives (Archer & Haigh, 1999; Archer & Latham, 2004), and they have been replicated in some but not other samples of British offenders (Alexander, Allen, Brooks, Cole, & Campbell, 2004; Archer & Haigh, 1997b; Smith & Waterman, 2006). Instrumental attributions are strongly associated with higher rates of physical aggression (e.g. Alexander *et al.*, 2004; Archer, 2004a; Archer & Graham-Kevan, 2003; Archer & Haigh, 1997a, 1997b; Ramirez, Andreu, & Fujihara, 2001). Since bullying is widely viewed as a way of controlling others, in addition to being less impulsive, pure bullies may make more instrumental attributions about their own aggressive actions, such as that the other person 'deserved it', and fewer expressive attributions, such as 'I lost control'. If, on the other hand, bully-victims are more impulsive, they may make more expressive and fewer instrumental attributions about their own aggressive actions. Alternatively, instrumental attributions may simply reflect the individual's level of physical aggression, as found in previous studies, irrespective of whether or not they are also recipients of aggression.

The present sample involved adult male and female prisoners from a number of prisons in the UK. Although we have referred above to sex differences in aggression found in school, college and community samples, these may not necessarily generalize to offender samples. Huesmann, Lefkowitz, and Eron (1978) found that self-report measures of direct aggression were not only much higher among an institutionalized offender sample of adolescents in New York State than among a community sample, but they also showed a marked reverse sex difference ($d = -.71$ compared with $d = .33$). Huesmann *et al.* suggested that this may be a consequence of the different selection processes that lead to boys and girls being classified as delinquents. They suggested that the sample of female delinquents contained only the extreme end of the distribution of antisocial activities in the female population, whereas the male sample was more representative of males of that age in the general population. While they have not found such a dramatic reversal of sex differences, further studies of prison samples (Archer and Haigh, 1997b; Ireland, 2000) do indicate a lessening of the typical sex difference in physical aggression (Archer, 2004b). The present study involved a larger and more representative sample of the British prison population than those used in most previous studies. This enabled a more extensive investigation of whether there are typically sex differences in bullying behaviour, and in the other measures used.

In summary, there are a number of predictions that were tested in the present study:

(1) Compared with non-perpetrators, perpetrators of bullying will show higher levels of direct and indirect aggression in response to a hypothetical situation involving being bullied. Thus bullies and bully-victims will show higher levels than victims and those not involved in bullying.
(2) Displaced aggression will be higher in victims than in non-victims, producing highest levels in pure victims than in the bullies and not-involved categories, with bully-victims being intermediate. Women will show slightly higher levels of displaced aggression than men.
(3) Revenge fantasies and plans will be higher in bullies than non-bullies, and will therefore be characteristic of pure bullies. They will also be higher among men than women.
(4) Victims will show higher levels of fear and avoidance than non-victims, with the consequence that pure victims will show higher scores than the not-involved or

bully categories. Women will show higher levels of fear/avoidance than men.

(5) Impulsiveness will be highest in the bully-victim category as a consequence of an interaction between bully and victim status, with pure bullies showing no difference from those not involved in bullying.

(6) Pure bullies will show the highest instrumental attributions about their aggression, whereas bully-victims will show the highest expressive attributions. An alternative prediction is that all forms of bullying will be associated with instrumental attributions. Higher instrumental and lower expressive attributions are expected among men than women.

Method

Participants

Adult offenders ($N = 1253$; 728 men and 525 women) from 11 prisons in the UK participated in this study. Five of the prisons housed women and six housed men; they included closed, medium and medium–high security institutions. Their mean age was 32.1 years ($SD = 9.9$): 88.8% were of Caucasian ethnic origin, 3.8% Afro-Caribbean, 2.8% from the Indian subcontinent, 1.5% of other ethnic origin and 3.1% of mixed ethnic origin. Their mean sentence length was 43.6 months, and the mean duration they had spent in penal institutions throughout their lives was 50 months: 32.6% were serving sentences for violent offences, 26.7% for acquisitive offences, 18.5% for drug-related offences, 12.5% for other indictable offences (e.g. motoring offences) and 9.6% for sex offences; 8% were on remand and 3% were serving a life sentence. The sample included all offenders based on the prison wing/house at the time of the study, i.e. they were an opportunity sample. The male and female offenders showed similar ages (means: male, 32.7 years, $SD = 10.7$; females: 31.4 years, $SD = 8.7$). Their ethnic composition was similar, but the mean sentence length (49.4 vs. 34.8 months) and time previously spent in penal institutions (59.7 vs. 27.2 months) were longer for men than for women.

Procedure

Most prisoners completed the questionnaire on their own, in their cells. Owing to operational issues at two of the prisons, prisoners were approached during education or workshop classes. Those recruited by this method were seated separately and supervised as they completed the questionnaires.[3] A consistent procedure was adopted for all of the participating prison establishments.[4] This method involved the distribution of questionnaires at the beginning of a lunchtime lock-up period, or a training afternoon when prisoners were locked in their cells for 2 hours. Questionnaires were collected between 1 and 2 hours later. This method has proved to be reliable for administering questionnaires in prisons (Ireland, 1999b). Participants were asked to place the completed questionnaires into unmarked, self-seal envelopes and to seal them. It was emphasized that neither their name nor their prison number

[3] *A multiple regression assessed whether the data collection method influenced the outcome for bullying behaviour: the method predicted neither bully ($t = 1.83$; ns) nor victim behaviours ($t = 12$; ns).*

[4] *Of the 11 prison establishments that participated, four used their own psychology departments to distribute and collect the questionnaires (two male and two female establishments), using the same procedure. A regression analysis showed no difference in the procedure for the number of bully and/or victim items reported ($t = -.90$; ns; $t = 1.18$; ns).*

was required, and that the questionnaire contained only information to be used for anonymized statistical analysis. The overall response rate was 40%.

Measures

The Direct and Indirect Prisoner Behaviour Checklist (DIPC; Ireland, 1999a, 1999b)

This has been used extensively with men, women, young and adult prisoners (Ireland, 2002a). It is a method of gathering information on bullying behaviour rather than a measure that yields a composite score. It records the presence or absence of specified acts of behaviour. It does not involve the term bullying, but records acts of behaviour defined as indicative of 'bullying others' or of 'being bullied'.

The DIPC contains physical, theft-related, psychological or verbal, and sexual forms of direct bullying. Indirect bullying involves gossiping, spreading rumours and ostracizing. In total, there are 65 items on the scale relating to bullying behaviour. Examples include: 'I was hit or kicked by another prisoner', 'I was called names about my race or colour', 'I have called someone names about their offence or charge' and 'I have deliberately ignored someone'. Forty-eight items described direct forms of bullying behaviour and 17 indirect forms. The DIPC includes 34 additional items, including negative behaviour towards staff or prison rules, drug-related behaviour, positive behaviour (such as helping a new prisoner), reactions to being victimized and some filler items. These items are not included in the present article, as they are reported separately, along with descriptive information about the nature and extent of bullying in these prisons (Ireland, Archer, & Power, in press). Prisoners were asked to identify in which behaviour they had engaged in the previous week, or which had occurred to them, by indicating 'yes' or 'no' to each item. The DIPC allows participants to be categorized into one of four groups: pure bullies (only reporting bullying others); pure victims (only reporting being victims); bully-victims (reporting bullying others and being bullied); and not-involved (reporting neither bully nor victim behaviours). It also enables participants to be categorized as either bullies or non-bullies, and as either victims or non-victims (for the 2 × 2 MANOVA and ANOVAs).

