

CHAPTER 1
Literature Review

1.1 Overview

Given the high prevalence and negative consequences of bullying and aggressive behaviour in schools (see, for example, Rigby, 1996) and widespread efforts to counteract bullying (e.g., Eslea & Smith, 1998; Owens, Slee, & Shute, 2001; Smith & Brain, 2000), it is clear that social scientists and educators have an ongoing duty to explore these phenomena. There is ample evidence illustrating the possible detrimental health effects of bullying and other aggressive behaviours upon victims (e.g., Craig, 1998; Crick & Grotpeter, 1995; Hawker & Boulton, 2000; Rivers, 2004). For example, a recent investigation found that those suffering peer victimisation are more likely to experience anxiety, depression, suicidal ideation, physical and psychological distress, low self-esteem, and social dysfunction (Rigby, 2001). The ill effects of aggression and bullying can also extend beyond the peer group. Olweus (1991) observed that, in addition to the immediate victims, others (such as parents, teachers, or siblings) often become recipients of the typical bully's aggressive behaviour and that those who bully are more likely to display criminal behaviour (see also Rigby & Cox, 1996). Such issues are clearly of great and immediate social concern.

Rigorous research into the possible causes and correlates of aggression and bullying will assist in the design, implementation, and maintenance of effective interventions. For example, it is commonly thought that those who act aggressively do so as a result of low self-esteem and that using aggression is one way for these individuals to boost their self-esteem (e.g., Anderson, 1994). It therefore seems apparent that interventions that improve self-esteem may lead to reduced levels of aggression (see Haney & Durlak, 1998). Conversely, given that some researchers now believe that it is certain types of *high* self-esteem that contribute to certain individuals behaving aggressively (Baumeister, Smart, & Boden, 1996),

implementing strategies to increase self-esteem may in reality be counterproductive. Therefore, the primary aim of the present study was to further explore this topic through an empirical investigation of a number of correlates of aggression and bullying, whilst also determining current prevalence rates, within a sample of South Australian high school students. To that end, this chapter initially presents and reviews the research into aggression and bullying as it stands today while defining what constitutes bullying in the school context. The discussion then introduces a number of factors that may, to varying degrees, facilitate a deeper understanding of adolescent bullying.

In particular, the present research explored the complex relationship between self-esteem (viewed as a multidimensional construct) and aggression and, more specifically, bullying. The literature review will demonstrate that research into the relationship between bullying and self-esteem is yet to produce conclusive findings (Salmivalli, 2001). The review also highlights that aggression and bullying occur within a social context (Björkqvist, 2001; O'Connell, Pepler, & Craig, 1999) and that they are characteristically collective in nature and based upon social relationships within peer groups (Lagerspetz, Björkqvist, Berts, & King, 1982). Indeed, school may provide an ideal social context and bullying an ideal medium by which adolescents may manipulate their peer relationships such that aspects of their self-esteem may be effectively defended or enhanced.

In addition, this literature review will consider how group processes and the need for collective self-esteem (esteem derived from belonging to social groups, Luhtanen & Crocker, 1992) may be implicated in aggressive and bullying behaviour. Finally, the review will establish that different levels of self-esteem are associated with different self-presentational styles. From this, narcissism emerges as a variable of interest in relation to adolescent bullying, the proposition being that

high narcissism may contribute to the explanation of aggressive behaviour. This research thus aimed to make a unique contribution by considering the possible links between narcissism, collective self-esteem, and aggression and bullying. Furthermore, through this exploration of school bullying the study aimed to provide information which may lead to the development of more effective intervention programmes. The discussion will now turn to the research literature on these constructs, beginning with aggression and bullying.

1.2 Aggression

1.2.1 Definition and Forms of Aggression

Aggression is a rather imprecise term and definitions within the research literature vary greatly, although two features common to these definitions are that the perpetrator intends to harm and that the victim perceives the behaviour as harmful (Harré & Lamb, 1983). Björkqvist and Niemelä (1992) provide a similar perspective, defining aggression as "...an act done with the intention to harm another person, oneself, or an object" (p. 4). Furthermore, although there are many different research focuses evident, published reviews of the literature generally show that a large proportion of research centres upon the more conspicuous forms of aggression such as violent, antisocial, delinquent, or criminal behaviours (e.g., Coie & Dodge, 1998; Levy, 1997). Although this is not problematic in itself, such approaches may fail to comprehensively explore all possible aggression types, in particular those behaviours that may be less observable, more insidious, and at least as harmful (e.g., psychological abuse). In recent years a greater emphasis has been placed upon investigating these previously under-researched forms of aggression, particularly in the area of gender differences in children's bullying and aggressive behaviours (Underwood, Galen, & Paquette, 2001), topics which will be reviewed

further in subsequent sections. Before addressing the relevant research in detail, however, it is necessary to define specifically what constitutes aggression in terms of the current discussion, that is, bullying.

1.2.2 *Bullying*

Bullying is defined in the literature as a subset of aggressive behaviour, comprising a physical, verbal, or psychological attack by one or more individuals (e.g., Land, 2003; Owens & MacMullin, 1995; Swain, 1998). Olweus (1999b) clearly defined bullying and violence (or violent behaviour) as two subcategories of aggression. He also asserted that, whilst bullying and violence overlap to a degree, they also possess unique features, as illustrated in Figure 1.1.

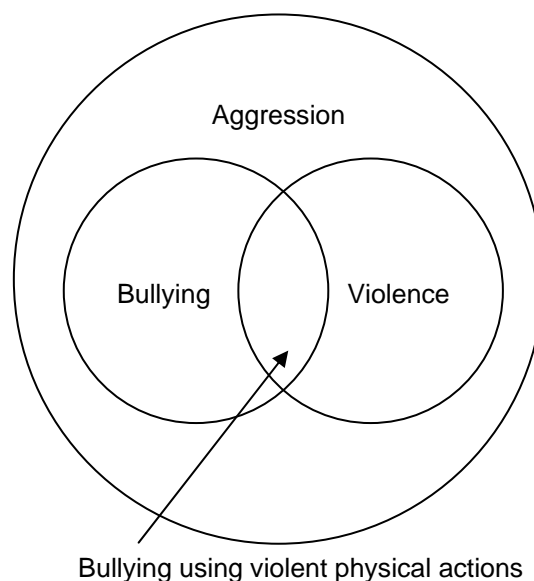


Figure 1.1. Venn diagram illustrating relationship between violence, aggression, and bullying (adapted from Olweus, 1999).

For example, although physical violence may be used in a bullying context (e.g., pushing, hitting), there are numerous other bullying behaviours (note that specific forms of bullying will be detailed in a later section) that occur without

violence (e.g., ostracism or verbal aggression). Conversely, there are violent acts that cannot be considered bullying, such as when an assailant physically attacks an unknown victim during a robbery. Consequently, Olweus (1999b) defined bullying specifically as comprising intentional negative acts, committed repeatedly by one or more persons within a context that is characterised by a power imbalance in favour of the bully. Olweus also observed that the terms bullying and aggression are often used interchangeably in the literature, something that may be a source of confusion. This issue is of some immediate concern given that the terms aggression and bullying are similarly employed in the present paper, especially when describing past research. In reiterating that bullying is a subset of aggression, Rivers and Smith (1994) make it clear that definitional distinctions in aggression can be readily applied to bullying behaviours (see also Pellegrini & Long, 2002). Therefore, where the term bullying is used herein, it is with the underlying assumption that bullying behaviours are, by definition, forms of aggression.

As with many psychological constructs, however, variations in definitions are apparent in the literature with numerous discussion and review papers published (e.g., Arora, 1996; Guerin & Hennessy, 2002; Smith, Cowie, Olafsson, & Liefoghe, 2002; Underwood et al., 2001). To illustrate, while most definitions agree that a power imbalance and intent to harm are necessary, not all researchers believe that an aggressive behaviour must be repeated to be considered bullying (e.g., Stephenson & Smith, 1989) and, importantly, neither do some victims of bullying. For example, a recent study asked adolescents to provide written examples of bullying incidents that they had witnessed or experienced (Land, 2003). The researchers found that students reported single incidents of bullying to be present in 54% of examples given, clearly indicating that the majority of respondents considered a single occurrence to constitute an episode of bullying. This suggests

that the participant's perspective may not always match with that of the researcher and that care should be taken when defining constructs and operationalising research variables.

Taking this issue a little further, care must also be taken when assigning labels to variables. For example, a brief perusal of the literature will show that bullying per se is referred to using the terms aggression, victimisation, and bullying. To illustrate, instances include self-reported victimisation (Owens, Daly, & Slee, 2005), self- and peer-reported aggression (Björkqvist, Lagerspetz, & Kaukiainen, 1992), self-reported victimisation and bullying (Baldry, 2004), and self- and peer-reported victimisation and bullying (Pellegrini, 2002). One article, which described a study that explored self-report victimisation, contains the phrase "peer bullying victimization" in its title (Dulmus, Theriot, Sowers, & Blackburn, 2004, p. 1). Although this may not be especially problematic, it nevertheless has the potential to cause confusion. Therefore, in the present paper, the terms bullying and aggression are, for the most part, used interchangeably, although there are instances where distinctions need to be drawn between the two labels when reviewing other research. In addition, the term bullying in the context of the present study refers to the act of aggressing against another and the term bully refers to the perpetrator. Conversely, victimisation refers to the receiving of the aggressive or bullying behaviour by the victim.

Moreover, bullying and victimisation correlate differently with other variables. For example, previous research has found that bullying and victimisation differ significantly in relation to levels of self-esteem, a fundamental variable in the present study. Rigby and colleagues found bullying to be associated with low self-esteem in girls (Rigby & Cox, 1996) and victimisation to be associated with low self-esteem in boys (Rigby & Slee, 1993). In addition, more recent research has

found that bullies reported higher levels of peer self-esteem than did victims (Karatzias & Power, 2002). Accordingly, the present study operationalised bullying (i.e., aggressor) and victimisation (i.e., victim) as two distinct variables to better explore the different associations between these and other variables under consideration (e.g., self-esteem), with these relationships to be discussed in greater depth in upcoming sections. Furthermore, it is important to note at this stage that the method of data collection (e.g., self- or peer-report) has been shown to have some bearing on study findings (e.g., Archer, 2004; Björkqvist, Österman, & Kaukiainen, 1992). Given the possible significance of this issue, it is explored in greater detail within the Pilot Study methodology section of Chapter 2.

Continuing with the theme of how variables are defined, one study explored bullying in grades 3 through 8 of a school in rural United States (Dulmus et al., 2004). When participants were asked directly in one survey question whether they had been bullied, only 98 of the 192 (51%) students responded in the affirmative. Yet when asked about specific types of bullying behaviours (e.g., hit, kicked, shoved, or assaulted; excluded or ignored by others), 158 (82.3%) responded that they had experienced some specific form of bullying behaviour in the preceding three months. This clearly suggests that presenting a survey question based on a general definition of bullying may elicit responses that do not give as full a picture of the incidence of bullying that specific behavioural questions might. In his meta-analysis of gender differences in aggression, Archer (2004) excluded those studies that did not assess specific categories of aggression and which asked a general question whether participants had bullied someone. This is interesting in the present context and therefore worthy of inclusion in itself, as the rationale to exclude such studies from the analyses was that they may include items or categories that did not coincide with definitions of aggression (J. Archer, personal communication, June

21, 2005). The present study, therefore, measured bullying and victimisation by using examples of specific behaviours and the reader's attention is drawn to Chapter 2, which describes in detail the instruments that were employed. The above study by Dulmus et al. leads to the next sections relating to bullying prevalence rates and the consequences of bullying, before moving on to more specific types of aggression and bullying as they are generally represented in the literature.

1.2.2.1 Bullying prevalence in schools.

As outlined above, Dulmus et al. (2004) found a staggering 82.3% of students in one school reported being the victim of at least one form of bullying at some point in the preceding three months. The authors state that this figure is substantially higher than rates reported for other U.S. studies and go on to suggest that bullying may be a greater problem in rural schools than in urban schools (where the majority of such research is conducted). Regardless, and notwithstanding differences between studies, there is little evidence to support this assertion. For example, in a major self-report survey of bullying behaviours in the United States, Nansel et al. (2001) asked 15,686 students in grades 6 through 10 about their involvement in bullying during the current school term. The study found no significant differences in the frequency of being bullied between urban, suburban, town, or rural areas. Responses indicated that, overall, 13% of students reported moderate (sometimes) or frequent (weekly) involvement as a bully, 10.6% were victimised, and 6.3% were involved as both bully and victim. These latter prevalence rates generally correspond with research in other countries.

For example, Olweus (1991) conducted a study of the prevalence of bullying in Norwegian schools with a sample of approximately 130,000 students (8-16 years old). He found that approximately 15% of respondents were involved in bullying at

least once per week either as bullies (7%) or victims (9%). A survey of 4,700 11- to 16-year-old students in the United Kingdom found that approximately 75% reported being physically bullied at least once during the school year, with 6.1% reporting being the victim or perpetrator of physical bullying on at least seven occasions during the year (Glover, Gough, Johnson, & Cartwright, 2000). These figures correspond with an earlier large-scale survey of 6,758 pupils in the UK, which found that 10% of secondary school pupils reported being bullied and 6% admitting to bullying others “sometimes” during the current term (Whitney & Smith, 1993).

Research in Australia conducted by Rigby and Slee (1991) found that of 685 school children (6-16 years old), 16.8% of boys and 11.4% of girls reported being bullied *pretty often* or *very often*. These findings make it apparent that bullying is widespread in schools and, disparate methodologies and definitions notwithstanding, bullying prevalence rates are similar across cultures (Griffin & Gross, 2004; Smith et al., 2002) and, consequently, it was expected that similar prevalence rates would be found in the sample investigated in the present study. From the above it appears that at any given time around 1 in 10 students is likely to be involved in bullying in some form or another. Given these high rates, it is appropriate that the consequences of bullying on the health and well-being of students receive some consideration, despite the fact that it is not a primary focus of the present study. Before addressing the effects of bullying, it is necessary to briefly outline the different roles that participants play in bullying situations.

1.2.2.2 Bullying participant roles.

Research from Finland employing peer-nomination techniques with 573 sixth-grade children (12-13 years old) has found that pupils take differing participant roles in bullying (Salmivalli, Lagerspetz, Björkqvist, Österman, & Kaukiainen,

1996). In addition to the roles that one might expect to find, that is, bullies, victims and those not involved, this research has discerned other roles in the bully process. *Assistants* actively participate in the bullying (e.g., through physically restraining a victim) and *reinforcers* may provide positive feedback to a bully by shouting encouragement. Although *outsiders* may not be directly involved (i.e., they are unaware of the incident), they may contribute indirectly to a bullying situation merely through silent approval or, possibly unwittingly, by not taking a stance (overt or otherwise) against a bully. Salmivalli (1999) suggests that some of those involved in bullying (e.g., outsiders), although aware of their passive role and that bullying often requires the intervention of others, may lack the necessary skills to actively intervene – a notion that corresponds with other researchers (e.g., Cowie, Boardman, Dawkins, & Jennifer, 2004). Finally, and as the label suggests, *defenders* actively defend victims by intervening in the bullying process through, for example, telling an adult or comforting the victim.

The study by Salmivalli et al. (1996) also noted that 3.0% of female and 8.8% of male victims were also classified as having a “secondary” role of bully, concluding that these “few” individuals did not constitute a separate participant role. One may question whether 8.8% constitutes a few, as this finding contrasts with other research that has found another distinct group of individuals – the bully/victim. Sometimes referred to as provocative or aggressive victims, these individuals display characteristics of both bullies and victims (Smith, 2004). The role that a bully/victim takes is context-dependent, such that in situations where they are in a position of power, they may bully another and in other situations they may be the victim. Using self-report victimisation and bullying behaviour scales with 425 schoolchildren aged between 8 and 11 years, Austin and Joseph (1996) found 8.9% of respondents fell into a bully category, 22.4% were victims, 54.1% were not

involved, and 14.6% were classified as bully/victim. Employing the same measures, Andreou (2001) found similar rates in a sample of 408 students (9-12 years old), with 17.4% classified as bully, 18.6% as victim, 53.7% not involved, and 10.3% classified as bully/victim. Furthermore, those in the bully/victim group reported significantly lower levels of social acceptance than all other groups. This trend corresponds with research that, as will be shown in the next section, suggests that bully/victims may be at greater risk in terms of the consequences of bullying (Smith, 2004).

1.2.2.3. Consequences of bullying.

It is apparent from research into the effects of school bullying that there are some characteristics relatively common to the recipients of bullying behaviour. In a meta-analysis of research into the effects of peer-victimisation, Hawker and Boulton (2000) found victims to be more depressed and to report more loneliness than non-victims. Victims also reported significantly greater levels of both general and social anxiety and lower levels of self-esteem, than non-victims. In a Northern Ireland study of 124 adolescents (11-16 years old) who were admitted to a hospital following attempted suicide, 22% cited bullying as a precursor stressor (Davies & Cunningham, 1999). However, it is important to note that bullying was not the only problem these adolescents were dealing with, as 37% of respondents also stated that they had recently fought with their parents and 44% stating that school pressures such as exams or homework were additional major stressors. Australian research has also found suicidal ideation to be significantly related to peer victimisation, with Rigby (2001) finding that victims generally suffered from poorer psychosocial health than non-victims. In addition, bullying may have serious long-term negative effects. For example, a retrospective study by Rivers (2004) investigated the

recollections of adult lesbians, gay men, and bisexuals who were bullied at school as a consequence of their sexual orientation (perceived or actual). Over 25% of participants ($N = 119$, mean age 28 years) reported experiencing continuing psychological distress when recollecting their time at school, with one in ten reporting regular traumatic flashbacks (see also Rivers, 2001a, 2001b).

Returning to the theme of participant roles in bullying, a study carried out in Finland (Kumpulainen, Räsänen, & Puura, 2001) compared the mental health of bullies, victims, bully/victims, and those who were not involved in bullying ($n = 420$). Employing a clinical diagnostic interview, 21% percent of non-involved respondents were diagnosed with a psychiatric disorder (e.g., anxiety, depression, attention deficit disorder), whereas 50.0% of victims, 67.1% of bully/victims, and 70.8% of bullies were diagnosed as having a psychiatric disorder. Attention deficit disorder was most common among victims (14.4%) and bullies (29.2%), with oppositional conduct disorder most common among bully/victims (21.5%). Depression was also common amongst victims (9.6%) and bullies (12.5%), and highest among bully/victims (17.7%). In comparison, only 5.1% of the non-involved group were diagnosed with depression.

In terms of school functioning, both bullies (e.g., Haynie et al., 2001) and victims (e.g., Haynie et al., 2001; Smith, Talamelli, Cowie, Naylor, & Chauhan, 2004) show significantly higher levels of absenteeism than those not involved with bullying. As is apparent from the above research, many of the consequences of bullying are generally comparable for both bully and victim. It is also evident that the further one explores the phenomenon of bullying, the more complex it becomes and this is illustrated in the following section which describes the different types of aggressive behaviour.

1.2.3 *Different Types of Aggression and Bullying*

A large proportion of previous research into bullying and aggression (e.g., Olweus, 1980) has focused on aggressive physical behaviour in boys, in part because physical aggression is more easily observed and of a form that is stereotypically male (Björkqvist & Niemelä, 1992; Underwood et al., 2001). Björkqvist and Niemelä (1992) suggest that aggression can be categorised into the dichotomies *physical* versus *verbal* and *direct* versus *indirect*, a definitional theme that is apparent in much of Björkqvist and colleagues' pioneering work in this field (see Björkqvist, 2001) and one that has driven much related research (e.g., Green, Richardson, & Lago, 1996; Owens, Shute, & Slee, 2000a; Tapper & Boulton, 2004). Furthermore, Björkqvist, Lagerspetz, and Kaukiainen (1992) propose that there are three main types of aggression: direct physical, direct verbal, and indirect aggression. Physical aggression includes such direct behaviours as pushing another, hitting, punching, or kicking. Verbal aggression may take the form of yelling abuse at another, name-calling, using insulting expressions, or make verbal threats. Indirect aggression, as the name implies, uses less direct forms of aggressive behaviour such as spreading malicious rumours about another, excluding a person from the group, or disclosing another's secrets to a third person (Björkqvist, Lagerspetz, & Österman, 1992).

There is a good deal of agreement between researchers regarding the terms physical and verbal aggression. On the other hand, how researchers have defined indirect forms of aggression has been more problematic, as there are three primary and quite similar definitions of this construct in current use, namely indirect, relational, and social aggression (Underwood et al., 2001). Among the first to use the term *indirect aggression* was Feshbach (1969) in her study of gender differences in the modes of aggression used by 6-year-old children. Indirect aggression has

more recently been defined as “...a kind of social manipulation: the aggressor manipulates others to attack the victim, or, by other means, makes use of the social structure in order to harm the target person, without being personally involved in the attack” (Björkqvist, Österman et al., 1992, p. 52). The term *relational aggression* was coined by Crick and Grotpeter (1995) and is defined as the harming of others by manipulating and damaging their peer relationships through, for example, excluding them from the group or withdrawing friendship. Alternatively, Galen and Underwood (1997) expanded upon the term *social aggression* (as originally introduced by Cairns, Cairns, Neckerman, Ferguson, & Gariépy, 1989), proposing that the aim of social aggression is to damage another’s self-esteem or social status through, for example, alienating or ostracising the person. This may be achieved through the use of behaviours such as verbal rejection, rumours, or negative body movements or facial expressions.

Recalling the social manipulation aspect of Björkqvist, Österman et al.’s (1992) early research into indirect aggression, it is apparent that the three constructs of social, indirect and relational aggression are similar and overlap to a considerable degree (Underwood et al., 2001). Furthermore, a number of researchers are of the opinion that the introduction of the term relational aggression may have resulted in some confusion (e.g., Archer, 2001; Björkqvist, 2001; Shute, Owens, & Slee, 2002; Underwood et al., 2001). Underwood and Galen (2001) also agree that social aggression may not be the clearest term currently in use, although they do argue the importance of considering negative body language to be a form of social harm. Consequently, the present paper will primarily use the term indirect aggression, although the terms social aggression and relational aggression will be used when discussing research that has employed those specific variables.

Taking all of this into account, the present study used the physical, verbal, and indirect aggression definitions of Björkqvist, Österman et al. (1992) as stated above, particularly as these constructs have been widely used in aggression and bullying research in many countries (see Archer, 2004). Additionally, since indirect aggression as such has been used in recent Australian research using similar samples (e.g., Owens et al., 2001; Owens & MacMullin, 1995; Shute et al., 2002), employing this construct provides a solid basis for meaningful comparisons between the present study and previous Australian research.

Finally, it is apparent from the literature that there are other subtypes of aggression commonly explored in bullying and similar research. For example, there has been much research into hostile (e.g., motivated by anger or a desire to hurt) and instrumental aggression (e.g., to obtain money or restore self-image, Bushman & Anderson, 2001). There has also been research into reactive (e.g., an angry or defensive response to provocation) and proactive aggression (e.g., to obtain a desired goal, Crick & Dodge, 1996; Hubbard et al., 2002; Salmivalli & Nieminen, 2002), although Crick and Dodge (1996) equate reactive with hostile and instrumental with proactive aggression. In any case, Bushman and Anderson (2001) conclude that the hostile/instrumental dichotomy is not an ideal perspective from which to study aggression as it does not take into account that there may be aggressive acts with multiple and mixed motives. These subtypes of aggression, although not a focus of the present study, nevertheless begin to suggest what may motivate a person to aggress against another.

In their review, Underwood et al. (2001) briefly discuss this issue, suggesting that most research has focussed upon reactive forms of aggression whereby aggressive behaviours are employed to express anger and cause harm. They further propose that indirect aggression could be used in a proactive or

instrumental fashion to, for example, gain or preserve social status, or even to provide some entertainment value through manipulating the self-esteem or relationships of others. Support for this is evident in Australian research which has found that adolescent girls cite alleviating boredom, creating excitement, and managing peer relationships as major motivations for using indirect aggressive behaviours (Owens et al., 2000a; Owens, Shute, & Slee, 2000b). That indirect aggression may be used in this manner is a notion that should be kept in mind as it dovetails into the self-esteem and narcissism sections below, which consider possible motivations for acting aggressively. Having briefly outlined the different forms of aggression and bullying, the discussion will now turn to the associations between gender, age, and aggression.