Response to Victimization Scale (RVS)

The RVS was devised for this study. Participants were asked how they would respond if another prisoner bullied them. A range of responses was chosen to be indicative of: direct verbal and physical aggression (e.g. items 10 and 24); indirect verbal and physical aggression (e.g. items 30 and 35); displaced aggression (e.g. items 3 and 5); revenge plans and fantasies (e.g. items 9 and 19); antisocial behaviour (e.g. items 39 and 43); self-harm (items 38 and 39); fear and avoidance (e.g. items 4 and 40); and ignore the incident (items 12 and 13). Subscales were derived by exploratory factor analysis. The RVS was derived from a range of sources, for example displaced items from the Buss-Durkee Hostility Inventory (Buss & Durkee, 1957) and revenge fantasies from Benson (2001) and O'Connor *et al.* (2001). A total of 43 items was presented to participants and they were asked to rate each statement on a five-point Likert scale depicting how often they would behave in this way (1=never to 5=always). The items are shown in Table 1.

The Barratt Impulsiveness Scale-IIr (BIS-IIr; Barratt, 1994)

The BIS-IIr presents participants with a series of items designed to assess their tendency to respond impulsively in certain contexts. The version used here has been modified slightly

Table 1. Factor loadings (PAF, Oblimin rotation) for items on the Response to Victimization Scale (RVS) scale, showing those above .3

Items	1	2	3	4	5	6	7
2. Show my anger by banging on the table or other furniture after they had left			−.34		−**.65**	.31	
3. Be so angry that when they had gone, I picked up the nearest thing and broke it	.39		−.34		−**.73**		
4. Cried when I was alone		**.63**			−.41		
5. Slammed or kicked the door afterwards	.34	.34		−.33	−**.75**	.32	
6. Not react at the time, but be so angry that I'd hit the wall afterwards	.31	.37		−.31	−**.74**		
7. Cursed them when they've left the room		.32		−**.77**	−.49		
8. Sworn at them after they had gone		.32		−**.75**	−.50		
9. Do nothing at the time but later think about taking revenge	**.73**		−.30	−.33		.45	−.44
10. Insult them and threaten them to their face	.50					**.76**	−.57
11. Feel frustrated for some time after the incident	.37			−**.42**	−.31	.39	
14. Attack them with the help of your friends at a later time	**.55**		−.45				−.48
15. Confront them and demand an apology						**.49**	
16. Physically attack them	.62					.57	−**.74**
17. Burst into tears		**.63**			−.36		
18. Feel angry afterwards and plan ways of getting even	**.82**		−.32			.46	−.52
19. Have fantasies of killing the person	**.67**		−.32				−.45
20. Do nothing but wish they would die	**.55**	.36	−.34		−.35		
21. Shout at the bully						**.66**	−.31
22. Tell them that you'll get 'even' later	.55		−.34			**.59**	−.56
24. Kick them	.46		−.35			.51	−**.81**
25. Headbutt them	.52					.54	−**.85**
26. Threaten them with a weapon	.51		−.37			.35	−**.89**
27. Attack them with a weapon	.51		−.35			.36	−**.90**
28. Make insulting comments to the person's face	.41					**.71**	−.59
29. Make insulting comments later behind the person's back	.35	.32	−**.45**	−.43	−.32		
30. Tell lies or stories about the person			−**.73**				
31. Try to get others to ignore the person	.32		−**.55**				
32. Do nothing at the time but try to damage their property later	.34		−**.78**				−.32
33. Make false accusations about the person later			−**.81**				
34. Smash something of theirs later	.32		−**.83**		−.30		−.36
35. Get 'even' by smashing something of theirs later on	.38		−**.77**				−.32
36. Feel scared		**.67**					
37. Deliberately hurt myself		**.59**	−.33		−.47		
38. Threaten to deliberately hurt myself		**.54**	−.37		−.46		

Table 1. (*Continued*)

Items	1	2	3	4	5	6	7
40. Deliberately avoid going to activities		**.69**			−.32		
41. Spend as much time on my own as possible		**.67**					
Cronbach's alpha for initial subscales	.80	.82	.86	.77	.83	.80	.93
Numbers of items	5	7	7	3	4	5	5
Sums of squared loadings for rotated solution	9.56	4.62	2.23	1.36	.83	.73	.60

Notes. Values in bold indicate the items that formed the subscales. Also shown are Cronbach's alphas and numbers of items for the initial subscales. Sample size=1,103. The subscales were named as follows: 1. Revenge; 2. Fear/avoidance; 3. Indirect aggression; 4. Displaced verbal aggression; 5. Displaced physical aggression; 6. Direct verbal aggression; 7. Direct verbal aggression. The following items from the original scale were omitted from the version shown above: (1) 1. Spread gossip about the person concerned; (12) Forget about it as soon as the person had left; (13) Ignore them and try to laugh it off; (23) Try to ignore or avoid the person; (39) Try to cope by using unprescribed drugs; (42) Become physically aggressive towards a member of staff; (43) Become verbally aggressive towards a member of staff.

to make it appropriate for a prison sample: two items were removed because they were not suitable for a detained sample (i.e. 'I change where I live' and 'I plan for job insecurity'). The BIS-IIr comprised 28 statements (12 reversed): e.g. 'I do things without thinking' and 'I concentrate easily'. Participants were asked to respond on a four-point Likert scale (1=rarely/never to 4=almost always/always). It has previously been used in prison samples (Barratt, 1994). In the present study, Cronbach's α was .82 for the 28 items.

The Revised Expagg-short version (Campbell et al.*, 1999)*

The Expagg involves a series of items designed to assess people's instrumental or expressive attributions about their own aggression. Instrumental attributions are planned or goal directed, and expressive are unplanned and driven by emotions. There are 16 items, 8 measuring expressive and 8 instrumental attributions. For example, 'If I were in a physical fight, I would feel out of control' is expressive and 'If someone challenged me to a fight in public, I'd feel cowardly if I backed away' is instrumental. Participants are asked to rate themselves on a five-point Likert scale (1=strongly disagree to 5=strongly agree) for each item. Cronbach's α was .84 for the instrumental scale and .70 for the expressive scale. These are similar to previous findings for this scale with student and with prison samples.

Results

Preliminary analyses

All participants completed the DIPC, but there were missing values on the other questionnaires among 11–13% of the sample. These were replaced for participants with up to 25% missing on the questionnaires other than the DIPC; those with over 25% missing values were retained as true missing values. There were no significant

differences on any of the measures for those with and without missing values; there were no substantial differences between pairwise and listwise correlations between the scales. Except where indicated, α levels were .05 in the following analyses.

On the DIPC, 42% of the sample reported one or more items of bullying others (men: 44%; women: 39%). Direct perpetration was reported by 23% and indirect by 34% of the sample. Direct physical assault was reported by 6% (6% of men and 5% of women); 52% reported one or more items of being bullied (men: 50%; women: 55%). Direct victimization was reported by 37% and indirect victimization by 39%. Direct physical victimization was reported by 9% (9% of men and 10% of women). There were no significant sex differences on any of the combined or subcategories of bullying or victimization (for further information, see Ireland *et al.*, in press).