1.2.4 Gender Differences in Aggression

In explaining sex differences in social behaviour, Eagly (1987) proposed a *social role theory*, whereby people behave in a manner that is consistent with their gender roles. These roles have arisen from social divisions relating to domestic and work-related roles, such that females primarily carry out domestic and child rearing duties and are more likely to fill positions in the workplace that are communal in nature (e.g., nurse, teacher). Through experiencing and enacting gender roles, males and females develop different skills, attitudes, and expectancies resulting in behaviour patterns that differ according to those gender-roles. Consequently, there are normative expectations that males are more agentic (instrumental, masculine) and females are more communal (expressive, feminine), with these gender norms passed on through socialisation processes to future generations (Archer, 2004; Eagly, 1987; Eagly & Wood, 1991).

Early research into aggression consistently showed males to be more aggressive than females, although most of this research was carried out using observational techniques and with aggression typically operationalised as physical aggression (see the review by Maccoby & Jacklin, 1974). Such findings are not surprising given that observational techniques are more likely to distinguish the more obvious physical types of aggression and that males are typically more physically aggressive than females (Björkqvist & Niemelä, 1992). However, the more recent review by Eagly and Steffen (1986) found gender differences in aggression to be less straightforward, concluding that differences were more qualitative than quantitative.

Support for social role theory in explaining gender differences in aggression can be found in meta-analytic reviews of research based both in the laboratory and in real-world settings. Bettencourt and Miller (1996) assessed the effect of provocation (a major focus of their review) on gender differences in aggression in experimental studies. They found that social role theory was generally supported although provocation reduced the effect of gender role norms, thereby reducing gender differences in physical and verbal aggression. In effect, females' aggression levels approached those of males under conditions of provocation, suggesting that gender differences may not be clear-cut. Citing Maccoby and Jacklin (1974), the authors proposed that biological influences might explain gender differences whereby males possess a greater aggressive readiness. Bettencourt and Miller also suggested that, in conjunction with these biological determinants, gender role norms might further predispose males to aggress in ambiguous situations or when provocation is low, whereas female gender roles may inhibit aggression in such situations. It is possible to illustrate gender differences in what children consider to be appropriate behaviour, providing at least face value support for social role theory.

A survey of second through fourth grade children ($N = 293$) found that not only were boys more physically aggressive than girls, but that boys also believed physical aggression to be more acceptable across a range of targets (i.e., adults and girls) and circumstances (e.g., when out of control) than did girls (Huesmann, Guerra, Zelli, & Miller, 1992).

The review by Bettencourt and Miller (1996) also produced the interesting finding that gender differences in the appraisal of danger predicted gender differences in aggression. In other words, the greater the fear of retaliation, the greater the gender difference in aggression, such that if the fear of retaliation were high, females would have a tendency to act less aggressively than males. There is, however, evidence in the literature to suggest that this increased difference between genders may not be the complete picture. For example, if we consider Björkqvist, Österman et al.'s (1992) discussion on gender and aggression, it soon becomes apparent that indirect aggression may explain this difference. Given that indirect aggression is (as its name suggests) indirect in nature, the perpetrator is less likely to be detected and, therefore, less likely to face (or fear) retribution. If, as Björkqvist, Österman et al. propose (see also Shute & Charlton, 2006), females are more likely to use this form of aggression partly because it poses less risk of retaliation, overall gender differences in aggression as found by Bettencourt and Miller may therefore be diminished.

Moreover, Bettencourt and Miller (1996) admit that, although the findings indicated that males were more aggressive than females in neutral situations, the effect size was small ($d = .24$). They qualify this with the statement that the results of their analyses may underestimate the gender differences in aggression as may be found in everyday life, which, coupled with the above point regarding gender and

indirect aggression, brings us to the meta-analytic review conducted by Archer (2004).

Whereas Bettencourt and Miller (1996) analysed experimental studies that focussed upon physical and verbal aggression, Archer (2004) analysed studies arising from real-world settings, which included indirect aggression constructs. Overall, the meta-analysis findings showed that males were more physically and, to a lesser extent, verbally aggressive than females, corresponding with Bettencourt and Miller's findings and also with Eagly's (1987) social role theory. Archer also found evidence for gender differences in indirect aggression with females showing a greater tendency to aggress indirectly, although the findings were mixed with differences in indirect aggression evident only in later childhood and adolescence.

As indicated above with the reviews by Archer (2004) and Bettencourt and Miller (1996), there are numerous studies that have found males to be more physically and verbally aggressive than females. For example, Owens and MacMullin (1995) used a peer-estimation method with 422 students from grades 2, 6, 9, and 11 (mean ages 7.9, 11.9, 14.7, & 16.6 years, respectively). Results from this study showed that boys were estimated by their peers to show significantly more physical and verbal aggression (against other boys) than girls (against girls) in all year levels. The one exception was in Year 9, with boys and girls not differing significantly in the degree of verbal aggression. Taking the above findings into account and social role theory, the present study predicted that boys would report significantly higher levels of physical and verbal aggression than girls (Hypotheses 1 & 2).

It is logical to also predict that the same pattern would be found for self-reported victimisation, and previous research confirms this. For example, Paquette and Underwood (1999) explored gender differences in 76 adolescents' (mean age

13.8 years) experiences of victimisation, finding that boys reported experiencing significantly more physical aggression than girls. In recent Australian research, 591 adolescents from Years 8 through 10 (mean ages 13.3 to 15.4 years) were asked to provide self-report levels of physical, verbal, and indirect victimisation (i.e., how often respondents were the recipient of such behaviours). Results showed that boys reported more physical and verbal victimisation than girls (Owens et al., 2005). As a consequence, the pilot study predicted that boys would report significantly higher levels of physical and verbal victimisation than girls (Hypotheses 1a & 2a). However, the picture is rather more complex with regard to indirect aggression, particularly in terms of the target sample for the present study, namely, adolescents. Consequently, it is necessary to review a variety of studies specifically relating to gender differences in indirect aggression in children and young people.

1.2.5 Gender Differences in Indirect Aggression

As stated above, social role theory as an explanation of gender differences in social behaviour, proposes that males are more agentic (instrumental, masculine) and females more communal (expressive, feminine) in their behaviour (Archer, 2004; Eagly, 1987) and research into friendship groups provides some support for this proposition. Typically, boys report friendships that are activity-related, centring on group games or activities, with boys' groups being significantly larger than girls'. Conversely, girls' friendship groups are more likely to consist of pair or triad relationships and are more relationship-focussed (Jones & Dembo, 1989; Maccoby, 1986). Additionally, adolescent females form friendships that are generally higher in intimacy than those of males (Collins & Repinski, 1994; Jones & Dembo, 1989; Maccoby, 1986). However, as Baumeister and Sommer (1997) state, these gender differences in patterns of social bonds do not suggest that males are

less social or place less worth in social interactions than females. Rather, it is an indication that males and females care equally about social relationships, although these relationships typically occur within different social spheres.

Furthermore, as aggression can be categorised into direct (physical, verbal) and indirect (or relational/social) forms (Björkqvist, Österman et al., 1992), it is reasonable to suggest that direct aggression corresponds with social roles theory's agentic behaviours and indirect with communal. Hence, and as the results of some studies might suggest (e.g., Grotjeter & Crick, 1996; Huesmann et al., 1992), it can be postulated that males would tend to use more direct (agentic) aggressive behaviours and females more indirect (communal) aggressive behaviours. The relative physical strengths of the sexes may also be a contributing factor in that girls may, as a matter of necessity, learn that indirect methods might be more effective than attacking a person directly (Björkqvist, Österman et al., 1992).

Lagerspetz et al. (1988) went further, stating that it is the smaller, more intimate and emotionally important groups typical of girls that allow greater opportunity for indirect aggression, thereby helping to explain the greater tendency for girls to exhibit indirect aggressive behaviours. Research into relational aggression provides further incidental evidence supporting this aspect of friendship groups, wherein a study of 9- to 12-year-old children ($N = 315$) found that relationally aggressive children reported friendships which had significantly higher levels of intimacy (Grotjeter & Crick, 1996). Unfortunately, research findings do not present a straightforward picture on this point and a more specific review of the related literature focussing on adolescents (the age group of interest in the present study) is therefore warranted and briefly revisiting the relational and social aggression constructs will provide a useful starting point.

Although there is a good deal of research into relational aggression in children, little has been published regarding adolescents in particular. One study that employed peer-nomination found 23.4% of females to be classified as relationally aggressive compared to only 1.2% of males (Hayward & Fletcher, 2003). Crick et al. (1998) also very briefly cite two unpublished studies that used self-report techniques to explore adolescent relational aggression. One of these found greater female relational aggression and the other reported no significant gender difference (respectively, MacDonald & O’Laughlin, 1997; Crick, Werner, & Schellin, 1998; cited in Crick et al., 1998). With regard to social aggression, Paquette and Underwood (1999) found no differences in self-reported victimisation between 76 adolescent boys and girls (mean age 13.8 years), although girls considered social aggression to be more hurtful than did boys (see also Galen & Underwood, 1997).

There are numerous studies showing that adolescent girls typically exhibit more indirect aggressive behaviour than boys. In a large cross-cultural study of aggression in 8-, 11-, and 15-year-old children ($N = 2,094$), peer-estimations (participants estimate the extent to which peers behave in certain ways) showed that between 41% and 55% of girls’ aggressive behaviours were indirect, whereas the proportion for boys ranged between 20% and 26% (Österman et al., 1998). The proportions of verbal aggression for girls varied between 31% and 40% (boys 37-47%), and from 8% to 20% for physical aggression (boys 33-37%). Other studies using peer-nomination (students name peers who display certain behaviours) and peer-ratings (students estimate the frequency that named classmates perform aggressive acts) have also found that girls exhibit more indirect aggressive behaviour than boys (e.g., Björkqvist, 1994; Lagerspetz et al., 1988). The above findings correspond with Australian research which used a peer-estimation technique whereby adolescent participants were asked to estimate how often fellow

students in their class behaved in specific ways to others (girls to girls and boys to boys). These studies found that girls used significantly more indirect aggression than boys in Years 9 and 11 (Owens, 1996; Owens & MacMullin, 1995). In similar and more recent Australian research described above (Owens et al., 2005), 591 adolescents from Years 8 through 10 provided self-report levels of indirect victimisation, with results showing that, whereas boys reported more physical and verbal victimisation than girls, girls experienced significantly higher levels of overall indirect victimisation.

In their review articles, both Archer (2004) and Björkqvist (1994) conclude that adolescent females are more indirectly aggressive than males although, as Archer notes, there are exceptions to be found in the literature. For example, a number of studies have found that girls do not have a monopoly on this form of aggression and there are two studies that, using both peer- and self-report methods, did not find gender differences in indirect aggression in 8-year-olds (Österman et al., 1994) or 10 to 14 year olds (Salmivalli & Kaukiainen, 2004). Indeed, Salmivalli and Kaukiainen found, through the use of peer-estimation techniques, 10-year-old boys to exhibit more indirect aggression than girls. Similarly, a recent study of 661 Italian adolescents (11-15 years) found that, although direct verbal and physical aggression showed the typical gender difference (i.e., males > females), males and females did not differ in self-reported levels of indirect aggression (Baldry, 2004). Another recent study also found no significant differences between genders in overall indirect aggression in a self-report survey of 653 adolescents aged between 14 and 17 (Toldos, 2005). In fact, the latter two studies both found boys to report more indirect aggression in terms of certain specific behaviours, with Baldry finding that a greater percentage of boys reported spreading rumours than girls (13.2% vs. 3.1%). Of the 12 indirect behaviours measured by Toldos, boys reported significantly

higher levels on five items, such as shutting another out of a group and telling another's secrets to a third person. Girls reported significantly higher self-ratings on gossiping and criticising another's appearance, with no gender differences apparent on the remaining four items.

Although the above studies do not readily lead to a categorical statement regarding gender differences in indirect aggression, there is a recent study which tips the balance. Employing a methodology very similar to that of the present study, Owens et al. (2005) found adolescent females to report significantly greater levels of indirect victimisation aggression than males ($N = 591$, mean age 13.3-15.4 years). These results were obtained using a measure of victimisation that was nearly identical to that used in the present study (based on Björkqvist, Lagerspetz, & Kaukiainen, 1992), although admittedly bullying and aggression were not measured. In addition, the sample characteristics of the Owens et al. research strongly resembled that of the present study (South Australian adolescent students). Taking this into account, and in keeping with social role theory (Eagly, 1987), the present study predicted that adolescent females would exhibit significantly greater levels of indirect aggression and indirect victimisation than males (Hypotheses 3 & 3a, respectively). Having discussed gender differences in aggression, it now remains to consider the connection between age and aggression before moving on to the other major variables of interest, self-esteem and narcissism.

1.2.6 Developmental Changes in Aggression

Foremost, although this section relates to age changes in aggressive behaviour, it is difficult to remove gender from the relationship as development trajectories differ as a function of gender, as do social roles and stereotypes (e.g., Cairns et al., 1989; Eagly & Steffen, 1986). To illustrate, Archer (2004) asserts that,

although social role theory (Eagly, 1987) makes no specific predictions regarding gender, age, and aggression, social learning theory (Bandura, 1973) provides some clarification. Archer stated that the two theories parallel each other such that social learning processes (e.g., observation, modelling) facilitate the acquisition and maintenance of aggressive behaviours in accordance with social roles (see also Lagerspetz et al., 1988). Effectively, social learning predicts that gender differences will initially be minor in childhood and will increase with age due to the cumulative impact of socialisation processes (e.g., parental, peer, & media influences, Archer, 2004).

While keeping the above in mind, parsimony dictates the taking of a more general perspective on the relationship between age and aggression. For example, in terms of being bullied, the literature indicates that there is an overall steady decline in the levels of victimisation through the ages 8 to 16 years (Smith, Madsen, & Moody, 1999). There are a number of possible reasons for this, with Smith et al. proposing that as children mature they acquire the necessary social skills to deal effectively with bullying, and that they simply have fewer older children who are in a position to bully them. They also found that as children matured their definitions of what constituted being victimised changed, such that behaviours that they may have considered to be bullying in primary school were of less concern once they had reached secondary school. A study by Salmivalli (2002) found that although self-reported levels of victimisation by 1,220 school children (9-12 years) decreased with age, this decrease was not evident in peer or teacher reports. Salmivalli concluded that it was the frequency of self-identified victims which decreased such that, although it was apparent to peers and teachers that these individuals were bullied, these children were less likely to consider themselves to be victims as they matured.

Pellegrini and Long (2002) found similar results in their longitudinal study, with victimisation levels showing a decrease from primary to secondary school. However, research shows that the transition from primary through secondary school is characterised by a contrasting rise in levels of bullying (vs. decreased victimisation). For example, Pellegrini and Long (2002) found that children exhibited increased levels of bullying behaviour during this transition phase, although levels declined in the higher grades. One explanation offered for this trend was that as incoming primary students encountered and formed new social groupings in the early years of secondary school, they were put at greater risk of being bullied until new social hierarchies were established.

Regarding specific types of aggression, Underwood et al. (2001) concluded that children largely refrain from physical aggression by the middle elementary school years (see Cairns et al., 1989; Coie & Dodge, 1998; Tremblay et al., 1999). This corresponds with Österman et al.'s (1998) cross-cultural study of peer estimates of aggression in 8-, 11-, and 15-year-old adolescents ($N = 2,094$), which found a trend of decreased use of physical aggression in boys and girls, while verbal aggression levels increased slightly with age. However, no age-related changes in indirect aggression were reported and these results generally mirror those of Whitney and Smith (1993) and Rivers and Smith (1994). Conversely, Owens (1996) found that levels of indirect aggression increased with age through Years 2, 6, 9, and 11, although this was only apparent in girls.

In explaining gender differences in different types of aggression, Björkqvist, Österman et al. (1992) proposed that age-related changes in aggressive behaviour correspond to verbal and cognitive development in children. Generally, aggression in small children comprises mostly physical behaviours as their social and verbal skills are largely undeveloped and, as verbal skills develop, physical aggression is

gradually replaced to a large extent by verbal aggression. With the increased development of social skills during adolescence and an attendant increased ability to manipulate others or social situations to attain their goals, those who bully have more skills enabling them to aggress indirectly. It is during this latter stage that gender differences become marked, such that girls may develop the necessary social skills sooner than boys and, therefore, display greater levels of the socially manipulative indirect forms of aggression during adolescence (Björkqvist, Österman et al., 1992).

From the above discussion regarding developmental trends in the development of verbal and social skills in children, the pilot study predicted that physical aggression would decrease with age (Hypothesis 4), verbal aggression would remain stable (Hypothesis 5), and that indirect aggression would increase with age (Hypothesis 6). Given the close relationship between aggression and victimisation, it was additionally predicted that physical and indirect victimisation would also decrease with age (Hypotheses 4a & 6a, respectively), and that verbal victimisation would remain stable with age (Hypothesis 5a). Having briefly described gender differences and developmental changes in aggression, it remains to explore further aspects that may contribute to a person's propensity to aggress against others. Consequently, and while remaining aware of the social nature of aggression, the discussion will now turn to self-esteem, group processes, and other aspects of the self that may, to varying degrees, explain the manner in which those who bully interact with their peers.

1.3 Self-Esteem

In his review of the psychological study of the self, Brown (1998) defined self-esteem as a global personality trait that is relatively enduring across time and

situations – a term to describe how people feel about themselves generally. However, there is a comparatively recent empirical trend moving away from defining self-esteem solely as a global feeling of self-worth. Self-esteem is instead considered to be a composite construct made up of a number of areas that contribute separately to feelings of self-worth (e.g., Keith & Bracken, 1996; Harter, 1979), referred to as *specific* or domain self-esteem (Rubin & Hewstone, 1998). These separate domains encompass such areas as family, physical, academic, or peer relations, such that one may derive differing levels of self-esteem from different domains of one's life (e.g., Keith & Bracken, 1996). For example, high levels of self-esteem may be derived from family relationships, yet an academic domain may provide little in the way of positive self-esteem. If little value is placed upon academic ability and great value upon family, one may nevertheless report high levels of global self-esteem.

In addition to distinguishing between global and domain self-esteem, Rubin and Hewstone (1998) discussed two further distinctions, the first being that self-esteem can be either personal (how one feels as an individual) or social (how a person feels as a member of his or her social group). The second distinction is that self-esteem can be either state or trait. State self-esteem arises from immediate self-evaluations, whereas trait self-esteem (which remains relatively constant) is an average of state self-esteem levels (which may vary across time). Given that state self-esteem is typically a variable associated with experimental research (Rubin & Hewstone, 1998) and the correlational methodology of the present study, the term self-esteem as it is used hereafter refers solely to trait self-esteem to minimise confusion. The following section explores the self-esteem research as it pertains to aggression and bullying.

1.3.1 *Self-Esteem and Aggression*

Self-esteem, as an indicator of the need to view oneself positively – whether as an individual or as part of a group – is intricately related to aggression such that threats to self-esteem may provide a motivational force to act aggressively (e.g., Anderson & Bushman, 2002; Baumeister & Leary, 1995). However, as the following sections will show, the specific manner in which self-esteem and aggression relate is difficult to establish.

To begin, a brief review of the literature describing research into self-esteem, aggression, and bullying will quickly show that the majority of studies have used instruments that measure global personal self-esteem. To allow ready comparisons with this previous research the present study also employed a measure of global personal self-esteem (see the Pilot Study methodology section of Chapter 2 for details). In addition, and in keeping with previous research, where the term *global* self-esteem is used in the present paper, it is done so with the underlying assumption that it refers to personal (vs. social) self-esteem. A number of studies have also explored aggression and specific self-esteem (e.g., Boulton & Smith, 1994; Colvin, Block, & Funder, 1995) and the present study followed this lead, employing a specific social (vs. personal) self-esteem measure, namely, collective self-esteem (Luhtanen & Crocker, 1992). However, before moving on to the literature to compare global and specific self-esteem as they relate to aggression and bullying, it is necessary to outline the picture regarding global self-esteem and victimisation.

1.3.2 *Global Self-Esteem and Victimisation*

It is consistently reported in the literature that victims of aggression typically report low levels of global self-esteem (see Baumeister, Bushman, & Campbell, 2000). For example, a study by Austin and Joseph (1996) found significant

moderate negative correlations (girls $r = -.44$, boys $r = -.31$) between self-reported victimisation and global self-worth in 425 8- to 11-year-old children (see also Mynard & Joseph, 1997). O'Moore and Kirkham (2001) reported similar results from their study of 8,249 schoolchildren aged 8 to 18 years. They found that respondents who had reported being victimised frequently (at least weekly) had significantly lower self-esteem than those who were victimised occasionally (once or twice) or moderately (sometimes). Research with a sample of 877 Australian students (12-18 years) found comparable results, whereby the self-reported tendency to be victimised correlated negatively with global self-esteem, $r = -.22$, $p < .001$ (Rigby & Slee, 1993).

Whether the relationship between self-esteem and victimisation is causal and in what direction is not something that can be readily tested, although it is commonly claimed that low self-esteem results from victimisation (Boulton & Smith, 1994). For example, Boulton and Underwood (1992) found that 87.5% of 8- to 10-year-old children ($N = 122$) had negative feelings when they were bullied with 81.8% reporting that they had felt better before the bullying began. Taking measurements at the start of the school year and again 5.5 months later, Egan and Perry (1998) found that being victimised for 189 school children (mean age 10.8 years) was related to reduced global self-worth over time (measured with the Self-Perception Profile for Children, SPPC, Harter, 1985), suggesting that low self-worth was a result of victimisation. However, Egan and Perry also concluded that there might be a bi-directional aspect to the relationship such that those low in self-esteem may lack the resiliency afforded by higher levels of self-esteem. In addition, being victimised further reduced self-esteem, perpetuating a vicious cycle and making these individuals even more susceptible to victimisation. This also corresponds with the assertion that those low in self-esteem are more likely to perceive an incident as

peer victimisation and to interpret events more negatively (Verkuyten & Thijs, 2001).

As the above examples show, it is generally clear from the literature that victims of aggression report significantly lower levels of self-esteem than non-victims and, therefore, the present study predicted that global self-esteem would be negatively related to level of self-reported victimisation (Hypothesis 7). However, the picture in regard to aggression and bullying and self-esteem is more complex.

1.3.3 Global Self-Esteem, Aggression, and Bullying

To begin, the authors of an extensive review of the aggression literature (Baumeister et al., 1996) refuted the conventionally accepted view that a causal relationship exists between low global self-esteem and violence (e.g., Anderson, 1994). Tradition holds that low self-esteem is a cause of violence such that, for example, those who lack self-esteem may use aggression and violence as a means of dominating others and thereby gaining self-esteem. Baumeister et al. instead concluded that aggression is actually related to high self-esteem and, although this particular topic is discussed in greater detail below, it illustrates that the self-esteem/aggression relationship is not a straightforward one. Furthermore, with studies finding negative, positive, or no relationship between aggressive or bullying behaviour and global self-esteem, research findings are equivocal (Ireland, 2002; Salmivalli, Kaukiainen, Kaistaniemi, & Lagerspetz, 1999).

Exploring bullying in 8- and 9-year-old children ($N = 158$), Boulton and Smith (1994) found that mean scores for global self-worth from the Self-Perception Profile for Children (Harter, 1985) did not differ significantly between peer-nominated bullies, victims, and those not involved. Although results were only presented for boys (there were too few female bullies to allow meaningful analyses

of girls' scores), these findings are representative of the research that has failed to find a relationship between self-esteem and aggression and bullying. An Australian study provides a similar example using a sample of 1,162 male and female secondary school students (12-18 years old, Rigby & Slee, 1993). Employing the Rosenberg self-esteem scale (Rosenberg, 1979, the measure used in the present research), that study found no significant correlation ($r = .06$) between global self-esteem and the tendency to bully.