The substantial proportions of the sample who reported either no perpetration or no victimization enabled the data to be analysed by a factorial (perpetrator × victim) MANOVA (for the RVS subscales) and ANOVAs (for the other three scales). These analyses indicated whether the presence or absence of any item of bullying or victimization was associated with higher or lower values on the other measures. We also computed correlations between the number of bully or victim items and the other measures for those individuals showing at least one bully or victim item. This indicated whether differences between bullies and non-bullies, and between victims and non-victims, were paralleled by those showing more bullying, or more victimization, being higher on measures that distinguished the groups in the categorical analysis. These analyses were undertaken together with the four-category analysis, described in the Introduction, which has been the customary method in previous studies of prison bullying. For the categorical analysis, 12.5% were classified as pure bullies, 22.6% as pure victims, 29.4% as bully-victims and 35.6% were classed as not-involved, all on the basis of the presence or absence of one or more perpetration and/or victimization items. These analyses were carried out on the subscales derived from the RVS, and on the BIS-IIr and the two Expagg scales.

Data reduction: Derivation of RVS subscales

The following procedure was used to establish subscales from the RVS items. A preliminary factor analysis (PAF; Principal Axis Factoring, Oblimin Rotation) on all 43 items yielded nine factors with eigenvalues over 1.0, accounting for 63.6% of the variance. Two of the nine subscales derived from these factors (using items with loadings over .4) had low reliabilities, and these items were discarded, along with two that did not load above .4 on any factor. A rerun of the PAF on the remaining items yielded the same seven factors as before (Table 1 shows loadings above .3). Subscales were formed from these factors by including items with loadings over .4, using only the highest loading where an item loaded on more than one factor. Items on each of the subscales are indicated in bold in Table 1. Also shown are the sums of squared loadings for the rotated factors, Cronbach's alphas for the resulting subscales and the names of the subscales. These generally coincided with the conceptual groupings used to construct the overall scale, except that the self-harm items loaded on fear/avoidance and direct and displaced aggression formed separate physical and verbal scales.

Intercorrelations between measures from the RVS subscales, the BIS-IIr and Expagg

Table 2 shows the intercorrelations between the RVS subscales, the BIS-IIr and the Expagg instrumental (I) and expressive (E) scales. Several of the RVS subscales showed correlations above .40 with other subscales. Thus, revenge was positively correlated with the other aggression measures, direct and displaced physical and verbal, and indirect; displaced physical was positively correlated with displaced verbal, and also with indirect, revenge and with fear/avoidance. Indirect aggression showed positive correlations above .40 with displaced verbal aggression and with revenge. The correlation between displaced physical (and to a lesser extent displaced verbal) aggression and fear/avoidance suggests that displaced aggression is shown when direct confrontation is inhibited by fear.

Table 2. Correlations between BIS-IIr, Expagg scales and RVS subscales

Variable	2	3	4	5	6	7	8	9	10
1. BIS-11r	.43**	.21**	.39**	.12**	.23**	.27**	.34**	.26**	.32**
2. Expagg-I		.46**	.47**	−.10**	.22**	.24**	.24**	.49**	.50**
3. Expagg-E			.20**	.23**	.10**	.29**	.25**	.18**	.04
4. RVS-revenge				.14**	.50**	.41**	.44**	.54**	.63**
5. RVS-fear/avoidance					.28**	.35**	.43**	−.10**	−.13**
6. RVS-indirect						.35**	.42**	.35**	.23**
7. RVS-displaced-verbal							.56**	.34**	.17**
8. RVS-displaced-physical								.36**	.28**
9. RVS-direct-verbal									.66**
10. RVS-direct- physical									

**$p < .001$.
Note. Sample size ranged from 1,047 to 1,122.

Impulsiveness is related to most of the other measures, in particular, instrumental attributions about aggression, and (in order of magnitude) to revenge, displaced physical aggression and direct physical aggression (Table 2). Instrumental attributions were most closely related to direct physical and verbal aggression. Expressive attributions were less closely associated with other measures, the highest value being $r = .29$ with displaced verbal aggression. Unexpectedly, there was a positive correlation between expressive and instrumental attributions.

In interpreting these correlations, we should note that there is likely to be an upward bias in the size of the correlations, since items on all scales except the BIS are positive ones, and could therefore reflect an acquiescent response style: thus the sizes of the positive correlations are likely to be increased by this bias, and the sizes of the negative correlations (of which there were only three) decreased.

Comparisons between bully categories

As indicated in the Introduction, differences between prisoners as a function of bullying and victimization were examined: (1) by using a factorial design to compare the two categories bully/non-bully and victim/non-victim; (2) by comparing the categories pure bully, bully-victim, pure victim and not-involved, and testing for differences from the not-involved category among the other three categories; (3) by

Table 3. Means and standard deviations (in parentheses) for RVS, BIS and Expagg acales for bullies vs. non-bullies and victims vs. non-victims

Measure	Bullies $N = 461/72$	Non-bullies $N = 638/57$	Victims $N = 573/90$	Non-victims $N = 525/35$
RVS-revenge	10.89 (4.88)	8.24 (4.12)***	9.99 (4.95)	8.64 (4.16)*
RVS-fear/avoidance	12.09 (5.40)	12.40 (5.39)**	13.14 (5.74)	11.31 (4.81)***
RVS-indirect	10.26 (4.61)	8.81 (3.52)***	9.74 (4.29)	9.06 (3.79)
RVS-displaced-verbal	8.55 (3.22)	7.26 (3.31)***	8.18 (3.36)	7.37 (3.26)
RVS-displaced-physical	8.06 (3.81)	6.72 (3.59)***	7.76 (3.90)	6.74 (3.48)**
RVS-direct-verbal	13.30 (4.96)	10.34 (4.60)***	11.28 (4.88)	11.84 (5.05)
RVS-direct-physical	11.03 (6.30)	7.98 (4.80)***	9.57 (5.75)	8.90 (5.58)
BIS-IIr	68.35 (11.21)	63.51 (11.40)***	67.37 (11.43)	63.54 (11.39)**
Expagg: instrumental	27.44 (7.41)	22.99 (7.94)***	25.76 (7.82)	23.91 (8.15)
Expagg: expressive	26.98 (6.00)	25.75 (6.56)*	26.73 (6.17)	25.76 (6.51)

Note. Asterisks indicate significant (*$p < .05$, **$p < .01$, ***$p < .001$) main effects in a 2 (bully/non-bully) × 2 (victim/non-victim) MANOVA for the RVS subscales, and 2 × 2 ANOVAs for the BIS and Expagg scales. There were no significant interactions.

computing correlations with the other measures for those participants who showed one or more items of bullying, and those who showed one or more items of victimization. In the remainder of this section, the results of these three analyses are outlined.

Factorial comparison of bullies/non-bullies and victims/non-victims

For the RVS subscales, there was an overall main effect for both bully ($F[7, 1,094] = 18.69$; $p < .001$) and victim ($F[7, 1,094] = 5.88$; $p < .001$) factors in a 2 × 2 MANOVA, but no significant interaction ($F[7, 1,094] = .91$). As shown in Table 3, bullies showed significantly higher values than non-bullies for revenge ($g = .59$[5]), indirect aggression ($g = .36$), displaced verbal ($g = .39$) and displaced physical aggression ($g = .37$), and for direct verbal ($g = .62$) and direct physical aggression ($g = .55$). Non-bullies showed significantly higher fear/avoidance scores than did bullies, although in this case the g value ($-.06$) did not reflect this difference. Victims showed higher values for revenge ($g = .29$), fear/avoidance ($g = .34$) and displaced physical aggression ($g = .28$), the value for fear/avoidance being the largest (Table 3).

Bullies also showed significantly higher values than non-bullies on the impulsivity scale (BIS-IIr: $g = .43$) and both the instrumental ($g = .57$) and expressive attributions scales of the Expagg, although the second of these was a relatively small difference ($g = .19$). Victims showed significantly higher values than non-victims on the impulsivity scale ($g = .34$). There were no significant interactions in the 2 × 2 ANOVAs carried out for the BIS-IIr and Expagg scales.

[5] *These are Hedges' g values calculated from the means and standard deviations shown in Table 4 (using DSTAT: Johnson, 1989): they therefore represent straightforward comparisons ignoring the influence of the other factor in the 2 × 2 ANOVA. For this reason, they correspond to one-way F values, rather than those from the 2 × 2 analysis.*

Comparison of the four bully categories

The impact of these differences on the comparisons across the four bully-victim categories (shown in Table 4) were as follows: for revenge, indirect aggression, direct verbal and physical aggression and instrumental attributions, both pure bullies and bully-victims showed significantly higher values than the not-involved category; for displaced physical and displaced verbal aggression and impulsiveness, the three other categories showed higher values than the not-involved, although the differences between victims and not-involved were relatively small for the two displaced aggression scales. For fear/avoidance, both pure victims and bully-victims showed higher values than the not-involved category, although bullies did not differ from it. For the expressive scale, only bully-victims showed significantly higher values than the not-involved category. With the exception of the last one, all of these differences can be seen as a direct result of the combined effects of the two main effects of bully and victim status with no interactions between these two.

Table 4. Means and standard deviations (in parentheses) for the RVS, BIS and Expagg scales for the four bully categories

Measure	Pure bully $N = 132/8$	Pure victim $N = 244$	Bully/Victim $N = 323$	Not-involved $N = 386$
RVS-revenge*	10.26 (4.19)***	8.46 (4.26)	11.14 (5.14)***	8.11 (4.03)
RVS-fear/avoidance*	10.83 (4.86)	13.86 (5.94)***	12.59 (5.54)**	11.50 (4.79)
RVS-indirect*	9.86 (4.20)**	8.86 (3.41)	10.42 (4.76)***	8.80 (3.61)
RVS-displaced-verbal*	8.44 (3.26)***	7.65 (3.45)*	8.59 (3.23)***	7.02 (3.19)
RVS-displaced-physical*	7.48 (3.36)**	7.05 (3.70)*	8.31 (3.94)***	6.48 (3.49)
RVS-direct-verbal*	13.30 (4. 76)***	9.93 (4.37)	13.30 (5.05)***	10.60 (4.73)
RVS-direct-physical *	11.05 (6.70)***	7.65 (4.54)	11.02 (6.14)***	8.18 (4.96)
BIS-IIr*	66.94 (10.98)***	65.32 (11.32)**	68.93 (11.27)***	62.37 (11.31)
Expagg: instrumental*	27.12 (7.69)***	23.34 (7.83)	27.57 (7.32)***	22.76 (8.02)
Expagg: expressive*	26.30 (5.98)	26.04 (6.38)	27.26 (5.96)***	25.57 (6.68)

Note. *After the measure indicates a significant ($p < .01$) *F* value across the four bully categories. Asterisks after the numerical values indicate that they were significantly (*$p < .05$; **$p < .01$; ***$p < .001$) different from the not-involved group using contrast estimates.

Are the findings different for direct and indirect bullies?

Although there was considerable overlap between participants who used direct and indirect means of bullying (the correlation between the two being $r = .57$), it may be that the present definition of bullying is too broad, since it included indirect forms such as spreading rumours and ostracizing others. We therefore recomputed the findings presented in the previous section only for those participants who were perpetrators or victims of direct forms of bullying. The same main effects were found for bullies compared with non-bullies. For victims compared with non-victims, there were two additional main effects, indirect and displaced verbal aggression both showing higher values in victims than in non-victims. We can therefore conclude that the associations with bully and victim status were in most cases unaffected by whether the definition of bullying included or excluded items of indirect aggression.

Correlations with the extent of bullying and victimization

Within the bully category, the numbers of bully items were significantly positively correlated with the following RVS aggression scales: direct physical ($r = .32$; $p < .0001$), direct verbal ($r = .25$; $p < .0001$), indirect ($r = .26$; $p < .0001$) and displaced ($r = .15$; $p = .001$) aggression; also with revenge ($r = .25$; $p < .0001$), impulsivity ($r = .20$; $p < .0001$) and Expagg-instrumental ($r = .21$; $p < .0001$), but not with fear/avoidance ($r = -.06$), displaced verbal aggression ($r = .04$) and Expagg-expressive ($r = -.05$). The significant correlations were all in the direction expected from the bully/non-bully main effects (Table 3).

Within the victim category, the numbers of victim items were significantly positively correlated with the following: fear/avoidance ($r = .30$; $p < .0001$), displaced physical ($r = .18$; $p < .0001$), displaced verbal ($r = .14$; $p = .001$), indirect ($r = .13$; $p = .002$) and revenge ($r = .09$; $p = .036$); but not with Expagg-instrumental ($r = .002$), direct verbal ($r = .024$) and physical aggression ($r = .008$), impulsivity ($r = .06$) and Expagg-expressive ($r = .08$; $p = .054$). The significant correlations were not necessarily those predicted from the victim/non-victim main effects (Table 3): those with fear/avoidance and with displaced physical were expected, but there was no significant positive correlation with impulsiveness in line with the significant main effect for this measure.

Sex differences

As indicated above, there were no sex differences in the proportions of each sex showing the presence or absence of either combined or subcategories of bullying or victimization. However, men reported more items of perpetration than women did, and women reported more items of victimization than men did, the first of these being significantly different ($t = 2.8$; $p = .006$). The same pattern was found for all the subcategories of bullying and victimization (physical, psychological/verbal, theft-related and indirect). Examining the means for perpetration and victimization within each sex, it is clear that both male and female prisoners reported more victimization than perpetration, and that this was more marked for females (means: .92 vs. 2.22; $t = 8.06$; $p < .001$) than male prisoners (means: 1.26 vs. 1.77; $t = 4.35$; $p < .001$).

Table 5 shows the means and standard deviations for male and female prisoners on the RVS, BIS and Expagg measures, and also effect sizes (Hedges' g) for the sex difference. Men showed significantly higher scores than women for revenge, indirect aggression, direct verbal and physical aggression, and the Expagg-instrumental scale. Effect sizes were in the low range, from .18 for the Expagg-instrumental and direct verbal aggression to .33 for revenge, with the exception of physical aggression which showed a large sex differences (.70). Women showed significantly higher values than men for fear/avoidance, and Expagg-expressive. Effect sizes were high for the first of these, and much lower for the second (Table 5). There were no significant sex differences for displaced verbal or physical aggression, or for the BIS-11r (Table 5).

Since a number of studies has found sex differences in the female direction for indirect aggression at school ages, using measures consisting entirely of verbal forms (Archer, 2004b), we divided our seven-item indirect aggression scale into two subscales, verbal (four items) and physical (three items). The significant sex difference in the male direction was replicated for both measures, indicating that it

Table 5. Means and standard deviations (in parentheses) for men and women for the various measures used in the study: effect sizes for the sex differences are Hedges' *g*, the standardized difference between the two means

Measure	Men $N = 631/42$	Women $N = 475/83$	Effect size[a]
RVS-revenge	9.98 (4.76)	8.49 (4.32)	.33*
RVS-fear/avoidance	10.89 (4.64)	14.11 (5.77)	−.62*
RVS-indirect	9.91 (4.66)	8.76 (2.00)	.28*
RVS-displaced-verbal	7.75 (3.25)	7.86 (3.44)	−.04
RVS-displaced-physical	7.09 (3.57)	7.53 (3.93)	−.12
RVS-direct-verbal	12.04 (4.97)	10.96 (4.93)	.22*
RVS-direct-physical	10.51 (6.26)	7.58 (4.26)	.70*
BIS-11r	65.20 (11.37)	66.00 (11.83)	−.07
Expagg: instrumental	25.48 (8.05)	24.06 (7.94)	.18*
Expagg: expressive	25.57 (6.51)	27.22 (6.00)	−.21*

Note. *indicates a significant ($p < .01$) difference (*t* test).
[a]A positive value indicates higher male than female scores, and a negative one indicates higher female than male scores.

was not the result of including physical as well as verbal indirect aggression in the measure.