Rigby and Cox (1996) discovered contrasting results in their study of self-esteem, bullying, and delinquency in 13- to 17-year-old adolescents ($N = 763$). They found that although global self-esteem was not significantly associated with self-reported bullying in male adolescents ($r = .04$), there was a significant negative partial correlation between self-esteem and bullying in females ($r = -.17, p < .001$). Citing previous research that has found a greater acceptance of bullying by boys (e.g., Rigby & Slee, 1991), the researchers concluded that female bullies' low self-esteem may have resulted from the greater levels of condemnation that they may have received from peers and others. Rather than suggesting that low self-esteem is a cause of bullying, it seemed that (at least for female adolescents in that study) bullying others may have been an indirect cause of low global self-esteem.

Research which assessed bully/victim problems in a sample of 425 children aged 8 to 11 years (Austin & Joseph, 1996), found significant negative correlations between bullying behaviour and global self-worth for both boys ($r = -.29, p < .01$) and girls ($r = -.17, p < .05$), although these correlations were evident only when participants were not grouped by bully/victim status. Following grouping by status, the difference between mean self-esteem scores for "bully only" students and those not involved in bullying did not reach significance. In addition, those categorised as bully had significantly higher mean global self-esteem scores than victims and

bully/victims. These latter findings suggest that the negative relationship commonly found between self-esteem and victimisation may have had a confounding effect on these results.

In their study of 8,249 school children (8-18 years old), O'Moore and Kirkham (2001) found that those who bullied (i.e., "pure" bullies, not bully/victims) had significantly lower mean global self-esteem scores than those who did not bully. Given the above discussion that victimisation and self-esteem are typically negatively related and that those who are both bully and victim are prone to low self-esteem and poorer psychosocial health (e.g., Kumpulainen et al., 2001), it is notable that O'Moore and Kirkham's study differentiated bullies from bully/victims. This procedure effectively excluded victimisation as a possible confound in the bullying/self-esteem relationship, although the authors do not discuss this as a justification for categorising by bully/victim status. Unfortunately, the paper did not report gender differences or explore how the type of aggression used (physical, verbal, indirect) affected the self-esteem relationship.

Complicating the issue further, a Finnish study has found a positive correlation between bullying and self-esteem (Kaukiainen et al., 2002). In a relatively small sample of 11- to 12-year old children ($N = 141$), global self-esteem measured with the Perceived Competence Scale for Children (Harter, 1979) was found to be positively correlated with peer-nominated bullying scores ($r = .26, p < .01$). However, when analyses were conducted separately for boys and girls, the relationship between these variables altered. Although global self-esteem and bullying were moderately positively correlated in boys ($r = .34, p < .01$), the correlation failed to reach significance in girls ($r = .13, ns$). Although the authors did not discuss this gender difference, they did suggest that the high self-esteem reported by bullies may be a result of their dominating and harassing others, such

that bullying others (usually weaker individuals) may be one strategy for building and maintaining self-esteem.

To conclude, the above examples show that although the relationship is not clear-cut, on balance it is apparent that the present study would be likely to find a positive relationship between global self-esteem and level of self-reported bullying behaviour (Hypothesis 8). However, there are other variables which may have an effect on any predicted relationships and, therefore, the association between domain self-esteem and victimisation is the next topic of discussion in this chapter.

1.3.4 Domain Self-Esteem and Victimisation

As with global self-esteem, it is consistently reported in the literature that victims of aggression typically report low levels of domain self-esteem. For example, the study described above which explored global self-worth and peer nominated bullying in 8- and 9-year-old children also measured domain self-worth and victimisation (Boulton & Smith, 1994). Peer nominated victims were found to have significantly lower mean scores than children not involved in bullying in both the social acceptance ($M = 2.7$ & 3.0 respectively) and athletic competence ($M = 2.4$ & 3.0 respectively) subscales of the SPPC (Harter, 1985). Similarly, Egan and Perry (1998) in a study also described previously, found a significant association between self-report victimisation and the social competence component of the SPPC (Harter, 1985). The authors concluded that this small yet independent contribution to the prediction ($\Delta R^2 = .06, p < .001$) indicated that an individual's sense of social inadequacy and failure might lead to increased victimisation over time.

1.3.5 Domain Self-Esteem, Aggression, and Bullying

Moving on to the literature regarding the links between specific domains of self-esteem and aggression and bullying, Boulton and Smith's (1994) above-mentioned study again provides an example of relevant research. Peer-nominated bullies in their study reported levels of athletic competence self-esteem that were at least as high as non-bullies. A study by O'Moore and Kirkham (2001, also discussed above) produced similar findings, with bullies reporting the same levels of physical appearance and popularity domain self-esteem as non-bullies.

As outlined previously, Austin and Joseph (1996) found a negative correlation between bullying behaviour and global self-worth that did not hold after participants were grouped by bully/victim status, and a similar pattern emerged in terms of domain self-esteem. Despite significant negative correlations between bullying and the scholastic competence and social acceptance self-esteem domains of the SPPC (Harter, 1985), these relationships altered when students were grouped by bully status. Mean scores between "bully only" students and those not involved in bullying did not differ for any self-esteem domains. However, bullies reported significantly higher mean scholastic competence self-esteem scores than bully/victims ($M = 2.56$ vs. 2.27), and higher social acceptance self-esteem ($M = 3.04$) than either bully/victims ($M = 2.60$) or victims ($M = 2.55$).

Other studies have found patterns, with those who bully having levels of social and physical (Salmivalli, 1998), and peer (Karatzias & Power, 2002) self-esteem domains that are as high as non-bullies or higher than victims. In total, therefore, the above studies further bring into question the view that low self-esteem and aggression have a causal relationship. In addition, these studies suggest an interesting relationship between domain self-esteem and aggression. This is particularly so given that self-esteem domains with a social aspect (i.e., vs. academic

or family) are well represented with, for example, popularity (O'Moore & Kirkham, 2001), peer (Karatzias & Power, 2002), social (Salmivalli, 1998), and social acceptance (Austin & Joseph, 1996) self-esteem domains related at least to some extent with bullying behaviour.

To elaborate, recalling that aggression generally and school bullying in particular are social behaviours, and given that aggressive individuals report levels of 'social' self-esteem domains rivalling those of uninvolved students (and exceeding victims'), it is clear that this relationship is worth pursuing in greater detail. To that end, and while leading up to the discussion regarding aggression, collective self-esteem, and narcissism, it is necessary to introduce group processes. Although at first glance it may not be clear how this variable may be related, it will become apparent that group processes are in fact vital in explaining the relationship between self-esteem and aggression and bullying.

1.4 Group Processes

The findings of previous research as discussed above lead one to question what it is about those who bully and their social environment that may lead them to act aggressively. First, there is a good deal of evidence that specifically links group processes and self-esteem, with one meta-analysis noting that research consistently finds that those high in self-esteem exhibit greater ingroup bias than individuals with low self-esteem (Aberson, Healy, & Romero, 2000). Furthermore, recalling that aggression is itself a social process (e.g., Archer, 2001) and given that it is clear from the literature that individuals derive self-esteem from their group membership (e.g., Aberson et al., 2000; Haslam, 2001; Tajfel & Turner, 1986), it is therefore necessary to briefly consider group processes within adolescent social groups and how they may explain aggression and bullying.

To begin, although some bullying situations may appear to be interpersonal in nature rather than a group interaction, it should be noted that larger social units (e.g., peer groups) influence the social behaviour of both individuals and dyads (Cairns & Cairns, 1991). To illustrate, research consistently finds socially stratified systems of adolescent peer groups or cliques within high schools, with a United States study (Kinney, 1999) finding these groups to be typically characterised, for example, as popular (e.g., “trendies”), deviant (e.g., “headbangers”), or ostracised (e.g., “nerds”), and similar groups have been found in Australian high schools (Denholm, Horniblow, & Smalley, 1992). Adler and Adler (1995) described inclusion and exclusion techniques commonly employed by preadolescents in the manipulation of their social environments as a function of their membership of school cliques. The techniques described in that qualitative study, such as social exclusion or using gossip to undermine an outsider, clearly parallel indirect aggression behaviours (see Björkqvist, Österman et al., 1992). Hence, it can be seen that within peer groups and cliques there are processes at work that may provide some explanation for adolescent aggression and bullying.

There has been some bullying research carried out from a group-processes viewpoint, although the focus of this research has been upon the roles that individuals take when participating in bullying situations (e.g., O'Connell et al., 1999; Salmivalli, 1999; Salmivalli, Lappalainen, & Lagerspetz, 1998; Sutton & Smith, 1999). Note that these participant roles (i.e., bully, victim, assistant, reinforcer, defender, & outsider) are described above (Salmivalli et al., 1996). In contrast, the present study considered the role of peer group membership in accounting for bullying behaviour, given that membership of peer groups has a significant impact on adolescent social identity (Denholm et al., 1992; Kinney, 1999; Tarrant et al., 2001). In general terms, social identity refers to that part of an

individual's identity that arises from their interaction with their social world (e.g., Tajfel, 1981).

To demonstrate how adolescent group membership may provide some clarification of the relationship between group processes and aggression and bullying, it is helpful to introduce the concepts of *ingroup* and *outgroup*. The term *ingroup* (or *we group*) refers to the group with which an individual strongly identifies, whereas the term *outgroup* (or *they group*) basically refers to anyone who is not of the *ingroup* (Brewer, 2001; Reber, 1995). Stemming from this in/out group distinction, *ingroup bias* is the tendency for individuals to hold more positive views of their *ingroup* in relation to other groups. In contrast, *outgroup bias* is the holding of more negative views of *outgroup* members and, arising from this consideration of others as inferior, is the tendency for *ingroup* members to actively derogate those not of the *ingroup*, that is, *outgroup derogation* (e.g., Aberson et al., 2000; Brewer, 2001).

To illustrate these group processes using examples from the findings of the adolescent cliques research described above (Denholm et al., 1992; Kinney, 1999), a "headbanger" group member may categorise another person as a prototype or exemplar of an *outgroup* (e.g., a "nerd"). As a consequence of this *ingroup/outgroup* differentiation, a situation may arise whereby the headbanger (if a bully and with or without confederates) may not only derogate but actively discriminate or, more extremely, aggress against the nerd *outgroup* member. Therefore, from a psychological perspective, the bully/victim dyad may effectively be considered an *ingroup/outgroup* (i.e., headbanger/nerd) interaction. Moreover, social competition via conflict or hostility directed against a relevant *outgroup* is one strategy in achieving or maintaining positive social identity (Haslam, 2001) and, hence, it is likely that the very act of bullying an *outgroup* member has consequences for one's

status within the ingroup. Furthermore, given that peer group membership significantly impacts upon adolescent social identity (Denholm et al., 1992; Kinney, 1999; Tarrant et al., 2001) and that individuals derive self-esteem from their membership of groups (see Aberson et al., 2000), the discussion will now consider the affective or evaluative dimension of social identity, namely social, or *collective* self-esteem (Luhtanen & Crocker, 1992).

1.5 *Collective Self-Esteem*

Given the above argument that bullying occurs within the context of social groups, it is therefore plausible that a specific domain-related social (i.e., collective) self-esteem may provide greater explanatory power in an account of bullying behaviour than might global personal self-esteem. Collective self-esteem is defined as the self-esteem that individuals derive from their membership of social groups (Luhtanen & Crocker, 1992). As a construct, collective self-esteem stems from Tajfel and Turner's *social identity theory* (Tajfel & Turner, 1986), which posits that self-esteem is a motivating factor in intergroup behaviour.

Haslam (2001) presents a concise summary of social identity theory, describing it as:

...an 'integrative theory' that attends to both the cognitive and motivational basis of intergroup differentiation. In essence it suggests that after being categorized in terms of a group membership, and having *defined themselves* in terms of that social categorization, individuals seek to achieve positive self-esteem by positively differentiating their ingroup from a comparison outgroup on some valued definition. (pp. 31-32)

In other words, group members may exhibit strong positive feelings toward the ingroup (ingroup bias) and negative feelings toward outgroups (e.g., through outgroup derogation) as a means of positively enhancing the distinctiveness of the ingroup and, hence, the social identity and self-esteem of its members.

Recalling the above discussion regarding definitions and types of self-esteem (e.g., global vs. specific), Salmivalli (2001) concluded that ambiguous findings from the self-esteem/aggression research stem, in part, from definitional and measurement differences between studies. To elaborate, most self-esteem scales measure global self-esteem rather than esteem derived specifically from group-level behaviour (i.e., collective self-esteem) (Long & Spears, 1997; Rubin & Hewstone, 1998). When considering self-esteem at the group level, Turner (1999) distinguishes between our underlying need for positive self-evaluation as group members versus our need for positive self-evaluation as individuals. In making this distinction, Turner clearly differentiates between social (i.e., collective) and personal self-esteem, each arising from social and personal identity and each linked respectively to group and individual behaviour. If aggression or, more specifically, bullying is a form of expressing oneself as a member of the ingroup (one's peer group), it would appear appropriate to assess esteem related to that group membership. Hence, to draw conclusions regarding possible relationships between self-esteem and aggression and bullying (viewed as group behaviour), it is important to measure self-esteem that relates specifically to peer group membership (i.e., collective self-esteem, Long & Spears, 1997).

At the time of writing there was effectively no published research connecting collective self-esteem, victimisation, and aggression or bullying. There was one study, however, which employed a sample of 230 undergraduates (17-42 years old) that did not find any significant association between collective self-esteem and

hostility (Wann, 1994). Nevertheless, given that the study used a measure of hostility rather than aggression per se (i.e., specific behaviours) or victimisation, these findings are not conclusive and, although hostility has been found to be associated with violent acts and with global self-esteem, the relationship is not simple or direct (Baumeister et al., 1996). It is clear, therefore, that the making of specific research hypotheses relating to collective self-esteem is difficult.

There has been some research into ethnic self-esteem that provides some illumination. Although not specifically referred to as collective self-esteem, the researchers in these studies did employ Luhtanen and Crocker's (1992) measure of collective self-esteem. The rationale for this was based upon the notion that, as collective self-esteem is derived from group membership, membership of a minority ethnic group provides a measurable source of self-esteem. In other words, ethnic self-esteem can be considered as a type of collective self-esteem. In terms of research findings and the current study, Verkuyten and Thijs (2001) found that ethnic self-esteem did not significantly predict ethnicity-related peer victimisation in 10- to 12-year-old Turkish children ($N = 106$) living in the Netherlands, although the correlation was negative and approached significance ($r = -.24, p = .086$). A Scottish study of 154 young (14-21 years) members of ethnic minority groups found that ethnic self-esteem was significantly negatively related to perceived discrimination (e.g., name calling, teasing, exclusion), although only for males ($r = -.30, p < .001$). Personal self-esteem and perceived discrimination also showed a significant negative relationship for males, whereas neither form of self-esteem was related to discrimination for females (Cassidy, O'Connor, Howe, & Warden, 2004).

Despite these mixed findings, recalling the research described above that has consistently found a negative relationship between victimisation and both global and domain self-esteem, it was predicted that the pilot study would also find a negative

correlation between collective self-esteem and victimisation (Hypothesis 9). In addition, although collective self-esteem is considered to be relatively distinct from global personal self-esteem, it is nonetheless moderately and positively related (Luhtanen & Crocker, 1992). Consequently, and reflecting the prediction for global personal self-esteem, it was expected that the pilot study would find a positive relationship between collective self-esteem and level of self-reported bullying behaviour (Hypothesis 10).

From the above discussion arises the possibility that those who bully, in deriving self-esteem from those domains with a social aspect, may use bullying behaviour as one strategy to enhance that self-esteem. This proposition requires strengthening in that it does not explain why others, who may also derive high levels of self-esteem from social domains of their lives, do not bully. There is, therefore, a need to consider that other individual-level aspects of self-esteem may affect how individuals interact with their social environment.

1.6 Level of Self-Esteem and Self-Presentational Style

To minimise confusion with terms, the following section will refer in the main to self-esteem as global self-esteem and wherever other types of self-esteem are considered they will be discussed using the relevant specific term (e.g., collective, peer). Where some investigators have proposed that low self-esteem is causally linked to aggression, Baumeister et al. (1996) argue that self-esteem is not, in itself, a direct independent cause of aggression. Rather, high self-esteem in conjunction with a threat to favourable self-views (ego threat) is likely to lead to aggression. Further, research suggests that it is people with high self-esteem who also present themselves in certain self-enhancing styles (as a way of minimising

threats to self-esteem), who are more likely to use aggressive behaviour as a strategy to defend and enhance their high self-esteem.

For example, in a study of individuals' self-esteem levels, Baumeister, Tice, and Hutton (1989) compared the self-presentational styles of those with high and those with low self-esteem scores. They found that, associated with high self-esteem scores was a tendency for an individual to present in a self-enhancing style that draws attention to the self, focusing on one's exceptional qualities, while making a calculated use of ploys or strategies and being more accepting of risk. In contrast, low self-esteem scores were associated with the use of a self-protecting strategy that is less attention-seeking, that focuses on avoiding one's negative qualities and uses fewer ploys, and that is associated with a reluctance to accept risk. A self-protecting presentational style is more reflective of a fear of failure, characterised by a cautious, wary approach. In contrast, a self-enhancing presentational style reflects a success-oriented approach requiring ambition, aggression, and a willingness to manipulate the environment to enhance self-esteem (Baumeister et al., 1989).

Individuals having high levels of this latter self-enhancing style clearly possess certain characteristics that reflect the more social aspects of bullying such as manipulating others, using ploys, and acting aggressively (especially indirect aggression). Such individuals are considered by Baumeister et al. (1996) to possess narcissistic tendencies and the next section examines the possible connections between narcissism, self-esteem, and bullying.

1.7 Narcissism

Narcissism is a term that is derived from the Greek mythological figure Narcissus, a young man who fell in love with his own reflection and was thereafter totally consumed by his own desire (Davison & Neale, 1998); the term is generally

used to describe an exaggerated self-love (Reber, 1995). There is evidence to suggest that those with narcissistic tendencies typically also exhibit high levels of self-esteem that are often also inflated (i.e., exaggerated or unwarranted) and defensive (Baumeister et al., 1996). This notion is reflected in the diagnostic criteria for Narcissistic Personality Disorder as outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, American Psychiatric Association, 2000). Characteristic features of this disorder include a vulnerable self-esteem, a lack of empathy, grandiosity, and a need for admiration.

The focus of the present study, however, was not upon the clinical or abnormal psychological aspects of personality or the self and it should be noted that most of the research in the field of narcissism and its correlates has generally employed nonclinical samples (e.g., Papps & O'Carroll, 1998). To be more precise, certain narcissistic characteristics typically present as continua, as do many other psychological constructs including self-esteem (Hoyle, Kernis, Leary, & Baldwin, 1999). Correspondingly, Baumeister et al. (1996) consider specific narcissistic tendencies to be present to a measurable degree in people with certain self-presentational styles. Raskin and Novacek (1989) defined those high in narcissism to be:

...self-confident individuals who typically report having high self-esteem. They also appear to have a grandiose conception of themselves and are typically seen by others as being egotistical and conceited. They are also highly competitive, achievement-oriented, aggressive, exhibitionistic, self-focused individuals who tend to be manipulative and self-seeking in their interpersonal relationships and express little empathy for others. (p. 67)

Furthermore, and of particular interest here, is the statement in the DSM-IV-TR that narcissistic traits are common in adolescents, although these traits do not necessarily result in later development of Narcissistic Personality Disorder (American Psychiatric Association, 2000). Given this conceptualisation, particularly in the context of the present study's sample, an exploration of the relationship between narcissism and aggression is warranted.

1.8 Narcissism, Aggression, and Bullying

As cited above, Baumeister et al. (1996) refuted the traditional view that low self-esteem is a cause of violence, instead suggesting that aggression is actually related to high self-esteem through a defensive egotistic trait. *Defensive egotism* is a tendency to hold favourable self-appraisals that may in reality be ill founded or inflated and, moreover, threats to these self-appraisals are usually met with aggression. Defined as such, defensive egotism is clearly reflected in the above definition of narcissism. Whilst not suggesting that a causal relationship exists between violence and narcissistic high self-esteem, Baumeister et al. posited that it is when an individual's defensive inflated self-appraisal is at risk that people with this characteristic are more likely to respond aggressively to a perceived threat.

In considering the research findings showing that narcissism and aggression are related (Baumeister et al., 1996), and that those with high levels of narcissism are manipulative, lack empathy, and have insecure self-esteem (American Psychiatric Association, 2000), an important observation can be made. It becomes apparent that the social manipulation element of school bullying (especially indirect aggression) allows opportunities for those high in narcissism to effectively defend and enhance their self-esteem. This apparent link between narcissism and bullying is strengthened given that the hidden nature of indirect aggression allows bullies to aggress while further protecting their self-esteem – the perpetrators are not viewed

negatively and esteem is not publicly threatened (Lagerspetz et al., 1988). Taking this one step further, if we consider that school bullies may be more socially intelligent (Björkqvist & Österman, 2000; Sutton, Smith, & Swettenham, 1999) and that people often employ pre-emptive strategies as a way of neutralising a perceived threat to self-esteem (Hoyle et al., 1999), it becomes clear that adolescents' social structures in school may provide an ideal forum for those high in narcissism to aggress against their peers.

Although the literature provides little to illuminate the specific relationship between narcissism and bullying as such, there has been some bullying research exploring variables that can be considered to be related to narcissism. Sutton and colleagues (1999), for example, have found bullying to be related to greater skills in understanding and manipulating social situations and the emotions of others. In addition, Sutton and Keogh (2000) found bullies to score higher on 'Machiavellianism', defined as a tendency to manipulate others' beliefs through self-presentation strategies, and to exploit and manipulate others in interpersonal situations. It is clear that these variables are reflective of the narcissism construct.

In research that examined bullying from a more specifically narcissism-based perspective, Salmivalli et al. (1999) explored the relationship between adolescent bullying, self-esteem, and 'defensive egotism'. The defensive egotism variable was measured with three peer-report items to describe an individual who "[a]lways wants to be the center of attention; thinks too much of himself or herself; can't take criticism" (p. 1271). These characteristics clearly mirror the narcissism construct and were in fact derived from Baumeister et al.'s (1996) research. Self-esteem was measured using a shortened version of the Rosenberg Self-Esteem Scale (Rosenberg, 1979), a commonly used indicator of global personal self-esteem.

Bullying behaviour was determined through peer nomination of individuals' roles in bullying situations (e.g., bully, defender, victim).

Findings indicated no direct relationship between global self-esteem and bullying behaviour and a positive correlation between defensive egotism and bullying, although the relationship was low ($r = .20$) and evident only in boys. The authors admitted that employing a shortened version of the self-esteem scale (4 vs. 10 items in original scale) may have contributed to the ambiguous findings relating to self-esteem. In addition, when appraising the findings regarding defensive egotism and bullying, it should be noted that this variable comprised only 3 items and is in actuality, narcissism-like. It may be that, had narcissism been more clearly operationalised and a standardised narcissism measure such as the Narcissistic Personality Inventory (NPI, Raskin & Hall, 1981) been employed, the findings may have been less ambiguous.

Interestingly, the researchers clustered individuals according to patterns of self-esteem, bullying roles, and defensive egotism. From this, they discovered that those who exhibited very high defensive egotism and above-average global personal self-esteem scores (so-called *defensive self-esteem*) were more likely to participate in bullying situations. Nonetheless, other than the descriptive term "slightly above average" (p. 1273), there is no clear indication of how far above average self-esteem levels were for individuals in this cluster.

Despite the apparent shortcomings of this and other associated research, these findings point to the relevance of both self-esteem and narcissism in accounting for adolescent bullying. One aim of the present study was to take such research a step further by improving the operationalisation and measurement of narcissism and self-esteem.

1.9 Drawing Together Self-Esteem, Narcissism, and Aggression and Bullying

This chapter has brought together a number of what may appear at first glance to be quite disparate fields of study, showing that adolescent aggression and bullying, self-presentational styles (narcissism), and personal and collective self-esteem may be interconnected. Of these constructs, narcissism (per se) and collective self-esteem have not been considered in previous bullying research. This study aimed to redress this empirical gap and in the process further examine the relationship between self-esteem and bullying.