Discussion

Bully categories

The overall finding from the factorial MANOVA and ANOVAs of bullying and victimization was that either or both factors showed significant differences across most measures. There were no significant interactions, indicating that all the differences between the four categories frequently used in bullying research could be attributed to either a main effect of bullying or a main effect of victimization or the additive effects of both. This finding rules out the possibility that being a victim moderates the impact of being a bully on any of the measures used, or that being a bully moderates the impact of being a victim (Baron & Kenny, 1986). In addition to these categorical effects of bullying or victimization, in most cases there were additional comparable effects of increasing numbers of bullying and victimization items. When discussing the findings in terms of our predictions – which were mostly conceived in terms of the four-category classification – we should bear in mind that all the differences we found can be explained in terms of additive effects of bullying and/or victimization.

In view of the large numbers who were classified in the bully-victim category, compared with those in the bully, and to a lesser extent, the victim categories, it is important that we should bear in mind the association between bullying and victimization throughout the discussion. Of those who were bullies, approximately 71% were also victims, and of those who were victims, approximately 57% were also bullies. This association is not surprising, since a common response to direct aggression is retaliation. The 'culture of honor' (Nisbett & Cohen, 1996) is built on the principle of retaliation by physical aggression to a verbal insult, and physical aggression between partners involves a high level of reciprocity (e.g. Carrado, George, Loxam, Jones,

& Templar, 1996; Hendy *et al.*, 2003; Johnson, 1995). Looked at from this perspective, the appropriate question raised by our results is not why there was a high proportion of bully-victims, but what it was about the pure bullies that prevented others retaliating to their actions. In addition, it may be the case that some bully-victims are only classified as such because they have directly retaliated against someone who has bullied them, whereas others more regularly bully others who have not bullied them. Future research could usefully distinguish between these alternatives.

Our first prediction was that both pure bullies and bully-victims would report higher levels of direct and indirect aggression in response to a scenario involving being bullied than would those not involved in bullying, and that this would be due to higher scores among those who bullied than those who did not, with no significant effect of being a victim. This prediction was clearly supported, with a medium-sized difference between bullies and non-bullies for direct verbal and physical aggression, and a smaller one for indirect aggression and no significant differences for victim status. Among those who showed one or more items of bullying, the level of direct and indirect aggression was moderately correlated with the number of bully items. There was a very small correlation between the number of victim items and indirect aggression, suggesting a slight influence of the extent of victimization. The findings were very similar whether or not indirect aggression was included in the definition of bullying behaviour, and there was a close association within participants between acts of direct and indirect bullying, as has been found in other studies of prison bullying (Ireland, 1999b, 2001b; Ireland & Archer, 2004; Ireland & Monaghan, 2006; Ireland & Power, 2004).[6]

We predicted that there would be more displaced aggression in pure victims, and less in pure bullies. However, both bullies and victims had higher scores than, respectively, non-bullies and non-victims, for verbal and physical displaced aggression (although the main effect of victim status was non-significant for displaced verbal, the simple comparison produced a significant effect size of $d = .24$). As a consequence, all three groups involved in bullying (pure bullies, bully-victims and pure victims) showed significantly more physical and verbal displaced aggression than not-involved prisoners. The means for displaced physical aggression were in the direction bully-victim (highest), pure bully and pure victim (lowest). Our prediction was based on displaced aggression being a low-cost form of aggression (Archer, 2004b), which was expected to replace direct aggression for victims. Although this was to some extent supported by the higher values in victims than non-victims, the finding that bullies showed more displaced aggression than non-bullies demonstrated that it was not a simple matter of one form of aggression replacing another, but that there was an overall pattern of a range of aggressive responses, direct, indirect and displaced, shown by bullies. The overall positive correlations between displaced aggression and direct and indirect aggression, revenge and impulsiveness, and also with fear/avoidance, suggest that it is motivationally linked to both anger and fear.

The prediction that revenge fantasies and plans would be an additional response characteristic of pure bullies, was supported by the large effect of bully status. However, there was a small effect of victim status, in the same direction. Both effects were paralleled by positive correlations between revenge and the extent of bullying and of

[6] *Previous studies did not report the associations between direct and indirect aggression. The second author calculated the following correlations between direct and indirect bullying from her published prison studies: r = .68 (Ireland, 1999b); r = .49 (Ireland, 2001b); r = .67 (Ireland & Power, 2004); r = .75 (Ireland & Archer, 2004); r = .66 (Ireland & Monaghan, 2006).*

victimization. As a result, both bully-victims and pure bullies showed higher levels of revenge than the not-involved category, but the effect of victimization status was too weak to produce significantly higher levels in the pure victim category.

The prediction that there would be higher fear/avoidance responses to a bullying scenario among victims than non-victims was clearly supported, and there was an additional influence of more victim items. There was also a weak effect in the opposite direction for bully status. These effects produced the highest levels of fear/avoidance in the victim category, followed by the bully-victims, both of which were significantly higher than the not-involved categories.

We also found that bullies were more impulsive than non-bullies, and that impulsiveness correlated with the number of bully items endorsed; also that victims were more impulsive than non-victims, although this was a weaker effect. There was, therefore, no indication that bullies were non-impulsive individuals (Ireland, 2002a, 2004). There was also little indication that the bully-victim category represented a particularly impulsive type, as had been predicted, since their impulsiveness scores were little different from those of pure bullies. It was, however, interesting to find that victims of bullying were more impulsive than those who were not. Impulsiveness, similar to risk taking, may be an indicator not only of a greater likelihood of perpetration (e.g. Barratt, 1994; O'Connor *et al.*, 2002) but also of a greater likelihood of victimization. Fetchenhauer and Rohde (2002) suggested that attraction to risk taking may predispose individuals to both perpetration and victimization since they will be more willing to involve themselves in provocative situations that can result in both of these.

As predicted, bully status showed a clear association with making instrumental attributions about aggressive acts, i.e. these were more likely to be justified in terms of others' actions by bullies than by non-bullies, and this increased with the number of bully items that were endorsed. There was also a smaller effect of bully status on expressive attributions about aggressive acts: bullies were more likely to view their aggression as a loss of control, and this increased with the number of bully items that were endorsed. In previous studies, only instrumental attributions had been associated with self-reported perpetration of aggression (Archer, 2004a; Alexander *et al.*, 2004; Archer & Graham-Kevan, 2003; Archer & Haigh, 1997a, 1997b; Smith & Waterman, 2006), making the present association with expressive attributions unusual. The bully/non-bully distinction therefore does not parallel the sex differences found on these measures, which involve higher instrumental and lower expressive scores for males than females (see the following section). There was some indication that bully-victims did make expressive attributions, as predicted, but this was in addition to, rather than instead of, their instrumental attributions. There was also a moderate correlation between instrumental attributions and impulsivity, which would not have been expected if instrumental attributions represented planned actions. This association with impulsivity has been found in other studies (Alexander *et al.*, 2004; Smith & Waterman, 2006), and it supports the view that instrumental attributions occur in individuals who show their aggression at lower levels of anger arousal, as a result of their lack of inhibition (Alexander *et al.*, 2004; Driscoll, Zinkivskay, Evans, & Campbell, 2006).

The present findings are consistent with the view that all forms of bullying are associated with instrumental attributions, although the higher expressive attributions are an added complication. Consistent with this, there was a moderate positive correlation between instrumental and expressive attributions, which is again unusual, as previous findings have generally shown a small negative correlation or no association,

one exception being a value of $r = .47$, found in another British offender sample (Alexander *et al.*, 2004).

Several of the responses were correlated, the strongest being between direct physical aggression and revenge, and the next between instrumental attributions and direct physical aggression. We can therefore summarize the scenario responses of the bullies as involving more verbal and physical direct, indirect and displaced aggression, more revenge fantasies, and less fear/avoidance, compared with non-bullies. They were also more impulsive, and both more instrumental and expressive in attributions about their own aggression, than were non-bullies. The scenario responses of victims showed more displaced physical aggression, revenge fantasies, fear/avoidance, than did non-victims, and they were more impulsive. These findings were little affected by whether the definition of bullying behaviour was inclusive or exclusive of indirect forms. They were all independent effects of either bully or victim status. Nevertheless, the high proportion that was both bullies and victims indicates that it is those who report only being a perpetrator, but not being a recipient of bullying, who are in the minority.

Sex differences

Although we were cautious in generalizing findings from non-incarcerated populations to those in prisons, based on studies reviewed in the Introduction, the pattern of the sex differences found in this study was, in general, consistent with those reported in community and student samples. The effect size for the sex difference in direct physical aggression as a response to a hypothetical provoking situation was $g = .70$ in the male direction, comparable to the weighted mean for physical aggression for questionnaire measures using the Aggression Questionnaire (Buss & Perry, 1992), and similar to that from seven studies using scenario measures (Archer, 2004b). Sex differences in the attributions people made for their own aggression, whether as a loss of their self-control or as the other person's fault, were also consistent in direction with previous findings from student (Archer, 2004a; Archer & Haigh, 1997a; Campbell *et al.*, 1999), community (Campbell & Muncer, 1994) and prison (Archer & Haigh, 1997b) samples. Men were more likely than women to make instrumental attributions, whereas women were more likely than men to make expressive attributions. However, the effect sizes were small, both being around $g = .2$, compared with values of at least three times these in previous studies (Archer, 2004a; Archer & Haigh, 1997a; Campbell *et al.*, 1999). The effect size for the original combined Expagg involving 1,674 participants from 12 samples was .84 (Campbell *et al.*, 1999). The sex differences found in the present sample are, therefore, small on both scales by comparison. However, they are consistent with findings from two recent offender samples, where they were smaller or slightly reversed (Alexander *et al.*, 2004; Smith & Waterman, 2006).

The male prisoners also showed significantly more indirect aggression in response to the scenario, although the effect size was lower for this measure than for direct physical aggression. This contrasts with findings of higher female aggression among school-age samples (Archer, 2004b; Archer & Coyne, 2005), and with findings of no differences for adult non-incarcerated samples (e.g. Forrest *et al.*, 2005; Richardson & Green, 1999). Our measure of indirect aggression included items of physical aggression, in addition to the more usual verbal forms. However, when we separated these, the sex difference in the male direction was found in both, indicating that it was not due to the inclusion of acts of indirect physical aggression. Revenge plans and fantasies also showed a moderate sex difference in the male direction ($g = .33$), which is consistent with the limited

previous evidence on homicidal fantasies and ruminating about revenge, reviewed in the Introduction.

We predicted that displaced aggression would be higher among women than men, since this provides a form of aggressive response that, if directed to objects, has no danger of retaliation, and also because of evidence that a scale containing items of displaced aggression showed higher values for women than for men. However, there were no significant sex differences for either verbal or physical forms of this aggression, although that for physical aggression was in the female direction (Table 5). It seems, therefore, that displaced aggression provides an alternative response to direct confrontation, used more by both bullies and victims than non-bullies and non-victims, but by both men and women.

There was a large sex difference ($g = -.62$) for fear/avoidance in the female direction. This is consistent with the evolutionary argument of Campbell (1999, 2006) that women are more fearful than men in situations where there is physical danger, as part of an evolved mechanism that lowers their degree of risk-taking, and hence increases their survival chances. In fact, taken together with the findings for physical aggression, this is clear evidence that women from these samples rated themselves as being less likely to pursue a potentially dangerous aggressive strategy and more likely to show fear and avoidance in response to being bullied.

Although men said that they would be more likely than women to respond to bullying with several forms of aggression, and less likely to show fear and avoidance, their general level of impulsiveness was no higher than that of women. This occurred despite impulsiveness being moderately correlated with direct aggression, a pattern that has been found in previous studies (e.g. Archer & Webb, 2006; O'Connor *et al.*, 2002). In an on-line university sample, impulsiveness (measured in the same way) was more strongly related to physical aggression in men than women (Archer & Webb, 2006), but this was not the case for the present prison sample. It seems, therefore, that impulsiveness occurs at a similar level in men and women, and predicts direct aggression in both sexes. Thus, the sex difference in direct aggression must involve a mechanism other than that concerned with acting in an unplanned manner. The present findings suggest that Campbell (1999) may have identified this correctly, as involving greater fear in situations where there is danger of physical harm. Direct physically aggressive confrontations would be foremost among these. If this is correct, it could involve a difference in one of two places in the sequence leading from a provoking situation to the response. The first is the level of threat (or aversive stimulation: Berkowitz, 1993, or discrepancy: Archer, 1976, 1988) that is required for fear to replace aggressive tendencies. This is a more immediate response than the second, which is the impact of the appraisal of the risk of injury from that particular situation. Since men and women show no sex differences in the ease of anger arousal (Archer, 2004b; Potegal & Archer, 2004), the difference is more likely to reside in the second, more specific, alternative. In other words, even if aroused to anger by provoking situations to the same extent as men, women will be more cautious (or realistic) in how they respond after appraising the dangers involved. However, as we have noted, they are not generally less impulsive than men. It is more specific than that: they are more averse to, and frightened by, the possibility of injury. This conclusion is consistent with the finding that more expressive attributions for aggression are associated with higher scores on the harm avoidance component of the MPQ Constraint scale (Driscoll *et al.*, 2006).

Conclusions and limitations

This study found that prison bullies were more prone than non-bullies to report that they would respond to provocation with direct verbal and physical aggression, but also with indirect aggression, displaced verbal and physical aggression, revenge plans and fantasies, and to be less likely to show fear and avoidance responses. They also showed higher impulsiveness and instrumental and expressive attributions for their aggression. Victims of bullying were more prone than non-victims to report that they would respond to provocation with fear and avoidance responses, displaced physical aggression, and to a lesser extent, with revenge plans and fantasies. They were also more impulsive than non-victims. Since there were no significant interactions between bully and victim status, the characteristics of the bully-victim group could be inferred from the separate characteristics of bully and victim status. There was no evidence from these analyses to justify expecting bully-victims to show any qualitatively different characteristics from pure bullies or victims. However, most of those reporting bullying behaviour also reported being victims, so that the bully-victim category was more numerous than the other two categories involved in bullying. It would therefore be of interest in future research to assess the extent to which their bullying behaviour represents only an immediate or delayed response to being bullied, and the extent to which it involves incidences of unprovoked aggression on other inmates. It would also be of interest to examine in more detail those prisoners who report only being perpetrators, but not victims, of bullying, starting with obvious characteristics that may inhibit retaliation, such as size, reputation and gang membership. In relation to explanations of sex differences, the most interesting finding from the scenario responses was the large difference in the female direction for fear/avoidance, paralleling the large difference in the male direction for direct physical aggression.