First, research has indicated that narcissism and personal self-esteem appear to be linked with aggression (Baumeister et al., 1996). A study by Salmivalli et al. (1999) found no relation between personal self-esteem and bullying, although the investigators admitted that the use of a shortened measure of self-esteem was a limiting factor. A low positive correlation was found between bullying behaviour in boys and defensive egotism (a narcissism-like variable). After cluster analyses, Salmivalli et al. also found an association between bullying and “defensive self-esteem” (high global self-esteem and high defensive egotism). These findings are, however, inconclusive given the study’s limitations related to the measurement of self-esteem and narcissism. Consequently, the first aim of the current study was to re-examine the link between narcissism, personal self-esteem, and bullying through improved measurement. To that end, the full version of the Rosenberg Self-Esteem scale (RSE, Rosenberg, 1979) and the Narcissistic Personality Inventory (NPI, Raskin & Hall, 1981), both well-validated measures, were employed in the present research. Building upon the work of Salmivalli et al. (1999), the pilot study therefore predicted that individuals with high levels of narcissism combined with high levels of personal self-esteem would exhibit more bullying behaviour than

individuals with high levels on only one variable, or low levels on both narcissism and personal self-esteem (Hypothesis 11).

Second, as bullying is a group-level behaviour (e.g., O'Connell et al., 1999) and as peer group membership contributes to adolescent self-esteem (Tarrant et al., 2001), it is plausible that collective self-esteem (esteem derived from peer group membership in this case) may contribute to the account of bullying behaviour. This may be the case particularly when collective self-esteem is paired with high narcissism. To explore this possibility, the current study employed the well-validated Collective Self-Esteem scale (CSE, Luhtanen & Crocker, 1992), predicting that individuals with high levels of narcissism combined with high levels of collective self-esteem would exhibit more bullying behaviour than individuals with high levels on only one variable, or low levels on both narcissism and collective self-esteem (Hypothesis 12). Figure 1.2 below graphically portrays Hypotheses 11 and 12 and the predicted interactions of self-esteem and narcissism on bullying behaviour.

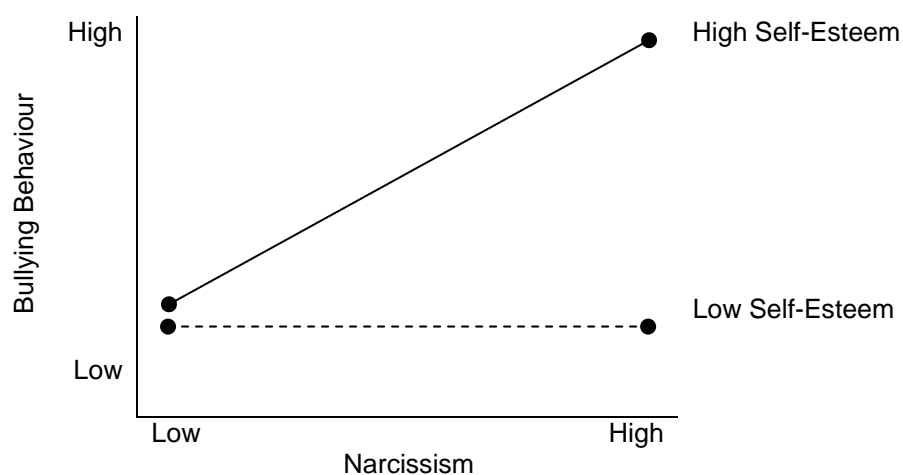


Figure 1.2. Illustration of predicted interactions between narcissism and self-esteem for bullying behaviour.

Further, this study provided an opportunity to examine whether collective self-esteem contributes to the explanation of bullying behaviour over and above the contribution afforded by global personal self-esteem alone. Following social identity theory (Tajfel & Turner, 1986) it is posited that bullying is an example of group-level behaviour. Therefore, bullying should show a stronger relationship with a group-based self-esteem measure than with a personal self-esteem measure. To explore this possibility, the present study measured both collective and personal self-esteem, hypothesising that overall, collective self-esteem would be a stronger predictor of bullying behaviour than would global personal self-esteem (Hypothesis 13).

Finally, although bullying is a social behaviour (Lagerspetz et al., 1982), it can take different forms such as physical, verbal, or indirect aggressive behaviours (e.g., Björkqvist, Lagerspetz, & Kaukiainen, 1992). Therefore, in addition to examining the manner in which collective self-esteem might contribute to the explanation of bullying behaviour, it is of interest to examine whether high levels of collective self-esteem are differentially associated with the different types of bullying. In comparing the different types of bullying behaviours, it could be argued that indirect bullying (e.g., exclusion) is more qualitatively social in nature than physical bullying behaviours such as pushing or hitting. Keeping with Björkqvist, Österman et al.'s (1992) definition, indirect bullying is characterised by social manipulation and adolescent peer groups can provide the necessary social context for such manipulation to be effective (Lagerspetz et al., 1982). As indirect bullying can be seen to be characterised by more “social” behaviours than physical bullying (Underwood et al., 2001), it is fair to conclude that this difference may become apparent if a specific and “socially”-based measure of self-esteem is employed. It follows, therefore, that collective self-esteem derived from peer group membership

may differentially relate to indirect and physical bullying behaviours. Given that indirect aggression comprises more social or group-level behaviours than physical aggression, it was predicted that collective self-esteem would exhibit a stronger positive relationship with indirect bullying than with physical bullying (Hypothesis 14).

Given the number of variables and hypotheses and the complexity of the relationships being explored, it was clear that running an initial small-scale study was warranted. This also allowed piloting of the measures to assess modifications to, and the readability of, scale items and to assess the survey procedure. A summary of hypotheses is presented below ahead of the next major section of this thesis, Chapter 2, which details the pilot study and its results.

1.10 Summary of Hypotheses

Employing a sample of adolescent school students, it was expected that the following would emerge from the pilot study:

1. That boys would report significantly higher mean scores of physical bullying and of physical victimisation than girls (Hypotheses 1 & 1a, respectively).
2. That boys would report significantly higher mean scores of verbal bullying and of verbal victimisation than girls (Hypotheses 2 & 2a, respectively).
3. That girls would report significantly higher mean scores of indirect bullying and of indirect victimisation than boys (Hypotheses 3 & 3a, respectively).
4. That there would be a significant negative correlation between physical bullying and age (Hypothesis 4), and between physical victimisation and age (Hypothesis 4a).
5. That there would be no significant relationship between verbal bullying and age (Hypothesis 5), or between verbal victimisation and age (Hypothesis 5a).

6. That there would be a significant positive correlation between indirect bullying and age (Hypothesis 6), and between indirect victimisation and age (Hypothesis 6a).
7. That there would be a significant negative correlation between global personal self-esteem and victimisation (Hypothesis 7).
8. That there would be a significant positive correlation between global personal self-esteem and bullying (Hypothesis 8).
9. That there would be a significant negative correlation between collective self-esteem and victimisation (Hypothesis 9).
10. That there would be a significant positive correlation between collective self-esteem and bullying (Hypothesis 10).
11. That adolescents with high levels of narcissism combined with high levels of personal self-esteem will report significantly higher levels of bullying behaviour than individuals with high levels on only one variable, or low levels on both narcissism and personal self-esteem (Hypothesis 11). (See Figure 1.2).
12. That adolescents with high levels of narcissism combined with high levels of collective self-esteem will report significantly higher levels of bullying behaviour than individuals with high levels on only one variable, or low levels on both narcissism and collective self-esteem (Hypothesis 12). (See Figure 1.2).
13. That collective self-esteem will have a stronger correlation with bullying behaviour than will global personal self-esteem in adolescent students (Hypothesis 13).
14. That collective self-esteem will exhibit a stronger correlation with indirect bullying than with physical bullying in adolescent students (Hypothesis 14).

CHAPTER 2

Pilot Study

2.1 Method

2.1.1 Design

The pilot study was correlational in design employing a pen-and-paper self-report survey. Within the survey, six separate instruments measured the four independent variables personal self-esteem, collective self-esteem, narcissism, and impression management, and the criterion variables bullying and victimisation.

There are a number of methodological considerations, beginning with issues surrounding the consent procedures and the form of survey (i.e., self-report) employed in the present study that require consideration. Foremost, Australian research ethics committees (see National Health and Medical Research Council, 1999) typically require that full written active consent be gained from all participants, including parents or guardians in the case of research involving children. For example, the Ethical Guidelines for Social and Behavioural Research as set down by the Social and Behavioural Research Ethics Committee of Flinders University (2003) state that consent to a child's or young person's participation in research must be obtained from the parent or guardian, as well as from the individual child. This requires that a consent form that clearly states that recipients are willing to participate be signed and returned to the researcher (i.e., an opt-in process). Unfortunately, this procedure typically results in much lower response rates than are often reported in studies where opt-out consent procedures are used (e.g., 100% in Baldry, 2004). In the case of research with school children, the opt-out process requires that parents or guardians must sign and return a form if consent is not given for their children to participate, rather than the need to take active measures to grant permission associated with the opt-in procedure. This issue is apparent in the section below that presents response rates for the pilot study (see section 2.2.1, p. 83).

The choice of self-report rather than another method of collecting survey data requires some explanation. For example, Björkqvist, Österman et al. (1992) assert that peer nomination techniques provide more accurate information regarding aggression between peers, as individuals may be reluctant to admit to (or have difficulty recognising, for that matter) acting in an aggressive manner, particularly with relation to indirect aggression. First, including a measure of socially desirable responding in a self-report survey will help determine the extent to which participants are unwilling to admit to aggression as a result of this response bias (Paulhus, 1991), and the present study included such a measure for that reason (see section 2.1.3, p. 58). The second problem of whether or not an individual recognises (within a questionnaire) that an action is aggressive or bullying can be minimised by presenting items that describe specific measurable (to an extent) behaviours, a characteristic of the bully and victim measures employed in the present study (see section 2.1.3, p. 58).

Moreover, alternative methods to self-report are not without their own concerns. For example, results of studies of school aggression and victimisation using teacher or older-peer nominations exhibit the influence of gender stereotypes of girls as being “catty” and of boys as being more physically aggressive (see Underwood et al., 2001). In addition, Solberg and Olweus (2003) argue that self-report sources are better suited (with Smith et al., 1999, drawing a similar conclusion) when it comes to estimating bullying prevalence rates as the procedures typically used to determine cutoff points are complex, difficult to reproduce, and somewhat arbitrary. With regard to direct observational techniques, such methods are typically expensive (Pellegrini & Bartini, 2000) and prohibitively so given the limited funding available for the present research programme.

Finally, many Australian research ethics committees, including Flinders University's, are generally loath to approve research methods that require the naming of peers (e.g., Björkqvist, Lagerspetz, & Kaukiainen, 1992). Therefore, while not diminishing the contribution that other forms of data collection can make and notwithstanding the fact that current Australian ethical guidelines limit the use of peer nomination/report methods, self-report was considered the most appropriate method to employ in the present study.

2.1.2 Participants

Participants were drawn (see section 2.1.4, p. 80, for details of the recruitment process) from the Middle School (Years 7-9) of Welsh College, an upper-middle class independent coeducational primary/secondary school in suburban Adelaide, South Australia. Welsh College is a pseudonym to prevent the identification of individual schools or participants. Although the target sample for the study as a whole was Years 8 through 10, Welsh College Middle School provided an opportunity to pilot the questionnaire battery with a younger cohort of students as an indicator of the readability of the individual scale items and of the demands placed upon students while completing the survey. The 112 participants came from three Year 7 classes, four Year 8, and five Year 9, giving a total of 12 classes. The sample comprised 62 girls (55.37%) and 50 boys (44.63%), with Table 2.1 presenting more detailed descriptive statistics for participating students.

Table 2.1

Welsh College Descriptive Statistics Showing Age (Years), by Gender and Year Level

		<i>n</i>	<i>M</i>	<i>SD</i>	Range
Girls	Year 7	15	12.47	0.52	12-13
	Year 8	17	13.53	0.52	13-14
	Year 9	30	14.53	0.51	14-15
	Total	62	13.76	0.99	12-15
Boys	Year 7	11	12.46	0.52	12-13
	Year 8	8	13.63	0.74	13-15
	Year 9	31	14.58	0.62	13-16
	Total	50	13.96	1.07	12-16
Total	Year 7	26	12.46	0.51	12-13
	Year 8	25	13.56	0.58	13-15
	Year 9	61	14.56	0.56	13-16
	Total	112	13.85	1.02	12-16

2.1.3 Materials

All constructs were measured using pen-and-paper self-report questionnaires. Each of the six scales began on a separate page with its own preamble to introduce the scale (see Appendices for complete scales), resulting in a questionnaire battery comprising 13 pages in total including an instruction/cover sheet. The initial instructions to participants were presented on the first page of the survey and included an innocuous practice question in the style common to most survey items, as presented below (see also Appendix A, p. 308).

This questionnaire asks you to give your views about how you feel about yourself, your friendship groups and how students treat each other at this school.

Note that you are free to withdraw at any time or to decline to answer particular questions without disadvantage. As you are answering the questions, remember that the questionnaire is *totally anonymous*. We do not ask you to give your name and nobody will be able to find out who has answered each questionnaire. We ask you to please answer questions **honestly** and **carefully**. When you are finished, the researcher will collect your questionnaire and place it in a sealed envelope.

Most of the questions ask you to *circle* the answer that best describes how you feel.

Here is an example of the questions you will be asked:

We ask you to circle the number that **best** describes how **YOU** feel about the following statement.

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
I enjoy playing sport.	1	2	3	4	5

A person who feels that he or she really enjoys playing sport would circle **1**. Someone who enjoys playing sport just a little would circle **4**.

2.1.3.1 Demographic information.

To provide an overall description of the sample, the first page (Appendix A, p. 308) of the questionnaire battery asked participants to provide the following demographic information: year level, age in years, gender, and main language spoken at home. It was hoped that the information gained from the latter question would provide a variable for checking readability of the questionnaire (through missing value analysis) if students reported English as a second language, or whether it might be a factor in relationships between any of the variables under scrutiny. In the pilot study, two girls in Year 8 and one girl in Year 9 reported that English was not the main language spoken at home. However, this variable was not analysed due to unequal cell sizes and was considered too few cases in any event.

2.1.3.2 *Bullying and victimisation.*

The 24-item Direct and Indirect Aggression Scales (DIAS, Björkqvist, Lagerspetz, & Österman, 1992) measures three types of aggression: Physical (7 items; e.g., hits, kicks, trips), Verbal (5 items; e.g., yells at or argues, insults), and Indirect (12 items; e.g., ignores, tells bad or false stories). The DIAS has been employed in a number of countries including Finland, Poland, the United States (Österman et al., 1994), and Australia (Owens, 1996). Although originally a peer-estimated instrument, the DIAS is readily modified to produce self-report and victim versions of the scale and is suitable for administering to children above 10 years of age as a pen-and-paper test (Björkqvist & Österman, 1998).

Listed below are the DIAS peer-estimate scale items with their corresponding self-report items as used in the pilot study version of the bullying questionnaire. Note that the term “argues” was not included in the pilot study version of Item 3. Given that most definitions in the literature include an inherent power imbalance in favour of the bully (e.g., Olweus, 1999b, and see below), it was considered that “argues” might imply a power equality that contradicts this notion. Additionally, as the specific behaviour of yelling was retained in the question, it was considered that the removal of the expression “argues” would not detract from the item’s validity in terms of measuring bullying behaviour. Item 8, “gossips about the one he/she is angry with?” was not included in the pilot study version for two reasons. First, although gossip can be a negative behaviour, it is not necessarily so. For example, the Shorter Oxford English Dictionary (Onions, 1983, p. 873) defines gossip as “tattle ...; idle talk; trifling or groundless rumour”. Moreover, this definition illustrates that gossiping is also subject to gender stereotyping, defining a gossip as “a person, mostly a woman, who delights in idle talk” (p. 873).

Tholander (2003) stated that not only could gossip be considered as moralising and norm enforcing, but also informative, entertaining, and a useful remedial tool within adolescent relationships. Research by Duncan (2004) into girls' friendships and bullying also found that girls considered gossiping to be an important and pleasurable activity and that it took a number of forms. While gossip was used in a negative manner, it was also used as a positive way of building, maintaining, and repairing relationships. Therefore, although a preamble defining bullying was included in the questionnaire (discussed below) to minimise ambiguity, the uncertainty associated with the term gossip might have a confounding effect and suggests that Item 8 may lack some face validity. Second, the original DIAS Item 8 includes the phrase "the one he/she is angry with", but there is nothing in the literature to suggest that anger is necessarily a prerequisite or a corequisite for aggression or bullying behaviour in general (Owens & MacMullin, 1995), or harmful gossiping in particular. Given that Items 10 (telling bad or false stories about someone) and 14 (saying bad things behind someone's back) refer to specific negative actions that closely resemble harmful gossip, it was decided not to include Item 8 in the pilot study.

As stated above, because anger is not a prerequisite or a corequisite for aggression, the phrase "the person he/she is angry with" within Item 24 was not used in the pilot study version. It was considered that the validity of this item would be essentially unchanged with this phrase removed, as the indirect bullying behaviour of trying to get others to dislike someone was retained. Finally, to be compatible with the target sample of Australian adolescents, the word "pulls" in Item 23 was substituted with the word "grab", given that "pull" has sexual connotations in colloquial Australian idiom (e.g., male masturbation).

<i>DIAS peer-estimate (bully)</i>	<i>Pilot study self-report (bully)</i>
1. Hits the other one?	Hit another person.
2. Shuts the other one out of the group?	Shut another person out of the group.
3. Yells at or argues with the other one?	Yell at another person.
4. Becomes friends with another as a kind of revenge?	Become friends with another as a kind of revenge against someone.
5. Kicks the other one?	Kick another person.
6. Ignores the other one?	Ignore another person.
7. Insults the other one?	Insult another person.
8. Gossips about the one he/she is angry with?	<i>Not included.</i>
9. Trips the other one?	Trip another person.
10. Tells bad or false stories about the other one?	Tell bad or false stories about people.
11. Says he/she is going to hurt the other one?	Tell another person that you are going to hurt him/her.
12. Plans secretly to bother the other one?	Plan secretly to bother someone.
13. Shoves the other one?	Shove another person.
14. Says bad things behind the other one's back?	Say bad things behind someone's back.
15. Calls the other one names?	Call someone names.
16. Says to others "Let's not be with him/her!"?	Say to others "Let's not be with him/her!"
17. Takes things from the other one?	Take things from another person.
18. Tells the other one's secrets to a third person?	Tell someone's secrets to a third person.
19. Teases the other one?	Tease another person.
20. Writes small notes where the other one is criticized?	Write small notes criticising another person.
21. Pushes the other one down to the ground?	Push another person to the ground.

<i>DIAS peer-estimate (bully)</i>	<i>Pilot study self-report (bully)</i>
22. Criticizes the other one's hair or clothing?	Criticise another person's hair or clothing.
23. Pulls at the other one?	Grab at another person.
24. Tries to get others to dislike the person he/she is angry with?	Try to get others to dislike someone.

Through modifying the prefix to the target behaviour, the DIAS as used in the pilot study provided self-report measures of both bullying (e.g., *Say bad things behind someone's back*) and victimisation (e.g., *Have bad things said about you behind your back*). The original form of the DIAS requires responses to be made on a 5-point Likert-style scale, ranging from 0 (*Never*) to 4 (*Very often*). Consistent with previous similar research using the DIAS (Owens & MacMullin, 1995) and to maintain consistency with other scales employed in the present study and for ease of participant use, the response anchors were modified to 1 (*Never*) and 5 (*Very often*). Precise layout and wording can be seen in a sample portion of the questionnaire that is presented below.

In terms of defining bullying variables for participants, there is some contention in the literature as to which may be the most appropriate method such as, for example, using a general bullying definition and question, or describing a list of self-report behaviours to participants as bullying, or simply presenting specific behaviours without a bullying definition (e.g., Archer, 2004; Bosworth, Espelage, & Simon, 1999; Dulmus et al., 2004; Solberg & Olweus, 2003). This is due in part to a fear of data being affected by socially desirable response bias, an issue that is specifically addressed below. Nonetheless, given that the overall focus of the present study was upon bullying as a specific form of aggression, a preamble was added to the bullying and victimisation questionnaires which contained this simple brief

definition of bullying: “At times we act in certain bullying ways towards others. We call it bullying when someone deliberately says or does nasty things to another person who can not easily defend himself or herself.” (See text boxes below for complete bullying and victimisation questionnaire preambles.) It was anticipated that this definition would help participants to distinguish between bullying and what may otherwise be regarded as non-bullying aggression (e.g., a fight between individuals of equal strength) or what could be considered more playful behaviour, such as “good-natured” insults (Solberg & Olweus, 2003). The preamble wording, in highlighting the power imbalance inherent in bullying interactions, was based on Olweus’ (1999b) definition, one that is commonly used by researchers (see Smith et al., 2002).

Additionally, Galen and Underwood (1997) emphasised non-verbal behaviours such as negative body movements or facial expressions in their definition of *social aggression* (see also Paquette & Underwood, 1999). Consequently, and consistent with recent Australian research by Owens and colleagues (Owens et al., 2005), the item “give dirty looks or ‘daggers’ to someone” was included as a non-verbal indirect bullying behaviour. To give someone “daggers” or “death stares” are Australian colloquialisms for looking at someone in a hostile or menacing fashion. Also following on from Australian research by Owens et al. (2005), the item “make prank calls to another person’s home telephone” was included in the questionnaire, as previous research has indicated that contemporary adolescents use prank telephone calls as a form of indirect bullying (Owens et al., 2000a).

Furthermore, other specific and contemporary behaviours such as sending messages electronically via e-mail or mobile phone text messaging were included in the DIAS to explore the degree to which these more recent and widely accessible

media are employed as bullying tools (Owens et al., 2005). For example, the internet affords a high degree of anonymity to bullies (Ybarra & Mitchell, 2004), as do mobile phone text messages (although possibly to a lesser extent, given caller identification technology), clearly suggesting that such behaviours should be considered indirect forms of bullying. As to the prevalence of electronic bullying, research has found that online activity is widespread among adolescents with, for example, 84% of British 9- to 19-year-olds accessing the internet at least weekly. Of these regular users, 70% went online to send and receive emails and 55% to use instant messaging, with approximately one third of these users reporting receiving nasty messages or unwanted sexual comments via this medium (Livingstone & Bober, 2004). Recent research in the United Kingdom has also found that 14.9% of a large sample of adolescents ($N = 11,227$, 11-15 years old) reported receiving nasty or threatening text messages or emails (Noret & Rivers, 2006). Therefore, a measure of the degree to which this medium is used in bullying is a worthy inclusion in research such as the present study. Consequently, the item “send nasty electronic messages to others (e.g., emails or mobile phone text messages)” was included in the bullying and victimisation (“receive nasty electronic...”) questionnaires.

The following text boxes present the preamble, instructions, and first item for the bullying and victimisation scales, respectively. Complete versions of the instruments can be found in Appendices B and C (pp. 310 & 313).

Your answers to these questions are **confidential** and you will remain **anonymous**.

At times we act in certain bullying ways towards others. We call it bullying when someone deliberately says or does nasty things to another person who can not easily defend himself or herself.

We are interested in how often **YOU** behave in the following ways towards your classmates.

Answer the questions by circling the number which **BEST** describes **how often YOU** perform the following behaviours.

If you think it *Never* happens, circle **1**.

If you do it *Hardly ever* (e.g., perhaps once per term), circle **2**.

If you do it *Sometimes* (e.g., once or twice per month), circle **3**.

If it happens *Quite often* (e.g., once or twice per week), circle **4**.

If it happens *Very often* (e.g., almost every day), circle **5**.

Remember, your identity will remain unknown.

	Never	Hardly ever	Sometimes	Quite often	Very often
1. Hit another person.	1	2	3	4	5

Your answers to these questions are **confidential** and you will remain **anonymous**.

At times we are bullied by others. We say we are bullied when someone deliberately says or does nasty things to us when we can not easily defend ourselves.