The results of the present study were limited by the anonymous self-report measures used. This method has the advantage of providing researchers with data that would be difficult for outsiders to obtain in other ways. There are, of course, disadvantages, in that the method relies upon the accuracy of these self-reports. It also focuses on the individual when it is likely that a full understanding of prison bullying will involve the study of social reputations and group membership. These topics can be investigated in a more discursive manner, but the use of anonymous questionnaires, with appropriate psychometric checks and broad representative samples, remains an important way of investigating the social worlds of men and women in closed institutions.

Acknowledgements

We thank all the prisoners who took part in the study, and the staff who provided assistance, in particular, Carol Smith, Johanna Blake, Lorraine Mosson and the Scottish Prison Service for the coordination of data collection within their services. We also thank Steve Brown for helpful discussion of statistical issues. The research was financed by a grant from the British Economic and Social Research Council to John Archer and Jane Ireland (ESRC: No RES: 000-22-0268). The views contained within this report are those of the researchers and not of the Grant Authority or HM Prison Service or the Scottish Prison Service.

References

Alexander, F., Allen, C., Brooks, J., Cole, C., & Campbell, A. (2004). Reason to believe: Representations of aggression as phenomenological read-out. *Sex Roles*, *51*, 647–659.

Archer, J. (1976). The organisation of aggression and fear in vertebrates. In P. P. G. Bateson & P. Klopfer (Eds.), *Perspectives in ethology 2* (pp. 231–298). New York: Plenum.

Archer, J. (1988). *The behavioural biology of aggression*. Cambridge, UK: Cambridge University Press.

Archer, J. (2001). A strategic approach to aggression. *Social Development*, *10*, 267–271.

Archer, J. (2004a). Which attitudinal measures predict trait aggression? *Personality and Individual Differences*, *36*, 47–60.

Archer, J. (2004b). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology*, *8*, 291–322.

Archer J., & Benson, D. A. (in press). Physical aggression as a function of perceived fighting ability and provocation: An experimental investigation. *Aggressive Behavior*.

Archer, J., & Coyne, S. M. (2005). An integrated review of indirect, relational, and social aggression. *Personality and Social Psychology Review*, *8*, 212–230.

Archer, J., & Graham-Kevan, N. (2003). Do beliefs about aggression predict physical aggression to partners? *Aggressive Behavior*, *29*, 41–54.

Archer, J., & Haigh, A. (1997a). Do beliefs about aggression predict self-reported levels of aggression? *British Journal of Social Psychology*, *36*, 83–105.

Archer, J., & Haigh, A. (1997b). Beliefs about aggression among male and female prisoners. *Aggressive Behavior*, *23*, 405–415.

Archer, J., & Haigh, A. (1999). Sex differences in beliefs about aggression: Opponent's sex and the form of aggression. *British Journal of Social Psychology*, *38*, 71–84.

Archer, J., & Latham, M. (2004). Variation in beliefs about aggression as a function of relationship to the opponent. *Personality and Individual Differences*, *37*, 33–41.

Archer, J., & Webb, I. A. (2006). The relation between scores on the Buss-Perry Aggression Questionnaire and aggressive acts, impulsiveness, competitiveness, dominance, and sexual jealousy. *Aggressive Behavior*, *32*, 464–473.

Baldry, A. C., & Farrington, D. F. (1998). Parenting influences on bullying and victimization. *Legal and Criminological Psychology*, *3*, 237–254.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.

Barratt, E. S. (1994). Impulsiveness and aggression. In J. Mohanan & J. Steadman (Eds.), *Violence and mental disorder* (pp. 61–79). Chicago: University of Chicago Press.

Benson, D. A. (2001). *Male values and male violence*. Unpublished doctoral dissertation, University of Central Lancashire, Preston, UK.

Berkowitz, L. (1962). *Aggression: A social psychological analysis*. New York: McGraw-Hill.

Berkowitz, L. (1993). *Aggression: Its causes, consequences, and controls*. New York: McGraw-Hill.

Björkqvist, K., Lagerspetz, K., & Kaukiainen, A. (1992). Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behavior*, *18*, 117–127.

Boulton, M. J., & Smith, P. K. (1994). Bully/victim problems in middle-school children: Stability, self-perceived competence, peer perceptions and peer acceptance. *British Journal of Developmental Psychology*, *12*, 315–329.

Buss, A. H., & Durkee, A. (1957). An inventory for assessing different types of hostility. *Journal of Consulting Psychology*, *21*, 343–349.

Buss, A. H., & Perry, M. (1992). The aggression questionnaire. *Journal of Personality and Social Psychology*, *63*, 452–459.

Campbell, A. (1999). Staying alive: Evolution, culture, and women's intrasexual aggression. *Behavioral and Brain Sciences*, *22*, 203–252.

Campbell, A. (2006). Sex differences in direct aggression: What are the psychological mediators? *Aggression and Violent behavior*, *11*, 237–264.

Campbell, A., & Muncer, S. (1994). Sex differences in aggression: Social representations and social roles. *British Journal of Social Psychology*, *33*, 233–240.

Campbell, A., Muncer, S., & Coyle, E. (1992). Social representations of aggression as an explanation of gender differences: A preliminary study. *Aggressive Behavior*, *18*, 95–108.

Campbell, A., Muncer, S., McManus, I. C., & Woodhouse, D. (1999). Instrumental or expressive representations of aggression: One scale or two? *Aggressive Behavior*, *25*, 435–444.

Carrado, M., George, M. J., Loxam, E., Jones, L., & Templar, D. (1996). Aggression in British heterosexual relationships: A descriptive analysis. *Aggressive Behavior*, *22*, 401–415.

Crabb, P. B. (2000). The material culture of homicidal fantasies. *Aggressive Behavior*, *26*, 225–234.

Craig, W. (1998). The relationship among bullying, victimization, depression, anxiety and aggression in elementary school children. *Personality and Individual Differences*, *24*, 123–130.

Dollard, J., Doob, L. W., Miller, N. E., Mowrer, O. H., & Sears, R. R. (1939). *Frustration and aggression*. New Haven, CT: Yale University Press.

Driscoll, H., Zinkivskay, Z., Evans, K., & Campbell, A. (2006). Gender differences in social representations of aggression: The phenomenological experience of differences in inhibitory control? *British Journal of Psychology, 97*, 139–153.

Farrington, D. P. (1993). Understanding and preventing bullying. In M. Tonry (Ed.), *Crime and justice: A review of research* (pp. 381–458). Chicago: The University of Chicago Press.

Fetchenhauer, D., & Rohde, P. A. (2002). Evolutionary personality and victimology: Sex differences in risk attitudes and short-term orientation and their relation to sex differences in victimizations. *Evolution and Human Behavior*, *23*, 233–244.

Forrest, S., Eatough, V., & Shovlin, M. (2005). Measuring adult indirect aggression: The development and psychometric assessment of the indirect aggression scales. *Aggressive Behavior*, *18*, 84–97.

Hanish, L. D., & Guerra, N. G. (2004). Aggressive victims, passive victims, and bullies: Developmental continuity or developmental change? *Merrill-Palmer Quarterly*, *50*, 17–38.