We are interested in how often **CLASSMATES** behave in certain bullying ways towards you.

Answer the questions by circling the number which **BEST** describes **how often OTHERS** behave in the following ways **towards you**.

If you think it *Never* happens, circle **1**.

If it happens to you *Hardly ever* (e.g., perhaps once per term), circle **2**.

If it happens to you *Sometimes* (e.g., once or twice per month), circle **3**.

If it happens *Quite often* (e.g., once or twice per week), circle **4**.

If it happens *Very often* (e.g., almost every day), circle **5**.

Remember, your answers are confidential and anonymous.

	Never	Hardly ever	Sometimes	Quite often	Very often
1. Hit by another person.	1	2	3	4	5

Modification of wording and the introduction of additional items resulted in separate 26-item bully (Appendix B, p. 310) and victim (Appendix C, p. 313) self-report versions of the DIAS. Participants' scores were summed for each scale,

giving a possible range of between 26 and 130 for total bullying and total victimisation scores. In terms of previous reports of DIAS scale reliability, internal consistencies differ between scales and the type of aggression measured, with Österman et al. (1994) reporting varying subscale Cronbach's alpha coefficients for self-report aggression ($r = .60-.84$) and victim ($r = .73-.82$) versions of the DIAS. In the current study, reliability analyses of each 26-item scale found high coefficients for both the bully ($r = .94, N = 112$) and victim ($r = .95, N = 112$) scales, indicating that modifications made to the DIAS for the pilot study resulted in improved internal reliabilities compared with previous studies (Österman et al., 1994).

The conducting of confirmatory factor analyses was not an aim of the pilot study and, at the time of writing, there was only one published report of factor analyses of the self-report versions of the DIAS (also see the review by Collett, Ohan, & Myers, 2003). Toldos (2005) carried out a factor analysis of a Spanish self-report bullying version of the DIAS, distinguishing the three factors physical, verbal, and indirect aggression, which corresponded with initial analyses by the authors of the instrument (Björkqvist, Lagerspetz, & Österman, 1992). As the major hypotheses of the pilot study centred on physical, verbal, and indirect aggression, the subscales as determined by Björkqvist, Lagerspetz, and Österman were utilised in subsequent statistical analyses and hypothesis testing in the pilot study. Consequently, Table 2.2 outlines the three subscales of Physical (7 items summed to give a possible range 7-35), Verbal (5 items, range 5-25), and Indirect (14 items, range 14-70) bullying and victimisation. In terms of main study data, the study by Toldos did not include a self-report victim version of the DIAS, nor did it cite factor loadings for each item. For these reasons, and as little has been published in terms of factors within self-report versions of the DIAS, it was planned that confirmatory factor analyses would be conducted as a part of the main study.

Table 2.2
Pilot Study Bully and Victim Questionnaire Subscales

Physical	Verbal	Indirect
Item	Item	Item
1. hit	4. yell	2. prank phone call ^a
6. kick	8. insult	3. shut out of the group
9. trip	11. threaten to hurt	5. make friends with other as revenge
14. shove	16. call names	7. ignore
18. take things	20. tease	10. bad stories
22. push		12. nasty electronic messages ^a
24. grab		13. plan secretly to bother
		15. talk behind back
		17. say “let’s not be with...”
		19. tell secrets
		21. write criticising notes
		23. criticise clothes, hair
		25. dirty looks, daggers ^a
		26. get others to dislike

Note. ^aItems 2, 12, and 25 not in original version of the DIAS (Björkqvist, Lagerspetz, & Österman, 1992).

2.1.3.3 Personal self-esteem.

A general measure of global personal self-esteem, the Rosenberg Self-Esteem Scale (RSES, Rosenberg, 1979) was included to enable the drawing of comparisons and distinctions between the proposed study and other related research that has used similar measures (e.g., Rigby & Slee, 1993; Salmivalli et al., 1999). The 10-item RSES (Appendix D, p. 316) is a widely used, brief, and easily

administered unidimensional measure of personal global self-esteem with a reported alpha coefficient of .77 (Keith & Bracken, 1996). In the original form, respondents are asked to indicate to what extent they agree with the listed statements using a 4-point scale: Strongly Agree (*SA*), Agree (*A*), Disagree (*D*), and Strongly Disagree (*SD*). The response format was modified from the original to a 5-point Likert-type scale ranging from 1 (*Not at all like me*) to 5 (*Very much like me*), as this is less cumbersome than the original method of scaling (see Keith & Bracken, 1996) and produces similar scores (Rosenberg, 1979). The instructions to the personal self-esteem scale were based upon the original format (Rosenberg, 1979), stating: “We would like you to read each statement below and answer the questions by circling the number which **BEST** indicates how well each item describes **YOU**.”

After negatively worded items 2, 5, 6, 8, and 9 (marked with an asterisk below) were reverse scored, high scores represented high levels of personal self-esteem (possible total score range 10-50). The RSES in the pilot study produced an alpha coefficient of .87 ($N = 112$).

1. On the whole, I am satisfied with myself.
2. * At times I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. * I feel I do not have much to be proud of.
6. * I certainly feel useless at times.
7. I feel that I'm a person of worth, at least on an equal plane with others.
8. * I wish I could have more respect for myself.
9. * All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude towards myself.

2.1.3.4 Collective self-esteem.

Based on Tajfel and Turner's (1986) social identity theory, the 16-item Collective Self-Esteem Scale (CSES, Luhtanen & Crocker, 1992) is a measure of the self-esteem that individuals derive from their membership of social groups (i.e., global social self-esteem). With the CSES showing low to moderate correlations with Rosenberg's (1979) widely used global personal self-esteem scale, it is apparent that collective self-esteem is relatively distinct from (yet related to) personal self-esteem (Luhtanen & Crocker, 1992). Although initially designed to measure esteem derived from membership of ascribed groups (e.g., gender, race) rather than acquired (e.g., professional or interest-based) groups, the authors considered that collective self-esteem might generalise between these two types of groups. Furthermore, as Rubin and Hewstone (1998) stated, subsequent research has shown that altering the scale to address membership of an acquired or specific group did not detract from its psychometric strengths and proved useful in teasing out the different aspects of collective self esteem (e.g., Crocker, Luhtanen, Blaine, & Broadnax, 1994; Verkuyten, 1997). This is important given that the present study was concerned with how adolescents' social environment at school might be related to bullying and victimisation and that, therefore, the preamble to the collective self-esteem measure asked respondents to consider the questions in regard to their favourite group of friends at school. The following text box presents the preamble, instructions, and first item for the collective self-esteem scale, with a complete version of the instrument shown in Appendix E (p. 318).

We are all members of different social groups. We would like you to think about your favourite group of friends at school. We would then like you to think carefully about your membership of this particular favourite group of friends or classmates and then respond to the following statements.

We ask you to circle the number that **BEST** describes how **YOU** feel about this group and **YOUR** membership in it.

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
1. I am a worthy member of the group that I belong to.	1	2	3	4	5

Where necessary, individual items were reworded slightly to ensure they were grammatically correct in relation to the preamble, with original and modified items shown below. Participants were asked to respond to the 16 items using a 5-point Likert-type scale ranging from 1 (*Strongly agree*) to 5 (*Strongly disagree*). The negatively worded items 2, 4, 5, 7, 10, 12, 13, and 15 (marked with an asterisk below) were recoded, such that high scores (possible total score range 16-80) represented high levels of collective self-esteem. Luhtanen and Crocker (1992) determined that the instrument comprised four subscales (each with four items); however, as discussed above regarding the bully and victim scales, factor analysis was not considered appropriate in the pilot study. Accordingly, analyses of pilot study data were conducted using only fullscale scores. Luhtanen and Crocker (1992) reported total scale alpha coefficients of between .86 and .89, with the pilot study fullscale Cronbach's alpha reaching a comparable .80 ($N = 112$).

Original version

Pilot study version

- | | |
|--|---|
| 1. I am a worthy member of the social groups I belong to. | I am a worthy member of the group that I belong to. |
| 2. I often regret that I belong to some of the social groups I do. | * I often regret that I belong to this group. |
| 3. Overall, my social groups are considered good by others. | Overall, my group is considered good by others. |

*Original version**Pilot study version*

- | | |
|--|--|
| 4. Overall, my group memberships have very little to do with how I feel about myself. | * Overall, my group membership has very little to do with how I feel about myself. |
| 5. I feel I don't have much to offer the social groups I belong to. | * I feel I don't have much to offer the group I belong to. |
| 6. In general, I'm glad to be a member of the social groups I belong to. | In general, I'm glad to be a member of the group I belong to. |
| 7. Most people consider my social groups, on the average, to be more ineffective than other social groups. | * Most people consider my group, on the average, to be more ineffective than other groups. |
| 8. The social groups I belong to are an important reflection of who I am. | The group I belong to is an important reflection of who I am. |
| 9. I am a cooperative participant in the social groups I belong to. | I am a cooperative participant in the group I belong to. |
| 10. Overall, I often feel that the social groups of which I am a member are not worthwhile. | * Overall, I often feel that the group of which I am a member is not worthwhile. |
| 11. In general, others respect the social groups that I am a member of. | In general, others respect the group that I am a member of. |
| 12. The social groups I belong to are unimportant to my sense of what kind of a person I am. | * The group I belong to is unimportant to my sense of what kind of a person I am. |
| 13. I often feel I'm a useless member of my social groups. | * I often feel I'm a useless member of my group. |
| 14. I feel good about the social groups I belong to. | I feel good about the group I belong to. |
| 15. In general, others think that the social groups I am a member of are unworthy. | * In general, others think that the group I am a member of is unworthy. |
| 16. In general, belonging to my social groups is an important part of my self image. | In general, belonging to my group is an important part of my self image. |

2.1.3.5 Narcissism.

Originally a 54-item scale and derived from clinical diagnostic criteria for Narcissistic Personality Disorder (see American Psychiatric Association, 2000), the Narcissistic Personality Inventory (NPI, Raskin & Hall, 1981) measures individual differences in nonclinical narcissism and is the most widely used narcissism inventory (John & Robins, 1994). Following factor analysis and scale reduction by Raskin and Terry (1988), the commonly used 40-item NPI inventory has a forced-choice format and individuals with high scores generally report high global personal self-esteem and are self-confident; they appear to be aggressive, highly competitive, egotistical, socially manipulative, and lacking in empathy (Raskin & Novacek, 1989). Given that the NPI was designed in the United States to measure narcissism in adults, I consulted local teaching specialists (see section 2.1.4, p. 80) to ensure that a sample of 12- to 16-year-old Australian adolescents would have a clear understanding of all items within the NPI. As a consequence, there were a number of items that were modified slightly from the original instrument:

<i>Original version</i>	<i>Pilot study version</i>
2. A. Modesty doesn't become me.	Modesty doesn't suit me.
11. A. I am assertive.	I am confident.
11. B. I wish I were more assertive.	I wish I were more confident.
13. A. I find it easy to manipulate other people.	I find it easy to control other people.
13. B. I don't like it when I find myself manipulating people.	I don't like it when I find myself controlling people.
17. A. If I feel able, I am competent to take responsibility for making decisions.	If I feel able, I am willing to take responsibility for making decisions.
27. A. I have a strong will to power.	I have a strong desire to be in charge.
27. B. Power for it's own sake doesn't interest me.	Being in charge doesn't interest me.

The following text box presents the preamble, instructions, and first item for the narcissism scale, which were as per the original NPI scale (Raskin & Hall, 1981). A complete version of the instrument as used in the pilot study can be found in Appendix F (p. 321).

Instructions:

For each of the following pairs of attitudes, choose the one that you **MOST AGREE** with. Mark your answer by putting a circle around **EITHER** *A* or *B*.

Mark **ONLY ONE** answer for each attitude pair, and please **DO NOT** skip any items.

1. _____ A. I have a natural talent for influencing people.
B. I am not good at influencing people.

As is apparent from the above instructions, respondents were required to make a forced-choice response between a narcissistic and a non-narcissistic statement for each of the 40 items, with each narcissistic response (marked with an asterisk below) worth one point and summed to give a total narcissism score (possible range 0-40). All final narcissism items are listed below. Although the original 40-item NPI comprises seven subscales (Raskin & Terry, 1988), only fullscale scores were used in pilot study analyses for reasons discussed above. The fullscale alpha of .82 ($n = 112$) in the pilot study mirrors the coefficient of .83 cited by Raskin and Terry.

1. A.* I have a natural talent for influencing people.
B. I am not good at influencing people.
2. A.* Modesty doesn't suit me.
B. I am essentially a modest person.

3. A.* I would do almost anything on a dare.
B. I tend to be a fairly cautious person.
4. A. When people compliment me I sometimes get embarrassed.
B.* I know that I am good because everybody keeps telling me so.
5. A. The thought of ruling the world frightens the hell out of me.
B.* If I ruled the world it would be a better place.
6. A.* I can usually talk my way out of anything.
B. I try to accept the consequences of my behaviour.
7. A. I prefer to blend in with the crowd.
B.* I like to be the centre of attention.
8. A.* I will be a success.
B. I am not too concerned about success.
9. A. I am no better or no worse than other people.
B.* I think I am a special person.
10. A. I am not sure if I would make a good leader.
B.* I see myself as a good leader.
11. A.* I am confident.
B. I wish I were more confident.
12. A.* I like having authority over other people.
B. I don't mind following orders.
13. A.* I find it easy to control other people.
B. I don't like it when I find myself controlling people.
14. A.* I insist upon getting the respect that is due to me.
B. I usually get the respect that I deserve.
15. A. I don't particularly like to show off my body.
B.* I like to show off my body.
16. A.* I can read people like a book.
B. People are sometimes hard to understand.
17. A. If I feel able, I am willing to take responsibility for making decisions.
B.* I like to take responsibility for making decisions.
18. A. I just want to be reasonably happy.
B.* I want to amount to something in the eyes of the world.
19. A. My body is nothing special.
B.* I like to look at my body.

20. A. I try not to be a show-off.
B.* I will usually show off if I get the chance.
21. A.* I always know what I am doing.
B. Sometimes I am not sure of what I am doing.
22. A. I sometimes depend on people to get things done.
B.* I rarely depend on anyone else to get things done.
23. A. Sometimes I tell good stories.
B.* Everybody likes to hear my stories.
24. A.* I expect a great deal from other people.
B. I like to do things for other people.
25. A.* I will never be satisfied until I get all that I deserve.
B. I am content with my satisfactions as they come.
26. A. Compliments embarrass me.
B.* I like to be complimented.
27. A.* I have a strong desire to be in charge.
B. Being in charge doesn't interest me.
28. A. I don't care about new fads and fashions.
B.* I like to start new fads and fashions.
29. A.* I like to look at myself in the mirror.
B. I am not particularly interested in looking at myself in the mirror.
30. A.* I really like to be the centre of attention.
B. It makes me uncomfortable to be the centre of attention.
31. A.* I can live my life in any way I want to.
B. People can't always live their lives in terms of what they want.
32. A. Being an authority doesn't mean that much to me.
B.* People always seem to recognise my authority.
33. A.* I would prefer to be a leader.
B. It makes little difference to me whether I am a leader or not.
34. A.* I am going to be a great person.
B. I hope I am going to be successful.
35. A. People sometimes believe what I tell them.
B.* I can make anyone believe anything I want them to.
36. A.* I am a born leader.
B. Leadership is a quality that takes a long time to develop.

37. A.* I wish someone would some day write my biography.
B. I don't like people to pry into my life for any reason.
38. A.* I get upset when people don't notice how I look when I go out in public.
B. I don't mind blending into the crowd when I go out in public.
39. A.* I am more capable than other people.
B. There is a lot that I can learn from other people.
40. A. I am much like everybody else.
B.* I am an extraordinary person.

2.1.3.6 *Socially desirable responding.*

Given that socially desirable responding by participants may be problematic in terms of self-reports of aggressive and other behaviours (e.g., Björkqvist, Österman et al., 1992; Österman et al., 1994), it is clearly a variable of interest in the present context. Furthermore, in combination with the self-presentational styles typically associated with narcissism (Baumeister et al., 1989), it was considered that socially desirable responding might prove to be a variable worthy of precise measurement in its own right. In any event, the measurement of this bias also allowed for the statistical controlling of biased response data through later factor or covariate analyses, which coincides with the fact that major personality batteries typically include a socially desirable responding scale (often referred to as “lie scales”) to detect such response distortions (Paulhus, 1991).

In his review, Paulhus (1991, p. 21) asserts that there are two primary factors evident in measures of socially desirable responding, defining these factors as: “(a) self-deceptive positivity (an honest but overly positive self-presentation) and (b) impression management (self-presentation tailored to an audience)”. Measurement of impression management, the tailoring of answers to create a positive image, will thereby provide some control of socially desirable response patterns (Paulhus, 1998). On the other hand, given that self-deceptive enhancement has been found to

correlate weakly with impression management and strongly with narcissism (Raskin, Novacek, & Hogan, 1991; Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004), a construct already measured in the present study with the Narcissistic Personality Inventory, it was decided that measuring the self-deceptive enhancement component of socially desirable responding was duplicative and unnecessary. Therefore, although Paulhus' (1991) 40-item scale, the Balanced Inventory of Desirable Responding (BIDR), comprises the two factors Self-Deceptive Enhancement and Impression Management (each 20 items), only the latter subscale was used in the present study.

As a subscale, the 20-item Impression Management scale requires participants to respond to each item with a Likert-style format ranging from 1 (*Not true*) to 7 (*Very true*). Paulhus (1991) recommended a dichotomous scoring procedure whereby, following reversing of negatively keyed items, one point is awarded for each extreme (6 or 7) response, resulting in a total score range of 0 to 20. The rationale put forward for using this procedure is that it guarantees that only those respondents who give exaggerated socially desirable responses will exhibit high scores. However, Tabachnick and Fidell (2001) state that dichotomising data will result in a loss of information and recommend that a continuous scoring procedure is preferable. Research findings comparing continuous and dichotomous scoring of the BIDR gives some weight to that argument (Stöber, Dette, & Musch, 2002). These studies found that continuous scoring (i.e., Impression Management score range 20-140) produced higher Cronbach's alphas and higher convergent correlations with other social desirability measures. Furthermore, counting only extreme answers may disregard those respondents who, although they may have a tendency to respond in a socially desirable way, avoid giving extreme answers (Stöber et al., 2002). Taking the above into account, it was decided that a continuous

scoring procedure would be used in the present study whereby responses on the 1 to 7 Likert scale were summed to produce a total impression management score for each participant.

The preamble, instructions, and first item for the impression management scale are shown in the following text box. A complete version of the instrument as used in the pilot study can be found in Appendix G (p. 325).

<p>Your answers to these questions are confidential and you will remain anonymous. We are interested in how YOU feel about the following statements. We would like you to read the statements below and answer the questions by circling the number which BEST describes how much you agree with each statement. Remember, your identity will remain unknown.</p>								
		Not true			Somewhat true			Very true
1.	I sometimes tell lies if I have to.	1	2	3	4	5	6	7

Given that this inventory was designed for adult respondents and that adolescents were the target population of the present study, items 10, 13, and 14 (marked in bold below) were considered inappropriate and were removed, resulting in a final 17-item scale (Appendix G, p. 325). Following recoding of the negatively worded items 1, 3, 5, 7, 9, 11, 15, 17, and 19 (marked with an asterisk below), high scores represented high levels of socially desirable responding, with a possible total score ranging from between 17 and 119. With a reported alpha coefficient of .86 (Paulhus, 1991), the pilot study alpha coefficient of .80 ($N = 112$) was considered acceptable.

1. * I sometimes tell lies if I have to.
2. I never cover up my mistakes.
3. * There have been occasions when I have taken advantage of someone.
4. I never swear.

5. * I sometimes try to get even rather than forgive and forget.
6. I always obey laws, even if I'm unlikely to get caught.
7. * I have said something bad about a friend behind his or her back.
8. When I hear people talking privately, I avoid listening.
9. * I have received too much change from a salesperson without telling him or her.
10. **I always declare everything at customs.**
11. * When I was younger I sometimes stole things.
12. I have never dropped litter on the street.
13. * **I sometimes drive faster than the speed limit.**
14. **I never read sexy books or magazines.**
15. * I have done things that I don't tell other people about.
16. I never take things that don't belong to me.
17. * I have taken sick-leave from school even though I wasn't really sick.
18. I have never damaged a library book or store goods without reporting it.
19. * I have some pretty awful habits.
20. I don't gossip about other people's business.

2.1.4 Procedure

Prior to commencement of the study, ethics approval was gained from the Flinders University Social and Behavioural Research Ethics Committee and the South Australian Department of Education and Children's Services Research Unit. In the development phase during which the various instruments were designed or modified to suit the intended sample, draft versions of the questionnaire were evaluated by a number of specialists in education, teaching, and educational research. In addition, final draft versions of the questionnaire were shown to a small number of adolescents known to the researcher as a means of gaining an initial

evaluation of the survey's readability and of the likely time required for completion. These trial questionnaires were not subsequently used for any other purpose and were destroyed.

In an effort to minimise systematic error arising from order of presentation, scales were presented within the battery in a random order based on a Latin squares design. Following Winer (1971), each scale was randomly assigned a number between 1 and 6 (1 = Impression Management, 2 = Personal Self-Esteem, 3 = Personal Self-Esteem, 4 = Narcissism, 5 = Victim, 6 = Bully) to determine the starting order from which the sequence would be rotated. The first row of the square was generated using the rule: 1, 2, N, 3, N - 1, 4, N - 2, 5, N - 3, 6, N - 4, ..., where N represents the number of scales (Shaughnessy & Zechmeister, 1994, p. 227). Given that there were six scales in the present case (i.e., N = 6), this resulted in a first row of 1, 2, 6, 3, 5, and 4. Adding 1 to each number (with N + 1 = 1) gave a second row 2, 3, 1, 4, 6, 5; then adding 1 to the second row gave 3, 4, 2, 5, 1, 6; and so forth, producing the first matrix of 6 different versions of the questionnaire battery:

1	2	6	3	5	4
2	3	1	4	6	5
3	4	2	5	1	6
4	5	3	6	2	1
5	6	4	1	3	2
6	1	5	2	4	3

The second matrix was generated by moving column 2 to the first position, column 3 to the second, and so forth, resulting in the following matrix:

2	6	3	5	4	1
3	1	4	6	5	2
4	2	5	1	6	3
5	3	6	2	1	4
6	4	1	3	2	5
1	5	2	4	3	6

Subsequent matrices were generated in the same manner, with 6 final matrices in total producing 36 ($6 \times 6 = 36$) different versions of the questionnaire battery. Although a 6 X 6 Latin square has 9408 standard forms (i.e., 6 factorial, Winer, 1971), 36 was considered an acceptable number of different forms in terms of counterbalancing and minimising order effects, while also taking into account the practicalities associated with printing and collating surveys.

An initial meeting with the Student Counsellor and Head of the Middle School was arranged at which a letter introducing the researcher (Appendix H, p. 328) was presented. The researcher then outlined the study and its objectives, after which it was collaboratively decided how to best implement the research process. Consequently, the participant Information Sheet (Appendix I, p. 330) and Consent Form (Appendix J, p. 332) were later distributed by Middle School teachers to all students to take home to their parents or guardians. Completed consent forms signed by participating students and their parent or guardian were returned to teachers for collection and collation by the counsellor, who then coordinated with teachers to arrange suitable class times for the survey to be administered. A schedule was then drawn up allowing the researcher to collect data over a two-week period throughout November and December of 2003, during weeks 38 and 39 (approaching the end) of the school year. Note that the decision to conduct the survey during the latter part of the school year was taken with previous research in mind, such that peer groups tend to be more stable later in the year. This greater stability follows a period of fluctuation commonly seen during the early part of the school year as classes and social groupings are reconfigured (e.g., Adler & Adler, 1995).

During the scheduled lesson, the researcher and class teacher distributed surveys to consenting students. Following this, the researcher outlined what was required of participants, taking them through the instruction/cover sheet attached to

each survey, which included a neutral practice question (see Appendix A, p. 308). Students were told to ask the researcher for assistance at any time if they experienced difficulties with the questionnaire; no participant did so. The researcher also reinforced the anonymity of the process and students' right to decline or cease participation at any time. Participants were told of the importance of truthful responses and that they were to answer the questions without conferring or copying. The class teacher, who remained in the classroom during data collection, gave those students who had declined to participate other quiet activities. Completed surveys were collected by the researcher and sealed in unmarked envelopes; the classroom survey process took on average approximately 35 minutes. Neither the school nor any individuals received any remuneration for their participation in the study.

2.2 Results

The results of the pilot study are reported in three sections. First, response rates, data screening and transformation are described. The second section presents preliminary analyses, showing descriptive statistics and correlation matrices, while also exploring possible confounding relationships between variables. The final section describes the methods used and the subsequent results of analyses to test each of the hypotheses. All data from the pilot study were analysed using SPSS version 11.5 (SPSS Inc., 2003).

2.2.1 Response Rates

Table 2.3 presents response rates for the pilot study at Welsh College. However, to ensure privacy and anonymity, the researcher did not have access to individual students' details, which proved problematic in determining precise consent and response rates. For example, it was not possible to gain information

indicating whether it was the individual student who had declined participation, or their parent or guardian. Furthermore, it was not possible to determine the reasons why consent forms were not returned by students, nor the characteristics of these students. It also proved impractical to determine to what extent participant response rates were affected by student absences on the day of data collection. Therefore, cited response rates are only approximations, presented as a ratio of the number of consent forms distributed to classes, to the number of completed surveys returned. Given the above factors, it was considered unlikely that any meaningful information would be gained from in-depth analyses of response rate patterns. Nevertheless, a chi-square test for independence was undertaken, with the result showing a significant difference in response rates by year level, $\chi^2(2) = 30.22, p < .001$. This is reflected in the Year 9 response rate greatly exceeding those of Years 7 and 8, as can be seen in Table 2.3 below.

Table 2.3
Pilot Study Approximate Response Rates, by Year Level

School	Year 7	Year 8	Year 9	Total
Welsh				
Consent forms distributed	69	92	92	253
Completed surveys returned	26	25	61	112
Response rate (%)	37.68	27.17	66.30	44.27

2.2.2 Data Screening and Transformation

Verbal victimisation and physical, verbal, indirect, and total bullying variables exhibited distributions considered to violate normality assumptions (Tabachnick & Fidell, 2001). However, as normality violations were not severe and as transformations did not markedly improve distributions, further transformation of

data was considered unwarranted. Furthermore, that positive skewness was evident for these variables (Kolmogorov-Smirnov z s = 1.39 to 1.75, p s < .05) was not surprising, as one would expect aggressive behaviours to cluster around the lower range of scores (e.g., Owens et al., 2005). All other variables exhibited normal distributions and no significantly non-normal kurtosis patterns were evident for any variable.

2.2.2.1 *Missing value analyses.*

A missing value analysis was carried out for all fullscale variables and, as can be seen in Table 2.4, the total victimisation and narcissism variables had greater than 5% of their data points missing. Given that different combinations of variables would result in even further data loss during multivariate analyses as a result of pairwise or listwise case deletion in SPSS, missing data was clearly an issue. Furthermore, these simple case-deletion procedures may bias results if the respondents who provide complete data are not actually representative of the total sample (Schafer & Olsen, 1998). Therefore, dealing with missing observations by the deletion of cases requires that the data be missing at random (Croy & Novins, 2005; Schafer & Olsen, 1998).

Analyses of the main variables listed in Table 2.4 showed Little's Missing Completely At Random (MCAR) test to be not significant, $\chi^2(153) = 43.05$, $p = 1.00$. Further, none of the separate variance t tests for any variables reached significance, indicating that variables did not differ as a product of missing data. These results indicated that values were missing randomly, suggesting that the listwise deletion of cases might be a suitable strategy (Croy & Novins, 2005). However, given the relatively small sample size and subsequent need to retain cases

for analyses, it was decided that the replacement of missing values was an appropriate strategy.

Table 2.4

Pilot Study Missing Value Statistics for all Variables (N = 112)

Variable	Cases missing	%
Bully physical	2	1.8
Bully verbal	2	1.8
Bully indirect	4	3.6
Bully total	4	3.6
Victim physical	2	1.8
Victim verbal	2	1.8
Victim indirect	4	3.6
Victim total	8	7.1
Personal self-esteem	4	1.8
Collective self-esteem	2	3.6
Narcissism	10	8.9
Impression management	4	3.6

Following the recommendations of Tabachnick and Fidell (2001), the expectation maximisation method available within SPSS was used as it is a simple and reasonable approach to the imputing of missing data. This method produces realistic variance estimates and avoids the problems of solution overfitting (i.e., the solution looks better than it actually is) and impossible matrices (Tabachnick & Fidell, 2001). Table 2.5 shows descriptive statistics for all variables before and after the replacement of missing values. All subsequent analyses of pilot study data were

carried out with the full data set complete with imputed values; however, it should be noted that *ns* varied between specific analyses below as a result of univariate and multivariate outlier identification and removal for each analysis.

Table 2.5

Pilot Study Means, Standard Deviations, Minimum, and Maximum for all Variables Before and After Missing Value Replacement

	Before			After (<i>N</i> = 112)			
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	Min	Max
Bully physical	110	12.10	5.31	12.12	5.27	7	30
Bully verbal	110	10.78	4.41	10.79	4.38	5	25
Bully indirect	108	23.33	7.06	23.42	6.98	14	46
Bully total	108	46.29	14.97	46.33	14.73	28	94
Victim physical	110	12.98	5.18	12.95	5.14	7	29
Victim verbal	110	12.16	4.56	12.15	4.53	5	23
Victim indirect	108	26.67	9.77	26.63	9.63	14	57
Victim total	104	51.16	17.52	51.73	17.20	26	101
Personal SE	110	36.63	7.71	36.57	7.65	17	50
Collective SE	108	38.21	8.00	38.21	7.87	19	64
IM	108	67.94	15.72	67.83	15.51	22	114
Narcissism	102	14.52	6.72	14.67	6.55	2	35

Note. SE = Self-Esteem; IM = Impression Management.

2.2.2.2 Univariate and multivariate outliers.

An initial search for univariate outliers found that four cases from two participants had standardised scores that exceeded the maximum value of 3.29 recommended by Tabachnick and Fidell (2001). Analysis of multivariate outliers found five participants presenting with recurring cases with Mahalanobis distances

exceeding the relevant critical χ^2 value ($p < .001$, see Tabachnick & Fidell, 2001). These cases included the two participants repeatedly showing as univariate outliers. Although the small number of outliers precluded any statistical analyses of the characteristics of the outliers, they are worthy of some comment and suggest that an in-depth exploration of outliers following the main study may be warranted. A perusal of individual cases found, for example, that the five cases were all female. However, that was the only pattern that became apparent, as each of these participants completed the survey at different times, with three students from Year 8 and two from Year 9. Nevertheless, scores from these five participants were not included in any subsequent statistical analyses in which they were identified as outliers.

2.2.3 *Preliminary Analyses*

As a means of showing an overall pattern of relationships, Table 2.6 displays the correlation matrix for all variables and Table 2.7 shows the same correlations split by gender, with girls' correlations in the upper right section of the matrix. Given the large number of correlations and the attendant risk of Type 1 error, significance values are somewhat redundant and are therefore not presented (Wilkinson & Task Force on Statistical Inference, 1999). It can be seen that impression management features often in the correlation matrices in Tables 2.6 and 2.7, with relatively large negative correlations with all forms of bullying evident. Although no hypotheses were made in terms of this variable and, hence, no specific analyses conducted, it is clearly an important factor and is considered in some detail in the Discussion section below (see section 2.3, p. 109).

Also of note, and somewhat surprising given the developmental factors associated with many of these variables, is that age did not correlate significantly

with any variable other than impression management in the full sample and in girls. Specific age-related predictions are addressed in the hypotheses testing section below (see 2.3.1, p. 110). There are other patterns of correlations that, although not hypothesised or analysed, may warrant further exploration in the main study. These patterns, as can be seen in Table 2.7, suggest gender differences in the manner in which self-esteem, bullying, and victimisation correlate. For example, girls show no significant correlations between bullying and either personal or collective self-esteem, yet boys show significant negative correlations between bullying and personal self-esteem and significant positive correlations between bullying and collective self-esteem. Additionally, different and almost opposite patterns are evident for victimisation. Testing of specific gender-related hypotheses is outlined below.

2.2.4 Hypothesis Testing

It is important to note that, although specific hypotheses were argued and presented in Chapter 1, the hypothesis testing as described below was preliminary and, to some extent, exploratory in nature. Furthermore, given that these results arose from a relatively small pilot study, whether a specific hypothesis was not supported at this stage did not preclude it from further examination in the main study.

Table 2.6

Pilot Study Intercorrelations Between all Variables (n = 107)

	Bully physical	Bully verbal	Bully indirect	Bully total	Victim physical	Victim verbal	Victim indirect	Victim total	PSE	CSE	IM	NPI
Age	.03	-.01	-.02	.00	-.10	-.14	-.17	-.16	-.13	.14	-.23	-.06
Bully physical	–	.81	.52	.86	.49	.32	.03	.25	-.05	.28	-.51	.15
Bully verbal		–	.68	.92	.48	.51	.25	.42	-.05	.24	-.53	.16
Bully indirect			–	.86	.33	.36	.43	.44	-.31	.27	-.56	.20
Bully total				–	.48	.44	.29	.42	-.18	.30	-.61	.20
Victim physical					–	.76	.54	.80	-.12	-.28	-.10	-.10
Victim verbal						–	.77	.92	-.24	.25	-.22	.03
Victim indirect							–	.92	-.37	.22	-.15	.11
Victim total								–	-.31	.27	-.17	.04
PSE									–	-.47	-.34	.24
CSE										–	-.26**	-.11
IM											–	-.19

Note. PSE = Personal Self-Esteem; CSE = Collective Self-Esteem; IM = Impression Management; NPI = Narcissistic Personality Inventory.

Table 2.7

Pilot Study Intercorrelations Between all Variables, by Gender (n = 107)

		Girls (n = 57)	Age	Bully physical	Bully verbal	Bully indirect	Bully total	Victim physical	Victim verbal	Victim indirect	Victim total	PSE	CSE	IM	NPI
Boys	Age	–	.08	.06	.22	.15	-.16	-.18	-.13	-.17	-.10	.04	-.34	.05	
(n = 50)	Bully physical	-.10	–	.78	.41	.80	.48	.40	.08	.28	-.09	.17	-.39	.23	
	Bully verbal	-.14	.82	–	.63	.91	.47	.58	.30	.45	-.06	.11	-.42	.22	
	Bully indirect	-.24	.74	.79	–	.85	.22	.27	.35	.33	-.24	.11	-.49	.27	
	Bully total	-.18	.91	.92	.93	–	.43	.46	.30	.41	-.17	.15	-.52	.28	
	Victim physical	-.10	.42	.43	.48	.48	–	.75	.60	.81	-.24	.36	.06	-.05	
	Victim verbal	-.10	.35	.49	.46	.47	.84	–	.82	.93	-.31	.28	-.18	.16	
	Victim indirect	-.17	.39	.51	.63	.57	.78	.78	–	.95	-.40	.27	-.12	.18	
	Victim total	-.14	.41	.52	.58	.55	.93	.92	.94	–	-.38	.32	-.10	.13	
	PSE	-.24	-.29	.23	-.41	-.35	-.13	-.15	-.16	-.16	–	-.52	.32	.26	
	CSE	.24	.39	.37	.45	.44	.17	.21	.23	.22	-.50	–	-.09	-.21	
	IM	-.15	-.67	-.64	-.62	-.69	-.25	-.28	-.28	-.29	.43	-.43	–	-.24	
	NPI	-.22	.05	.08	.13	.10	-.21	-.18	.02	.11	.20	.02	-.12	–	

Note. PSE = Personal Self-Esteem; CSE = Collective Self-Esteem; IM = Impression Management; NPI = Narcissistic Personality Inventory.

2.2.4.1 Gender differences.

A series of one-way analysis of covariance (ANCOVA) tests was performed to investigate gender differences in self-reported bullying behaviour. Given the complexities of the relationships between variables, impression management and age were entered as covariates to control variance that may have confounded results. Although no specific hypotheses were forwarded in terms of gender and total bullying, this variable was nevertheless included in analyses as a means of providing a clearer picture of self-reported bullying behaviour. Following Tabachnick and Fidell (2001), the variables physical, verbal, indirect, and total bullying were entered into the ANCOVAs as dependent variables and gender as the independent variable. As the dependent variables were related, to minimise the risk of Type 1 error, Bonferroni correction was made for multiple comparisons (e.g., Pallant, 2001), resulting in a $p = .0125$ significance level, whereby $p = .05$ was divided by 4, that is, the four forms of bullying (i.e., physical, verbal, indirect, and total).

In considering the dependent variable subscales separately, it is apparent from Table 2.8 that boys showed significantly higher levels of physical and of verbal bullying than girls, supporting Hypotheses 1 and 2. Boys also reported higher mean levels of total bullying than did girls. In terms of indirect bullying, Hypothesis 3 was not supported as girls and boys did not exhibit significantly different mean scores in self-reported indirect bullying.

Table 2.8

Pilot Study Analyses of Covariance, Effect Size, Means, and Standard Deviations for Physical, Verbal, Indirect, and Total Bullying Scores, by Gender (n = 107)

	<i>F</i> (1, 103)	η^2	Girls (<i>n</i> = 57)		Boys (<i>n</i> = 50)	
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Bully physical	33.41*	.25	10.02 _b	4.19	14.57 _a	5.21
Bully verbal	11.83*	.10	9.59 _b	3.90	11.98 _a	4.29
Bully indirect	0.13	.00	23.18	6.03	22.99	6.94
Bully total	9.46*	.08	42.80 _b	12.02	49.54 _a	15.19

Note. Horizontal comparisons, subscripts a > b.

**p* < .0125.

A series of one-way ANCOVAs were also performed to investigate gender differences in self-reported victimisation. As described above with bullying, the physical, verbal, indirect, and total victimisation variables were entered into the ANCOVAs as dependent variables, with gender as the independent variable and impression management and age as covariates. In addition, and as with the bullying variables, total victimisation scores were included in analyses as a means of providing a clearer picture of self-reported victimisation.

Regarding victimisation full- and subscales, Table 2.9 indicates that indirect victimisation was the only variable to exhibit a significant difference, with girls reporting higher mean scores than boys, thereby providing support for Hypothesis 3a. The differences between boys and girls in physical and verbal victimisation mean scores were not significant, thereby failing to support Hypotheses 1a & 2a. However, the difference in mean physical victimisation scores did show a trend in the predicted direction that approached significance (*p* = .016 vs. *p* = .0125 Bonferroni corrected). There were no significant gender differences in total victimisation scores.

Table 2.9

Pilot Study Multivariate Analyses of Covariance, Effect Size, Means, and Standard Deviations for Physical, Verbal, Indirect, and Total Victimization Scores, by Gender (n = 107)

	<i>F</i> (1, 103)	η^2	Girls (<i>n</i> = 57)		Boys (<i>n</i> = 50)	
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Victim physical	5.99	.06	11.98	5.02	14.28	5.09
Victim verbal	0.02	.00	12.30	4.87	12.10	4.22
Victim indirect	11.45*	.10	29.60 _a	10.71	23.44 _b	7.38
Victim total	1.28	.01	53.88	18.75	49.82	17.36

Note. Horizontal comparisons, subscripts a > b.

**p* < .0125.

Table 2.10 summarises results from separate one-way analysis of variance tests for gender differences in collective self-esteem, personal self-esteem, and narcissism. An analysis of covariance, with age as the covariate, was conducted for impression management, as that was the sole variable to correlate significantly with age (refer Tables 2.6 & 2.7). These analyses were purely exploratory in nature as no specific hypotheses were forwarded regarding these variables and the results show that personal self-esteem was the only variable on which boys and girls exhibited a significant difference.

Table 2.10

Pilot Study Analyses of Variance and Covariance, Effect Size, Means, and Standard Deviations for Personal Self-Esteem, Collective Self-Esteem, Impression Management, and Narcissism Scores, by Gender (N = 112)

	<i>F</i> (1, 110)	η^2	Girls (<i>n</i> = 62)		Boys (<i>n</i> = 50)	
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Personal SE	5.84*	.05	35.05 _b	8.07	38.49 _a	6.69
Collective SE	0.38	.00	37.79	8.34	38.71	7.29
IM	2.42	.04	68.32	14.96	67.20	16.30
Narcissism	0.09	.00	14.51	7.24	14.89	5.66

Note. SE = Self-Esteem; IM = Impression Management. IM analysis included age as a covariate. Horizontal comparisons, subscripts a > b.

**p* < .05.

2.2.4.2 Age differences.

In terms of the predicted relationships between age and the various forms of bullying and victimisation, partial correlations were conducted controlling for impression management and Table 2.6 above presents the zero order correlation coefficients. As the physical, verbal, and indirect subscales all correlated highly, Bonferroni correction for multiple comparisons (e.g., Pallant, 2001) was carried out, whereby the directional hypothesis one-tailed *p* = .10 was divided by 4, that is, the four correlations between age and impression management, and the three forms of bullying or victimisation, resulting in a *p* = .025 significance level. Following removal of outliers, partial correlation analyses *n* = 104. Hypotheses 4 and 4a, which predicted that there would be significant negative correlations between physical bullying and age and between physical victimisation and age, were not supported after controlling for the effects of impression management (*pr* = -.11, *p* = .124; and *pr* = -.13, *p* = .088, respectively).

It was expected that there would be no significant correlation between verbal bullying and age (Hypothesis 5), and this hypothesis was supported ($pr = -.17, p = .040$) such that verbal bullying did not significantly vary as a function of age. On the contrary, the prediction that verbal victimisation and age would also not be correlated (Hypothesis 5a) was not supported, as there was a significant negative correlation found, $pr = -.21, p = .014$. Self-report verbal victimisation decreased as the age of respondents increased. Hypotheses 6 and 6a predicted significant positive correlations between indirect bullying and age, and between indirect victimisation and age, respectively. These hypotheses were not supported as there were significant negative correlations found between indirect bullying and age ($pr = -.20, p = .020$), and between indirect victimisation and age ($pr = -.22, p = .013$). Rather than increase with age, self-report indirect bullying and victimisation decreased with age.

To summarise, while it was expected that physical bullying and victimisation would decrease with age (Hypotheses 4 & 4a), these forms of bullying did not vary significantly as a function of age. Although it was predicted that verbal bullying and verbal victimisation would not vary with age, only verbal bullying (Hypothesis 5) followed the predicted pattern, as verbal victimisation (Hypothesis 5a) was found to decrease with age. Finally, it was expected that both indirect bullying and victimisation would increase with age (Hypotheses 6 & 6a); however, results indicated that indirect bullying and victimisation actually decreased with age.

2.2.4.3 Self-esteem, bullying, and victimisation correlations.

Correlations related to self-esteem were conducted using partial correlations, controlling for impression management, with zero order correlation coefficients presented in Table 2.6 above. Bonferroni correction (e.g., Pallant, 2001) resulted in a

one-tailed $p = .033$ significance level, whereby $p = .10$ was divided by 3, that is, the three correlations between self-esteem and bullying, self-esteem and victimisation, and impression management. Following removal of outliers, partial correlation analyses $n = 104$. Hypothesis 7, which stated that there would be a significant negative correlation between global personal self-esteem and total victimisation, was supported ($pr = -.27, p = .003$), showing that adolescents' self-esteem decreased as levels of victimisation increased. However, the prediction (Hypothesis 8) that personal self-esteem and total bullying would be significantly positively correlated was not supported ($pr = -.04, p = .333$).

The predictions regarding collective self-esteem, although admittedly exploratory, received mixed support. Rather than the expected negative correlation, the pilot study showed that collective self-esteem was significantly positively correlated with total victimisation ($pr = .24, p = .007$, Hypothesis 9). There was also a significant positive correlation found between collective self-esteem and total bullying ($pr = .19, p = .026$), supporting Hypothesis 10. In other words, adolescents with higher levels of total bullying or total victimisation also tended to report higher collective self-esteem levels.

2.2.4.4 Personal self-esteem/narcissism interactions.

Hierarchical multiple regression was employed to test the predicted interaction between personal self-esteem and narcissism and bullying. Specifically, Hypothesis 11 stated that adolescents with high levels of narcissism combined with high levels of personal self-esteem would report significantly higher levels of bullying behaviour than would individuals with high levels on only one variable, or low levels on both

narcissism and personal self-esteem. Refer to Figure 1.2 of Chapter 1 (p. 50) for a graphical illustration of the predicted interaction.

To minimise possible multicollinearity effects (Aiken & West, 1991; Cohen, Cohen, West, & Aiken, 2003), the personal self-esteem and narcissism variables were centred by subtracting the sample mean from all individuals' scores on each variable, such that both variables then had a sample mean of zero. The centring transformation does not affect significance levels or the slopes of any simple regression lines (Aiken & West, 1991; Baron & Kenny, 1986; Holmbeck, 1997). In line with regression procedures recommended by Holmbeck (1997), the continuous variables age, impression management, and collective self-esteem were entered into the first step of the regression as a means of statistically controlling for these variables. Centred personal self-esteem was entered into the second step, narcissism into the third, and the interaction term (the product of personal self-esteem multiplied by narcissism) was entered into the fourth and final step of the regression. Hence, the presence of an interaction would be indicated by a significant R^2 change associated with the interaction term entered in Step 4. Table 2.11 presents the results of the regression analysis, showing that the predicted personal self-esteem/narcissism interaction of Hypothesis 11 did not reach significance, $F(1, 100) = 1.191, p = .278$.

Table 2.11

Pilot Study two-way Interaction Between Personal Self-Esteem and Narcissism on Total Bullying, for Females and Males (n = 107)

Variable entered	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1				.42	.42***
Age	-2.39	1.05	-.18		
Impression Management	-0.56	0.07	-.61		
Collective SE	0.32	0.15	.17		
Step 2				.43	.01
Personal SE	0.23	0.16	.12		
Step 3				.43	.00
Narcissism	0.16	0.17	.08		
Step 4				.44	.01
Personal SE X Narcissism	-0.02	0.02	-.09		

Note. SE = Self-Esteem.

*** $p < .001$.

To aid interpretation of the results, two simple regression lines showing high and low values of the variable personal self-esteem were plotted against narcissism and total bullying (see Aiken & West, 1991; Cohen et al., 2003). By including the y intercept, the unstandardised regression coefficients, and the terms for two main effects (personal self-esteem and narcissism) and for the interaction (personal self-esteem X narcissism), regression lines were produced using the formula:

$$\hat{Y} = (b_1 + b_3Z)X + (b_2Z + b_0).$$

This equation shows the regression coefficient of total bullying Y on narcissism X (b_1), and the coefficients of personal self-esteem (b_2), the interaction (b_3), and the regression constant (b_0). Therefore, the slope of the regression of total bullying Y on narcissism X , ($b_1 + b_3Z$), depends upon the value of personal self-esteem Z at which the slope is considered (i.e., high or low). The high (mean plus one standard deviation) and low (mean minus one standard deviation) values were then substituted into this equation to

give simple regression slopes showing high-high, high-low, low-low, and low-high values for personal self-esteem and narcissism (see Figure 2.1).