Hendy, H. M., Weiner, K., Bakerofskie, J., Eggen, D., Gustitus, C., & McLeod, K. C. (2003). Comparison of six models for violent romantic relationships in college men and women. *Journal of Interpersonal Violence*, *18*, 645–665.

Huesmann, L. R., Lefkowitz, M. M., & Eron, L. D. (1978). Sum of MMPI scales F,4, and 9 as a measure of aggression. *Journal of Consulting and Clinical Psychology*, *46*, 1071–1078.

Ireland, C., & Ireland, J. L. (2000). Descriptive analysis of the nature and extent of bullying behaviour in a maximum-security prison. *Aggressive Behavior*, *26*, 213–233.

Ireland, J. L. (1999a). *Direct and indirect prisoner behaviour checklist (DIPC)*. Department of Psychology, University of Central Lancashire.

Ireland, J. L. (1999b). Bullying among prisoners: A study of adults and young offenders. *Aggressive Behavior*, *25*, 162–178.

Ireland, J. L. (2000). *Bullying amongst prisoners*. Unpublished doctoral dissertation, University of Central Lancashire, Preston, UK.

Ireland, J. L. (2001a). The relationship between social problem solving and bullying among male and female adult prisoners. *Aggressive Behavior*, *27*, 297–312.

Ireland, J. L. (2001b). Distinguishing the perpetrators and victims of bullying behaviour in a prison environment: A study of male and female adult prisoners. *Legal and Criminological Psychology*, *6*, 229–246.

Ireland, J. L. (2002a). *Bullying among prisoners: Evidence, research and intervention strategies*. London: Brunner-Routledge.

Ireland, J. L. (2002b). Official records of bullying incidents among young offenders: What can they tell us and how useful are they? *Journal of Adolescence*, *25*, 669–679.

Ireland, J. L. (2004, September). *Understanding proactive bullies: Applied research in a forensic setting*. Paper presented at the XVI World Meeting of International Society for Research into Aggression (ISRA), Santorini, Greece.

Ireland, J. L. (2005). Prison bullying and fear: Can fear assist with explanations of victim responses? In J. L. Ireland (Ed.), *Bullying among prisoners: Innovations in theory and research*. Cullompton, UK: Willan Publishing.

Ireland, J. L., & Archer, J. (1996). Descriptive analysis of bullying in male and female adult prisoners. *Journal of Community and Applied Social Psychology*, *6*, 35–47.

Ireland, J. L., & Archer, J. (2002). The perceived consequences of responding to bullying with aggression: A study of male and female adult prisoners. *Aggressive Behavior*, *28*, 257–272.

Ireland, J. L., & Archer, J. (2004). Association between measures of aggression and bullying among juvenile and young offenders. *Aggressive Behavior*, *30*, 29–42.

Ireland, J. L., Archer, J., & Power, C. L. (in press). The characteristics of male and female prisoners involved in bullying behavior. *Aggressive Behavior*.

Ireland, J. L., & Ireland, C. A. (2003). How do prisoners define bullying? A study of adult, young and juvenile male offenders. *Legal and Criminological Psychology*, *8*, 159–173.

Ireland, J. L., & Monaghan, R. (2006). Behaviours indicative of bullying among young and juvenile male offenders: A study of perpetrator and victim characteristics. *Aggressive Behavior*, *32*, 172–180.

Ireland, J. L., & Power, C. L. (2004). Attachment, emotional loneliness, and bullying behaviour: A study of adult and young offenders. *Aggressive Behavior*, *30*, 298–312.

Johnson, B. T. (1989). *Software for the meta-analytic review of research literatures*. Hillsdale, NJ: Erlbaum.

Johnson, M. P. (1995). Patriarchal terrorism and common couple violence: Two forms of violence against women. *Journal of Marriage and the Family*, *57*, 283–294.

Kenrick, D. T., & Sheets, V. (1993). Homicidal fantasies. *Ethology and Sociobiology*, *14*, 231–246.

Lagerspetz, K., Björkqvist, K., & Peltonen, T. (1988). Is indirect aggression typical of females? Gender differences in aggressiveness in 11- to 12-year old children. *Aggressive Behavior*, *14*, 403–414.

Livingston, M., & Chapman, A. J. (1997). Bullying and self-injurious behaviour in young offenders. *Journal of Prison Service Psychology*, *3*, 78–81.

Marcus-Newhall, A., Pedersen, W. C., Carlson, M., & Miller, N. (2000). Displaced aggression is alive and well: A meta-analytic review. *Journal of Personality and Social Psychology*, *78*, 670–689.

Miller, N., Pedersen, W. C., Earleywine, M., & Pollock, V. E. (2003). A theoretical model of triggered displaced aggression. *Personality and Social Psychology Review*, *7*, 75–97.

Nisbett, R. E., & Cohen, D. (1996). *Culture of honor: The psychology of violence in the south*. Boulder, CO: Westview Press.

O'Connor, D. B., Archer, J., Hair, W. M., & Wu, F. W. C. (2002). Exogenous testosterone, aggression, and mood in eugonadal and hypogonadal men. *Physiology and Behavior*, *75*, 557–566.

O'Connor, D. B., Archer, J., & Wu, F. W. C. (2001). Measuring aggression: Self-reports, partner reports and responses to provoking scenarios. *Aggressive Behavior*, *27*, 79–101.

Olweus, D. (1996). Bully/victim problems in school. *Prospects*, *26*, 331–359.

Palmer, E. J., & Thakordas, V. (2005). Relationship between bullying and scores on the Buss-Perry Aggression Questionnaire among imprisoned male offenders. *Aggressive Behavior*, *31*, 56–66.

Potegal, M., & Archer, J. (2004). Sex differences in childhood anger and aggression. *Child and Adolescents Psychiatric Clinics of North America*, *13*, 513–528.

Ramirez, J. M., Andreu, J. M., & Fujihara, T. (2001). Cultural and sex differences in aggression: A comparison between Japanese and Spanish students using two different inventories. *Aggressive Behavior*, *27*, 313–322.

Richardson, R., & Green, L. (1999). Social sanction and threat explanations of gender effects on direct and indirect aggression. *Aggressive Behavior*, *25*, 425–434.

Roland, E., & Idsøe, T. (2001). Aggression and bullying. *Aggressive Behavior*, *27*, 446–462.

Smith, P., & Waterman, M. (2006). Self-reported aggression and impulsivity in forensic and non-forensic populations: The role of gender and experience. *Journal of Family Violence*, *21*, 425–437.

Smith, P. K., & Brain, P. (2000). Bullying in schools: Lessons from two decades of research. *Aggressive Behavior*, *26*, 1–9.

Stanford, M. S., Houston, R. J., Villemarette-Pittman, N. R., & Greve, K. W. (2003). Premeditated aggression: Clinical assessment and cognitive psychophysiology. *Personality and Individual Differences*, *34*, 773–781.

Sukhodolsky, D. G., Golub, A., & Cromwell, E. N. (2001). Development and validation of the anger rumination scale. *Personality and Individual Differences*, *31*, 689–700.

Underwood, M. K. (2003). *Social aggression among girls*. New York: Guilford Press.

Unnever, J. D. (2005). Bullies, aggressive victims, and victims: Are they distinct groups? *Aggressive Behavior*, *31*, 153–171.

Van Goozen, S. H. M., Frijda, N. H., Kindt, M., & van de Poll, N. E. (1994). Anger proneness in women: Development and validation of the anger situation questionnaire. *Aggressive Behavior*, *20*, 79–100.

Received 12 May 2005; revised version received 27 March 2006