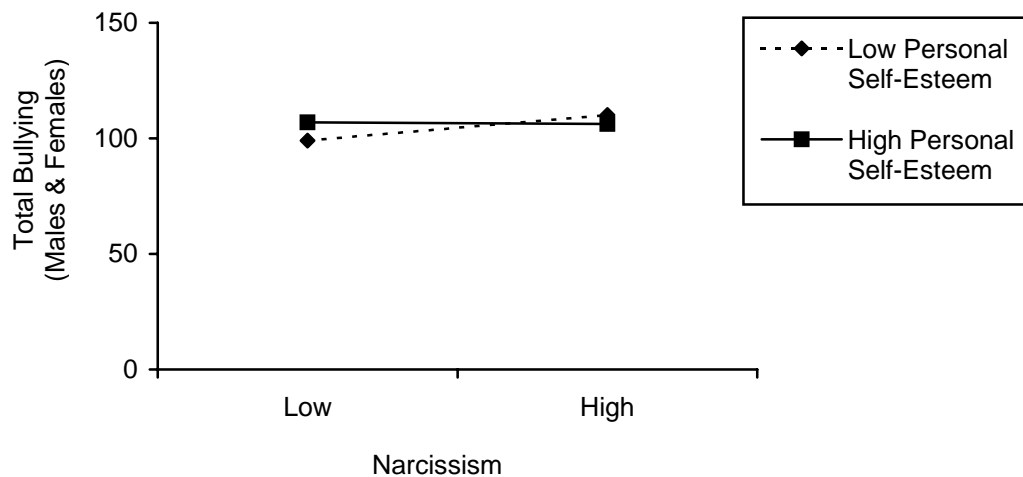


Figure 2.1. Simple regression slopes showing interaction between narcissism and personal self-esteem for total bullying scores for males and females in pilot study ($n = 107$).

Although a significant personal self-esteem/narcissism interaction was not found in total self-reported bullying scores, it was considered that further analysis was warranted given the exploratory nature of the pilot study. Consequently, separate hierarchical multiple regression analyses were conducted by gender to test for interactions between personal self-esteem and narcissism and the three subscales of the DIAS. Given the number of separate analyses that this entailed, only the full results of regressions which produced significant or near-significant interactions (Bonferroni corrected $p = .0167$) are presented herein. The interaction F values of all regressions are presented in Table 2.12 and the full results for the remaining regression analyses are presented in Appendix K (see Tables K.1 through K.5, pp. 339-341).

Table 2.12

Pilot Study Personal Self-Esteem/Narcissism Interaction F-values for Physical, Verbal, and Indirect Bullying, for Females (n = 57) and Males (n = 50)

Bullying variable	<i>F</i>	<i>df</i>	<i>p</i>
Physical			
Females	4.495	(1, 50)	.039
Males	0.285	(1, 43)	.596
Verbal			
Females	1.295	(1, 50)	.261
Males	0.018	(1, 43)	.894
Indirect			
Females	0.176	(1, 50)	.677
Males	0.411	(1, 43)	.525

In terms of personal self-esteem, Table 2.13 shows the results of the sole hierarchical regression analysis that produced an interaction that approached significance, namely, the interaction between personal self-esteem, narcissism, and self-reported physical bullying in girls.

Table 2.13

Pilot Study two-way Interaction Between Personal Self-Esteem and Narcissism on Physical Bullying, for Females (n = 57)

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.17	.17*
Age	-0.27	0.56	-.06		
Impression Management	-0.12	0.04	-.40		
Collective SE	0.08	0.07	.14		
Step 2				.19	.02
Personal SE	0.08	0.08	.15		
Step 3				.21	.02
Narcissism	0.09	0.08	.16		
Step 4				.27	.06
Personal SE X Narcissism	-0.02	0.01	-.31		

Note. SE = Self-Esteem.

* $p < .0167$.

Figure 2.2 illustrates in a graphical form the personal self-esteem/narcissism interaction for physical bullying in adolescent girls in the pilot study. Although the interaction did not reach significance, it is nevertheless in the opposite direction to that predicted in hypotheses related to self-esteem. It can be seen that adolescent females with both low personal self-esteem (rather than the high levels hypothesised) and high narcissism reported greater levels of physical bullying behaviour. To summarise the personal self-esteem results section, results failed to show any significant interactions (Bonferroni corrected $p = .0167$) between personal self-esteem and narcissism in predicting any form of bullying in girls or boys.

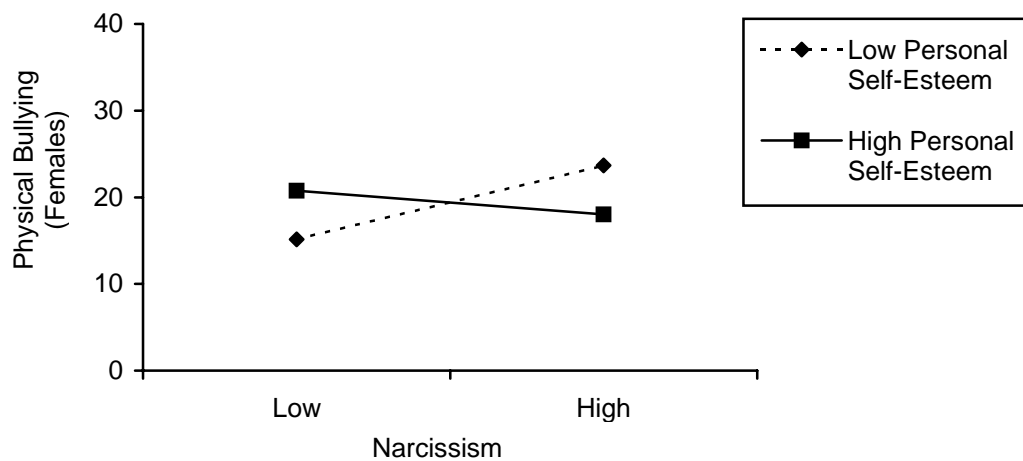


Figure 2.2. Simple regression slopes showing interaction between narcissism and personal self-esteem for physical bullying scores for females in pilot study ($n = 57$).

2.2.4.5 Collective self-esteem/narcissism interactions.

As described above for personal self-esteem, the collective self-esteem and narcissism variables were centred prior to conducting regression analyses, such that both variables then centred around a mean of zero. Age, impression management, and personal self-esteem were entered into the first step of the regression as a means of statistically controlling for these variables. Collective self-esteem was entered into the second step, narcissism into the third, and the interaction term (the product of collective self-esteem multiplied by narcissism) was entered into the final step of the regression. Hence, the presence of an interaction would be indicated by a significant R^2 change associated with the interaction term entered in Step 4. Table 2.14 presents the results of the regression analysis, showing that the predicted collective self-esteem/narcissism interaction of Hypothesis 12 did not reach significance, $F(1, 100) = 3.341, p = .071$. Figure 2.3 graphically presents the non-significant interaction between collective self-esteem and narcissism on total bullying scores.

Table 2.14

Pilot Study two-way Interaction Between Collective Self-Esteem and Narcissism on Total Bullying, for Females and Males (n = 107)

Variable entered	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1				.39	.39***
Age	-2.19	1.07	-.16		
Impression Management	-0.60	0.08	-.66		
Personal SE	0.05	0.15	.03		
Step 2				.43	.04
Collective SE	0.41	0.16	.22		
Step 3				.44	.01
Narcissism	0.16	0.17	.08		
Step 4				.46	.02
Collective SE X Narcissism	0.05	0.03	.14		

Note. SE = Self-Esteem.

*** $p < .001$.



Figure 2.3. Simple regression slopes showing interaction between narcissism and collective self-esteem for total bullying scores for males and females in pilot study ($n = 107$).

As was the case with personal self-esteem regressions, although a significant collective self-esteem/narcissism interaction was not found in total self-reported bullying scores, it was considered that further analysis was nevertheless warranted. Consequently, separate hierarchical multiple regression analyses were conducted by gender to test for interactions between collective self-esteem and narcissism and the three subscales of the DIAS. Again, only the full results from those regressions which produced significant or near-significant interactions are presented here (Bonferroni corrected $p = .0167$). The interaction F values of all collective self-esteem regressions are presented in Table 2.15 and full results for the remainder of these regressions can be found in Appendix K (see Tables K.6 through K.9, pp. 341-343).

Table 2.15

Pilot Study Collective Self-Esteem/Narcissism Interaction F-values for Physical, Verbal, and Indirect Bullying, for Females (n = 57) and Males (n = 50)

Bullying variable	F	df	p
Physical			
Girls	11.789	(1, 50)	.001
Boys	0.283	(1, 43)	.598
Verbal			
Girls	5.848	(1, 50)	.019
Boys	0.019	(1, 43)	.892
Indirect			
Girls	0.112	(1, 50)	.739
Boys	0.159	(1, 43)	.692

As is evident from the Table 2.15, physical bullying in girls was the only regression to produce a significant interaction in terms of collective self-esteem and narcissism. Table 2.16 and Figure 2.4 present full regression results for this interaction, showing that adolescent females who were high in collective self-esteem and high in narcissism reported higher levels of physical bullying. This result corresponds with and provides some support for the predictions made in Hypothesis 12.

Table 2.16

Pilot Study two-way Interaction Between Collective Self-Esteem and Narcissism on Physical Bullying, for Females (n = 57)

Variable entered	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1				.16	.16*
Age	-0.27	0.57	-.06		
Impression Management	-0.12	0.04	-.42		
Personal SE	0.02	0.07	.04		
Step 2				.19	.03
Collective SE	0.12	0.08	.21		
Step 3				.21	.02
Narcissism	0.09	0.08	.15		
Step 4				.36	.15***
Collective SE X Narcissism	0.04	0.01	.40		

Note. SE = Self-Esteem.

* $p < .05$, *** $p < .001$.

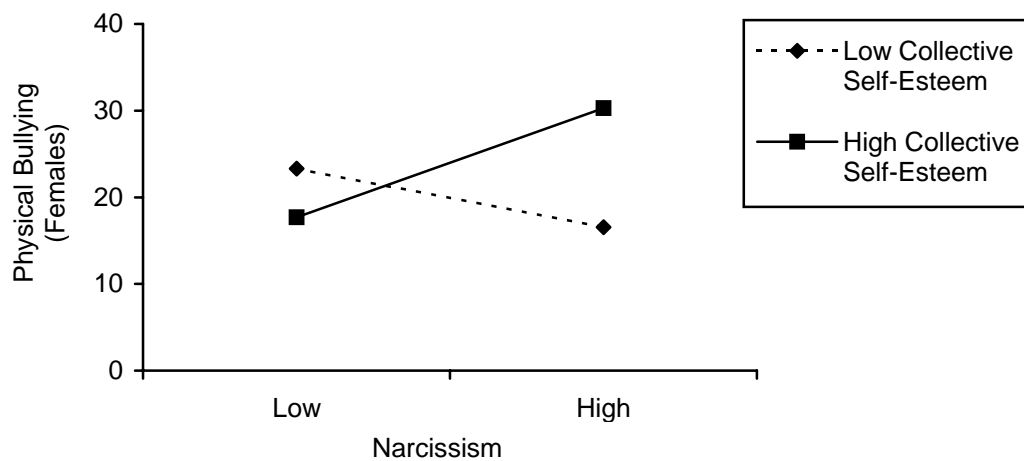


Figure 2.4. Simple regression slopes showing interaction between narcissism and collective self-esteem for physical bullying scores for females in pilot study ($n = 57$).

Hierarchical multiple regression analyses also revealed an interaction that approached significance for collective self-esteem and narcissism in predicting self-reported verbal bullying in adolescent females. Table 2.17 presents the full results of this analysis and Figure 2.5 plots the simple regression slopes, showing that girls high in both collective self-esteem and in narcissism reported higher levels of verbal bullying behaviour.

Table 2.17

Pilot Study two-way Interaction Between Collective Self-Esteem and Narcissism on Verbal Bullying, for Females (n = 57)

Variable entered	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1				.19	.19*
Age	-0.40	0.52	-.10		
Impression Management	-0.13	0.04	-.48		
Personal SE	0.04	0.07	.09		
Step 2				.21	.02
Collective SE	0.08	0.07	.16		
Step 3				.22	.01
Narcissism	0.06	0.07	.11		
Step 4				.30	.08*
Collective SE X Narcissism	0.03	0.01	.29		

Note. SE = Self-Esteem.

* $p < .05$.

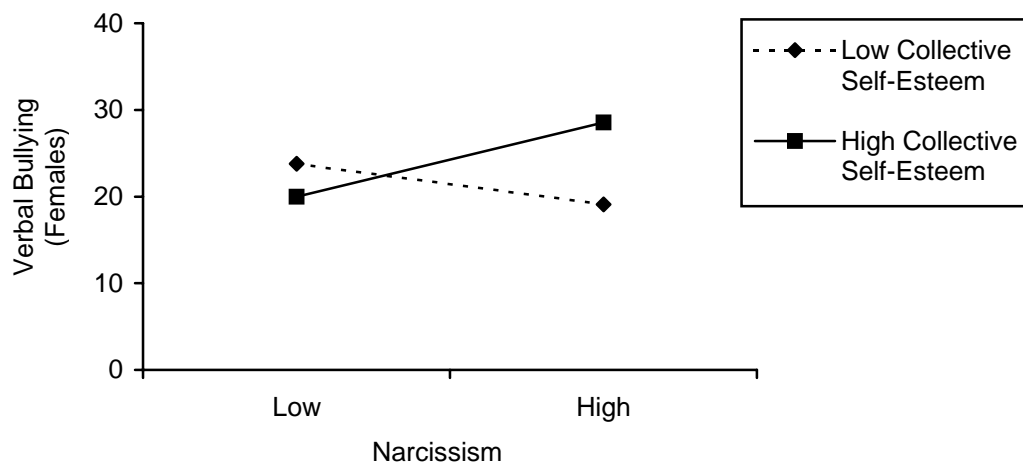


Figure 2.5. Simple regression slopes showing interaction between narcissism and collective self-esteem for verbal bullying scores for females in pilot study ($n = 57$).

2.2.4.6 *Personal and collective self-esteem and bullying correlations.*

The final hypotheses related to the relative strength of the associations between personal self-esteem and bullying and between collective self-esteem and bullying. Hypothesis 13 predicted that collective self-esteem would exhibit a stronger correlation with total bullying than would personal self-esteem. This was tested using the method put forward by Meng, Rosenthal, and Rubin (1992), which used a Z (normal curve) test with Fisher z transformations to compare correlated coefficients between a dependent variable and two or more correlated independent variables (see section K.1 in Appendix K for calculations, p. 335). After controlling for impression management, results did not support Hypothesis 13, in that the partial correlation between collective self-esteem and bullying ($r = .19$) did not differ significantly from the correlation between personal self-esteem and bullying ($r = .04$), $Z = -0.89$, $p = .188$, one-tailed. There was a 95% confidence interval $-0.48, 0.18$ for the difference between z s (i.e., $z_{pr1} - z_{pr2} = .04 - .19 = -.15$).

Hypothesis 14 was also tested using the above procedure, with results failing to support the prediction. The partial correlation between indirect bullying and collective self-esteem ($r = .16$) did not differ significantly from the correlation between physical bullying and collective self-esteem ($r = .18$), $Z = -0.19$, $p = .424$, one-tailed, with a 95% confidence interval for the difference ($z_{pr1} - z_{pr2} = -.02$) of $-0.25, 0.20$.

2.3 *Discussion*

It should be noted that any discussion of findings at this stage will necessarily be brief given that the primary aim of this preliminary study was to pilot the methodology and measures while also conducting some initial testing of hypotheses. Consequently, this section will consider each hypothesis individually before addressing and discussing

any methodological limitations. In doing so, this discussion will lead into the next chapter, which will review the relevant literature in light of the findings of the pilot study and subsequently reassess the rationale and expected outcomes for the main study.

2.3.1 Hypothesis Testing

2.3.1.1 Gender differences.

Results of pilot study analyses supported Hypothesis 1, which predicted that boys would report significantly higher mean scores of physical bullying. This finding corresponds with the majority of similar research, which has consistently found boys to be more physically aggressive than girls (see reviews by Archer, 2004; Bettencourt & Miller, 1996). Hypothesis 2 predicted that boys would also report significantly higher mean scores of verbal bullying than girls and this prediction was supported by the results of the pilot study. This result corroborates findings from much previous research that has found boys to be more verbally aggressive than girls (Archer, 2004; Bettencourt & Miller, 1996). That boys reported higher levels of physical and verbal aggression than girls also provides further support for social role theory (Eagly, 1987) in explaining gender differences in aggression. That is, this result corresponds to the normative expectation that males are more agentic (instrumental, masculine) than females.

Results of the pilot study are less clear-cut in terms of self-report victimisation, with predictions not being supported as expected. Hypothesis 1a predicted that boys would report significantly higher mean scores of experiencing physical victimisation than would girls, but this was not the case as there was no significant gender difference found for this variable. Similarly, Hypothesis 2a predicted that boys would report significantly higher mean scores of verbal victimisation than girls and this was also found not to be the case in the pilot study. These results contrast with the findings of

previous research that has consistently found boys to report greater levels of both physical and verbal victimisation (e.g., Owens et al., 2005). However, it is important to note that the difference between genders approached significance with a trend in the predicted direction.

Pilot study results were also mixed in terms of indirect aggression, with the analyses failing to find support for the prediction that girls would report significantly higher mean levels of indirect bullying than boys (Hypotheses 3). In contrast, girls did report significantly higher mean scores in indirect victimisation than boys, as predicted by Hypotheses 3a. These results provide mixed support for social role theory (Eagly, 1987) with females showing more communal (expressive, feminine) behaviours, at least in terms of indirect victimisation. In effect, whereas boys and girls reported the same levels of aggressing indirectly against others, girls reported experiencing greater levels of being victimised indirectly than did boys. Conversely, boys reported higher mean levels of physical and verbal bullying behaviour than girls, yet boys and girls both reported experiencing essentially the same levels of physical and verbal victimisation.

These results, while not entirely as predicted, show a pattern that is of some note. There is an apparent gender-related discrepancy in how adolescents reported perpetrating aggressive behaviours compared with the degree to which they reported being the targets of these same behaviours, a discrepancy that also varied according to the type of aggression. It is possible that boys and girls differed in their perceptions of what constitutes being a victim or a perpetrator according to the type of aggression in question. Whereas boys and girls had similar concepts of indirectly aggressing against another, girls may have been more likely to perceive that they were victims of indirect aggression. It is difficult to determine why this may have been the case, as individual perceptions of what constitutes being bullied were not measured in the current research.

However, there has been some research (Paquette & Underwood, 1999) that has shown girls to be affected by social aggression to a much greater extent than boys and found that girls thought about the bullying incident more than did boys. It is also possible that because girls are more sensitive to the effects of indirect aggression, when they are victimised in this way they are also more likely than boys to perceive these particular behaviours as aggressive.

There are a number of things that need to be flagged at this point. Given that: (a) these findings were not specifically related to the hypotheses or aims of the research, (b) the pilot study was necessarily small-scale and took place in a single school, and (c) the results were unlikely to have any great bearing on the main study, it was decided that specific analyses to explore this pattern were not warranted and in-depth discussion at this point is therefore not appropriate. In addition, as will become apparent, these caveats may apply to varying degrees with the following sections that discuss the results of the pilot study hypothesis testing.

2.3.1.2 Age differences.

Taking a developmental perspective, Hypothesis 4 predicted that physical bullying would significantly decrease with age and Hypothesis 4a predicted that physical victimisation would also decrease with age. However, partial correlation analyses of pilot study data (controlling for impression management) did not provide support for these hypotheses, as there were no significant correlations found between age and physical bullying or physical victimisation.

Hypotheses 5 and 5a predicted that there would be no age-related changes in either verbal bullying or verbal victimisation. Results of the pilot study supported Hypothesis 5, as there was no significant correlation between age and verbal bullying.

However, there was a significant negative correlation between age and verbal victimisation, indicating that self-report verbal victimisation decreased with age, a finding that contradicts the prediction of Hypothesis 5a.

It was also predicted that indirect bullying (Hypothesis 6) and indirect victimisation (Hypothesis 6a) would increase with age. However, in contrast with previous research (e.g., Österman et al., 1998), these hypotheses were not supported as the pilot study found significant negative partial correlations, indicating that indirect aggression actually decreased with age, a somewhat surprising result.

Explaining these findings is difficult, although it could be suggested that the more obvious physical forms of bullying are being successfully addressed in schools and that students are learning at an earlier age that bullying is unacceptable. This may have produced a floor effect such that pilot study participants simply exhibited the expected lower levels of physical aggression, but at an earlier age than might otherwise be expected. Similarly, it could be suggested that adolescents have adapted to the contemporary school environment with its stricter codes of conduct relating to bullying behaviour by learning to manipulate their social surroundings in different ways. Consequently, one could expect that adolescents might learn indirect (less obvious and punishable) aggressive behaviours at a younger age than the research otherwise might suggest, resulting in a ceiling effect in the results of the pilot study.

However, that indirect aggression actually decreased with age in the present sample indicates that the explanation is not that simple. It may be that, as all age/aggression correlations were negative, although not all reached significance, students at the pilot study school were aware of all types of bullying behaviour, including indirect aggression. It is possible that as students matured and as school bullying initiatives had a cumulative effect, students simply bullied less as they reached

adolescence. Although taking a wider cross-section of ages may provide some insight into these findings, this approach is beyond the scope of the present study. In any case, the findings may be specific to the relatively small pilot study sample and something that may be better explored through the results of main study as it drew participants from a number of schools.

2.3.1.3 Self-esteem, bullying, and victimisation correlations.

The results of the pilot study were also mixed with regards to self-esteem variables. The finding of a significant negative correlation between global personal self-esteem and victimisation supporting Hypothesis 7 clearly corresponds with the previous research that has found victims to have significantly lower self-esteem (e.g., Austin & Joseph, 1996). That the results failed to confirm Hypothesis 8, which predicted a significant positive correlation between global personal self-esteem and bullying, is not greatly surprising given that findings from previous research are equivocal (Ireland, 2002; Salmivalli et al., 1999) and further exploration through the main study may provide some insight.

On the other hand, the results regarding collective self-esteem are somewhat surprising. Hypotheses 9 and 10, which were based mainly upon the research into personal self-esteem and bullying and, therefore, essentially the same, also received mixed support from the results. It was predicted that there would be a significant negative correlation between collective self-esteem and victimisation (Hypothesis 9), a prediction that was not supported. Rather than a significant negative correlation, the pilot study data produced a significant moderate positive correlation, such that adolescents with higher collective self-esteem also tended to report higher levels of total victimisation. This finding adds strength to the assertion that collective self-esteem is

distinct from personal self-esteem, but does so in a manner that cannot easily be explained, as it suggests that there is a negative relationship between collective self-esteem and personal self-esteem, rather than the positive correlation found previously (Luhtanen & Crocker, 1992). Given this and the characteristics of the pilot study, these results must be considered with some caution and require deeper analysis within the main study. Hypothesis 10 predicted a significant positive correlation between collective self-esteem and bullying, with pilot study results supporting this prediction suggesting that those reporting higher levels of bullying also tending to have higher collective self-esteem.

2.3.1.4 Personal self-esteem/narcissism interactions.

Hypothesis 11 predicted that adolescents with high levels of narcissism in conjunction with high levels of personal self-esteem would report significantly higher levels of bullying behaviour than would individuals with high levels on only one independent variable, or low levels on both narcissism and personal self-esteem. The pilot study results did not support this prediction. In summary, results failed to show any significant interactions between personal self-esteem and narcissism in predicting any form of bullying in girls or boys.

As it happened, post-hoc analyses revealed an interaction that approached significance between personal self-esteem and narcissism in predicting physical bullying, but only for females and in the opposite direction to that predicted. Adolescent females with both low personal self-esteem (rather than the high levels hypothesised) and high narcissism reported greater levels of physical bullying behaviour. This contradicts the notion that aggression is related to high self-esteem through a defensive egotistic trait (Baumeister et al., 1996), whilst also contradicting the findings of the

scant self-esteem/narcissism/bullying research (Salmivalli et al., 1999). Without drawing causal inferences, it may be that physical aggression (more typical of boys) is related to lower self-esteem in girls in this sample. To illustrate, previous research has found that children who engage in gender non-normative forms of aggression (e.g., overtly aggressive girls) reported significantly poorer social-psychological adjustment than children who engaged in gender normative aggressive behaviour (e.g., relationally aggressive girls) or who were nonaggressive (Crick, 1997).

2.3.1.5 Collective self-esteem/narcissism interactions.

It was predicted that adolescents with high levels of narcissism combined with high levels of collective self-esteem would report significantly higher levels of bullying behaviour than individuals with high levels on only one independent variable, or low levels on both narcissism and collective self-esteem (Hypothesis 12). This hypothesis was not fully supported and, as with personal self-esteem/narcissism results, post-hoc analyses produced some interesting results. It was found that girls with high collective self-esteem and high narcissism reported higher levels of physical bullying, with the interaction for verbal bullying in girls nearing statistical significance. These results correspond with the high self-esteem/narcissism relationship in explaining aggression (Baumeister et al., 1996) and the findings of the Salmivalli (1999) study. However, it is difficult to explain why the relationship was present only in girls and only for physical and verbal forms of aggression. Nevertheless, in conjunction with the mixed personal self-esteem/narcissism results, these findings provide good reason for exploring these complex relationships further with a larger and possibly more heterogenous sample in terms of individual participants and of schools.

2.3.1.6 Personal and collective self-esteem and bullying correlations.

Consistent with social identity theory (Tajfel & Turner, 1986), it was argued in Chapter 1 that bullying was an example of group-level behaviour and that, therefore, bullying would show a stronger relationship with a group-based self-esteem measure than with a personal self-esteem measure (Hypothesis 13). Pilot study results did not support the prediction that adolescent students' collective self-esteem would have a stronger correlation with bullying behaviour than would global personal self-esteem. In addition, the related prediction that collective self-esteem as derived from peer group membership would exhibit a stronger positive relationship with indirect bullying than with physical bullying (Hypothesis 14) was not supported. Despite the fact that indirect aggression appears to comprise more social or group-level behaviours than physical aggression, it may be that, as Björkqvist (2001) and Shute et al. (2002) stated, all aggression is essentially social in nature and there is little distinction between the forms of aggression in terms of which is more, or less, social. It is also possible that, although the aggression measure employed was analysed according to the original factors of physical, verbal, and indirect within the Direct and Indirect Aggression Scales (DIAS, Björkqvist, Lagerspetz, & Österman, 1992), a factor analysis of the main study data might produce different factors and new information to better explain this finding.

2.3.1.7 Impression management.

In consideration of the possible problem of socially desirable response bias in self-report questionnaires, the present study included a measure of impression management (the tailoring of answers to create a positive image) as a means of controlling for this bias in analyses (Paulhus, 1998). Impression management was also

included as it had the potential to become a contributing variable in its own right; in itself, this strategy was a success, although it raised other, unforeseen issues.

For example, of the small number of studies into bullying that have included some measure of social desirability or impression management, findings are mixed. Ojala and Nesdale (2004) employed the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964) in their study of bullying and social identity. They found that socially desirable responses were not significantly related to attitudes towards story characters who either bullied or helped a peer. In contrast, Slee and Rigby (1993) explored relationships among personality factors as proposed by Eysenck and Eysenck (1975), bullying, and victimisation. Although no specific analyses of bullying and socially desirable responses were conducted, ANOVAs were used to compare bullies' and victims' responses to the Lie scale of the Eysenck Personality Questionnaire. Results showed that bullies scored significantly lower on the lie scale than did victims, indicating that bullies were less likely to respond in a socially desirable manner. Unfortunately, other than clearly stating the results, there was no further discussion or conclusions drawn. Similar results using the Eysenck inventory were reported by Mynard and Joseph (1997), who found a significant negative correlation between self-reported bullying behaviour and lie scale scores ($r = -.35, p < .001$). As with the Slee and Rigby (1993) study, this finding was not discussed further.

Given the paucity of published research findings into bullying and impression management, a wider review of the literature was undertaken to help explain the pilot study results. There has been a good deal more research into socially desirable responding as it relates to forensic populations, mainly in terms of self-reported violent behaviour; however, the picture still lacks clarity. For example, a meta-analysis by Sugarman and Hotaling (1997) found an overall low to moderate negative correlation

between social desirability scores and self-reported marital and courtship violence (mean $r = -.179$, $p < .001$). Sugarman and Hotaling's discussion of this result raises the important issue of how exactly this relationship is viewed. The inverse relationship between social desirability and the self-reporting of violence may suggest that those with high social desirability scores have a greater need for social approval and are less likely to report socially unacceptable behaviours. In other words, social desirability is a response bias resulting in the underreporting of socially unacceptable behaviour. Studies into aggression and hostility, mostly with offenders, have found similar negative relationships, with the authors also concluding that social desirability results in underreporting (e.g. Arias & Beach, 1987; Cook, 2002; Harris, 1997).

Although this conclusion also corresponds with the concerns of some researchers regarding self-reported bullying and aggression (e.g., Archer, 2004; Björkqvist, Österman et al., 1992), there is an alternative conclusion proposed by Sugarman and Hotaling (1997). They suggested that, rather than underreporting undesirable behaviours, those who have a greater need for social approval are actually less likely to behave in socially unacceptable ways. To put it in the context of the present results, those with higher impression management scores reported lower levels of bullying behaviour, which may indicate underreporting. However, these individuals may be answering the questions honestly, such that individuals with high levels of social desirability are actually less likely to act aggressively and, conversely, those who are less concerned with presenting themselves in a socially desirable manner are more likely to behave aggressively (and report it). This is consistent with other studies that, in reporting similar negative relationships between social desirability and aggression or violence, have concluded that those less in need of social approval tend to be more

aggressive (e.g., Kroner & Weekes, 1996; Lange, Dehgani, & De Beurs, 1995; Mills, Loza, & Kroner, 2003).

This is not to say that those high in impression management do not underreport; they may well do. Instead, it supports Paulhus' (2002) notion that impression management should be considered more than a response bias and that its presence, rather than being assumed, requires corroboration because simply removing the variance associated with impression management may have the effect of confounding the analysis of related variables. Paulhus therefore recommended that some objective measure be employed to confirm that those high in impression management differ from reality in terms of the construct in question. For example, using peer or teacher observations in conjunction with self-report methods (whilst also measuring social desirability) would provide a way of confirming that those high in impression management underreport bullying behaviour. (However, it should not be overlooked that these observation techniques may prove problematic in determining the presence of the more hidden, indirect forms of aggression)

Mills and Kroner (2006) took the above perspective in their study of recidivism in young offenders. They employed self-reported criminal attitudes, impression management (Paulhus, 1991), and actuarial evidence of recidivism, with results showing significant negative relationships between impression management and attitudes, and impression management and risk of recidivism. Mills and Kroner found that those high in impression management had lower criminal risk estimates and that, correspondingly, those who were more criminally oriented were less likely to have high impression management scores. The authors concluded that, rather than exhibiting a response bias and underreporting criminal attitudes, offenders high in impression management were honest in their reporting of criminal attitudes.

As discussed briefly above (see section 2.1.3.6, p. 77), Paulhus (1991) proposed that there were two primary factors comprising a socially desirable response style: self-deceptive enhancement (an honest but overly positive self-presentation) and impression management (self-presentation tailored to an audience). Paulhus and John (1998) reformulated this concept, proposing that self-deceptive enhancement stems from an egoistic bias and impression management from a moralistic bias. In turn, an egoistic bias stems from the need for power arising from the human value of agency, whereas a moralistic bias is derived from the need for approval arising from the value of communion.

Interestingly, it is apparent that these concepts correspond with Eagly's (1987) explanation of gender norms whereby males are more agentic and females more communal and, from this, one would expect that females would exhibit higher levels of impression management than males. Although this was not the case in the pilot study (see Table 2.10 above, p. 95), norms for adult populations have found females to report significantly higher impression management scores (Paulhus, 1988). Paulhus and John (1998) further state that those with a moralistic bias (i.e., high in impression management) avoid disapproval by conforming to social norms and not engaging in deviant behaviour, something that explains why individuals who score high on social desirability scales may very well be truthfully reporting lower levels of aggressive behaviour. This also coincides with Berkowitz's (1989) reformulated frustration-aggression hypothesis, which proposed that inhibitions to acting aggressively are regulated by people's following of social rules.

Sullivan and Scandell (2003) explored this phenomenon further by examining the relationship between impression management and psychological needs in a sample of college students ($N = 160$). Results showed that impression management was

negatively correlated with aggression ($r = -.39, p < .001$) and with impulsivity ($r = -.31, p < .001$) and the authors concluded that those high in moralistic bias aim to create a favourable image by inhibiting aggressive impulses and by avoiding conflict.

Tedeschi and Felston's (1994) social interaction theory of aggression provides some insight into why it is that those who are less concerned with presenting a favourable image may show more aggression. For example, some individuals might be willing to accept the disapproval of one audience if it results in increased influence or social power in relation to a different audience whose opinion is of greater importance. In other words, the image represented by a particular impression management scale may not be an image that these respondents hold in great esteem. In terms of the current research, it is nevertheless clear that impression management is an interesting factor in the relationships among bullying, self-esteem, and narcissism.

Regarding the pilot study results and what findings may realistically be expected to appear in the main study, two hypotheses need to be forwarded. Corresponding with the previous aggression research as described above (e.g., Kroner & Weekes, 1996) and with the pilot study results, it was expected that there would be a significant negative correlation between impression management and self-reported bullying behaviour. Second, although there were no gender differences apparent within the pilot study and no published norms for adolescents, larger scale research with college students has found that females tend to score higher levels of impression management (Paulhus, 1988). As a consequence, it was predicted that the data from the main study would also exhibit a similar gender difference with girls reporting significantly higher mean impression management scores than boys. These hypotheses, and those carried forward from the pilot study, will be discussed further and finalised following the main study factor analysis, an issue that is introduced in the next section.

2.3.2 Other Data Analysis Issues

As described above, there was mixed evidence for interactions between self-esteem and narcissism in explaining aggression, although there were gender differences apparent between factors of the DIAS. The limitation of pilot study sample size in terms of conducting a DIAS factor analysis also applies to the other instruments employed herein that have exhibited distinct factors in previous research. Hence, the data derived from the much larger sample of the main study would provide a basis for also conducting factor analyses of the collective self-esteem and narcissism measures, in addition to the DIAS. This would help to develop a clearer picture of the factors themselves, as well as any relationship patterns between the complex array of variables under current investigation.

In a similar vein, the larger sample of the main study may provide an opportunity to explore the manner in which these variables relate in terms of bully/victim status. Although changing a variable from continuous to categorical may result in a loss of information and, hence, be less effective in terms of statistical analyses (e.g., Tabachnick & Fidell, 2001), particularly as the criteria for determining group status may be somewhat arbitrary (Solberg & Olweus, 2003), it may nevertheless give a different and clearer perspective of the data. Dividing participants into bully, victim, or bully/victim categories will also provide a comparison point for other research that has employed a similar data classification strategy.

2.3.3 Methodological Issues

It is apparent that the procedure employed in the pilot study was generally effective and did not present any great methodological or procedural problems, and there were no issues raised by school administration, teachers, or participants neither at

the time of the survey, nor at any stage thereafter. In terms of the survey instrument itself, no person involved expressed concern in terms of what was required, or of understanding questionnaires or individual items. Although participants' main language spoken at home was not analysed for possible effects on any variables in the pilot study, it was retained in the main study instrument. It was expected that the number of cases in the main study would be greatly increased, thereby making it possible to test whether participants' language spoken at home confounded or contributed in any way to results.

Furthermore, given that there were preliminary evaluations of the survey instrument by educationalists and adolescents and the high internal reliabilities for all scales, it was decided that the instrument itself would remain unchanged from the pilot to the main study. All concerned felt that the content and layout of the survey were acceptable and appropriate. It was, however, necessary to make some small modifications to the survey procedure. Before describing these changes in detail, the issue of response rates requires some discussion, as it is likely that the procedure and response rates are related.

The overall response rate for the pilot study school was 44.27% (see Table 2.3 above); a figure that, at least at first glance, appears rather low. However, such a response rate was not out of the ordinary in South Australian schools at the time of data collection, particularly with the need for full parental consent (L. Owens, personal communication, December 16 2003). Moreover, whilst keeping in mind that response rates are not always presented in the literature, this rate is comparable with some similar research. For example, a study of group affiliation and victimisation in United States schools reported a response rate of 47% (Pellegrini, Bartini, & Brooks, 1999). The researchers concluded that, as their study followed another unrelated research project in

many schools, teachers and parents were concerned that another study might detract from the teaching programme (see also Bosworth et al., 1999).

This latter point is noteworthy and requires some discussion. To ensure that the data collection process went smoothly, the School Counsellor of the pilot school invested a great deal of time and effort, as did individual teachers. As it was decided that the survey would be administered during normal lesson times, lesson plans needed to be changed and schedules modified, clearly a possibly disruptive influence. Hence, it is likely that some teachers, parents, and students may have viewed the study as something that was less worthy of their involvement and participation levels might have therefore been reduced. Although understandable, this was an issue that could clearly impact poorly on the main study and needed to be addressed.

Consequently, it was decided that there would be greater flexibility in the main study when establishing the optimal point during the school timetable that the survey would be administered to participating students. It was envisaged that this would allow schools to better determine the timing and placement of questionnaire administration according to their curriculum responsibilities, schedules, and commitments, while also maximising participation levels. However, there were disadvantages associated with this strategy, as it resulted in the likelihood that questionnaires would be administered throughout the entire school year, introducing a possible confounding variable. As stated above, the pilot study was conducted in the latter part of the year to counteract the instability of peer groups during the early part of the year (Adler & Adler, 1995). In the main study it was necessary, therefore, to record the week of the school year that each questionnaire was completed, thereby creating a variable that allowed the statistical controlling of variance arising from this confounding factor.

2.3.4 Conclusion

This chapter described how the pilot study produced some interesting and unexpected findings, some consistent with previous research, others not. It was also apparent that the theoretical rationale, the method, and the materials were generally appropriate and effective. Additionally, there was no evidence which suggested a need to modify the research programme, excluding the minor changes to the procedure outlined above, and every reason to expect that the main study would be as successful as the pilot. The next major section of this thesis, Chapter 3, describes the method and procedure of the main study and presents results from a range of preliminary data analyses such as response rates, normality assumptions, and factor analyses.

CHAPTER 3

Main Study Method and Results I

3.1 Method

3.1.1 Design

As with the pilot study, the main study was correlational in design employing a pen-and-paper self-report survey. Within the survey, six separate instruments measured the four independent variables personal self-esteem, collective self-esteem, narcissism, and impression management, and the criterion variables bullying and victimisation. In terms of analyses, given that the pilot and the main study did not fundamentally differ, the data from Welsh College were included in all main study analyses. Furthermore, as it was likely that there would be differences between schools on some variables, school was included as a covariate in relevant analyses. It was also planned that specific differences between schools would be explored as a separate group of post-hoc analyses. Hence, any differences between the pilot data and that from other schools would quickly become apparent.

3.1.2 Participants

Participants were drawn from six metropolitan schools in suburban Adelaide, South Australia (see section 3.1.4, p. 133, below for details of the recruitment process). Pseudonyms were allocated to all schools within this study to prevent the identification of individual schools or participants. The terms used herein to describe the socio-economic status of schools are approximations based upon the suburb in which each school was located. Information for this was derived from an Australian Bureau of Statistics (2002) report of the results of the 2001 census, which classified suburbs according to the number of high-income households (weekly income of \$1,500 or more) within each suburb. Therefore, a suburb was categorised as upper class if it had more than 33% of households with a weekly income of over \$1,500, upper-middle had 22-

33% high-income households, middle comprised 14-22%, lower middle 8-14%, and lower class had fewer than 8%.

Welsh College is an upper class independent coeducational primary/secondary school with an enrolment of approximately 900 students. Northern High School is a lower-middle class coeducational state high school with around 500 students in total. Wheatsheaf High and Forest Hill High School are both middle class coeducational state secondary schools, each with enrolments of approximately 1,000 students. Malden Girls High is an upper-middle class state secondary school (600 students), whereas Spencer College is a middle class independent boys-only primary/secondary school (1,000 students). Years 11 and 12 at Spencer College were coeducational at the time of data collection. The final sample of 1,628 participants came from three Year 7 classes, 36 Year 8, 38 Year 9, and 28 Year 10 classes, giving a total of 105 classes (see Table 3.1 for details). Teachers of two Northern Year 10 classes and one Malden Year 9 class declined participation due to high curriculum workloads; these classes were not included in response rates.

Table 3.1

Number of Classes Surveyed, by School and Year Level

School	Year 7	Year 8	Year 9	Year 10	Total
Welsh	3	4	5		12
Northern		5	6	4	15
Wheatsheaf		7	7	7	20
Forest Hill		8	8	8	24
Malden		3	3	2	8
Spencer		9	9	8	26
Total	3	36	38	28	105

The total sample comprised 665 girls (40.85%) and 963 boys (59.15%), with Tables 3.2 and 3.3 presenting descriptive statistics for participating students. That there were markedly more male than female participants is due in large part to the lower than expected response from classes of Malden girls' school (only 8 classes, see Table 3.1 above), and the higher than expected participant response rate in Spencer boys' school (over 70%, see Table 3.4 below).

Table 3.2

Descriptive Statistics of all Respondents, by Age (Years), Gender, and Year Level

		<i>n</i>	<i>M</i>	<i>SD</i>	Range
Girls	Year 7	15	12.47	0.52	12-13
	Year 8	219	13.03	0.38	12-14
	Year 9	241	13.94	0.51	13-15
	Year 10	190	14.99	0.47	14-16
	Total	665	13.91	0.92	12-16
Boys	Year 7	11	12.46	0.52	12-13
	Year 8	366	13.08	0.38	12-15
	Year 9	332	14.08	0.50	13-16
	Year 10	254	15.17	0.47	14-17
	Total	963	13.97	0.96	12-17
Total	Year 7	26	12.46	0.51	12-13
	Year 8	585	13.06	0.38	12-15
	Year 9	573	14.02	0.51	13-16
	Year 10	444	15.09	0.48	14-17
	Total	1,628	13.94	0.94	12-17

The Malden Girls High representative cited busy schedules as the main reason for the low take-up rate by class teachers. Unfortunately, the research programme schedule and inherent resource constraints did not allow for the recruitment of extra schools and participants to gain a more balanced gender split. A comprehensive and detailed breakdown of participant descriptive statistics by school is provided in Tables L.1 to L.5 (see Appendix L, pp. 345-349).

Table 3.3

Number of Respondents, by School, Gender, and Year Level (N = 1,628)

School	Year 7	Year 8	Year 9	Year 10	Gender totals	School totals
Welsh						
Girls	15	17	30		62	112
Boys	11	8	31		50	
Northern						
Girls		11	4	5	20	57
Boys		15	14	8	37	
Wheatsheaf						
Girls		67	86	68	221	455
Boys		92	85	57	234	
Forest Hill						
Girls		68	69	72	209	425
Boys		75	74	67	216	
Malden						
Girls		56	52	45	153	153
Spencer						
Boys		176	128	122	426	426

3.1.3 Materials

All constructs were measured using pen-and-paper self-report questionnaires. As with the pilot study, each of the six scales began on a separate page with its own preamble, resulting in a questionnaire battery comprising 13 pages in total including the instruction/cover sheet (Appendix A, p. 308), which provided demographic information. Given that individual instruments remained unchanged from the pilot study and that each scale was discussed in detail in the method section of Chapter 2 (see sections 2.1.3.1 through 2.1.3.6, pp. 59-77), only a very brief outline of the scales will be given here. Further, internal reliabilities for each full- and subscale are presented in the respective component analysis sections below.

Following minor modifications to wording and the introduction of two additional items, the main study used separate 26-item bully (Appendix B, p. 310) and victim (Appendix C, p. 313) self-report versions of the Direct and Indirect Aggression Scales (DIAS, Björkqvist, Lagerspetz, & Österman, 1992). Responses to each item were made on a 5-point Likert-style scale, ranging from 1 (*Never*) to 5 (*Very often*). Participants' scores were summed for each scale, giving a possible range of between 26 and 130 for total bullying and total victimisation scores.

The 10-item Rosenberg Self-Esteem Scale (RSES, Rosenberg, 1979) was used as a general measure of global personal self-esteem (see Appendix D, p. 316). The response format used a 5-point Likert-type scale ranging from 1 (*Not at all like me*) to 5 (*Very much like me*) for each item. After the recoding of negatively worded items, participants' scores were summed; with high scores representing high levels of personal self-esteem (possible total score range 10-50).

Collective self-esteem was measured with the 16-item Collective Self-Esteem Scale (CSES, Luhtanen & Crocker, 1992, see Appendix E, p. 318). Participants were

asked to respond to each item using a 5-point Likert-type scale ranging from 1 (*Strongly agree*) to 5 (*Strongly disagree*). Negatively worded items were recoded and participants' scores summed such that high scores (possible total score range 16-80) represented high levels of collective self-esteem.

The Narcissistic Personality Inventory (NPI, Raskin & Hall, 1981) is a 40-item inventory (Appendix F, p. 321) that measures individual differences in nonclinical narcissism. Participants responded using a forced-choice response, with each narcissistic response worth one point; these were then summed to give a total narcissism score ranging between 0 and 40 (high scores represent high levels of narcissism).

Socially desirable responses were measured using the 20-item Impression Management subscale of the Balanced Inventory of Desirable Responding (BIDR, Paulhus, 1991). Three items were considered inappropriate for the adolescent sample of the main study and were removed, resulting in a 17-item scale (Appendix G, p. 325) in which participants' responded to each item using a Likert-style format ranging from 1 (*Not true*) to 7 (*Very true*). A continuous scoring procedure was used whereby responses were summed to produce a total impression management score for each participant (possible total score range 17-119), with high scores representing high levels of impression management.

3.1.4 Procedure

As stated above, there were no substantive changes to the procedure or instruments used. Therefore, ethics approvals gained from the Flinders University Social and Behavioural Research Ethics Committee and from the South Australian Department of Education and Children's Services Research Unit remained valid for the main study.

A variety of types of school was chosen to allow some exploration of whether school type affected the relationships hypothesised in the present study. This decision was made with an awareness that sample sizes in terms of numbers of types of schools would be restrictively, yet necessarily, small in a statistical analysis sense. Hence, a reasonably representative mix of schools was sought in terms of single-sex and coeducational, independent and state schools, with varying socio-economic status. The final sample comprised: (a) four coeducational, one girls', and one boys' schools; (b) two private and four state schools; and (c) three upper-middle, two middle, and one lower-middle class schools. That the final sample did not comprise a fully-balanced mix of school types was unavoidable given the restrictions in terms of individual school timetables and the academic year, the willingness of schools to participate, and the time and resource limitations of the research programme itself.

Schools were drawn (essentially as a sample of convenience) from listings supplied by the Department of Education and Children's Services, which is the state education authority of South Australia (SA), the Association of Independent Schools of SA, and the Catholic Education Office of SA. To comply with an additional prerequisite of the Catholic school system, ethics approval was sought and gained from the Catholic Education Office of SA prior to contacting member schools. To recruit schools, initial contact was made with the head of each school, either via telephone or email, during which the research and its objectives were briefly outlined. If a school was willing to participate, a meeting was then arranged with the head or their delegate, which could be the deputy-head, school counsellor, year level coordinators, or a combination thereof. The letter introducing the researcher (Appendix H, p. 328) was presented at this meeting and the research was outlined in detail before it was collaboratively decided how best to conduct the survey.

Depending on curricular and other commitments, all schools chose to administer the survey at varying times throughout the South Australian school year (typically February through November) during a home group or pastoral care period. This is typically a period of around 40 or 50 minutes held on a weekly basis during which administrative issues are addressed, or during which students might be involved in activities that are not strictly curriculum-related. Home group or pastoral care periods were chosen to minimise the impact upon teaching schedules. Given the necessity for a flexible approach to scheduling to cope with variable school timetables, the data collection process took place over a six-month period from April to September of 2004, centring around the middle of the school year. Note that the Welsh College survey was conducted in November of 2003 as discussed in the pilot study procedure section of Chapter 2 (see section 2.1.4, p. 80).

Approximately 3 weeks prior to the scheduled survey date, the researcher delivered copies of the participant Information Sheet (Appendix I, p. 330) and the Consent Form (Appendix J, p. 332) to the school for distribution to all students of those teachers who had agreed to participate in the project. Note that the pilot study consent form was modified slightly for the main study. Although the wording remained the same, the form now included a tear-off section and an advice as to when the form needed to be returned to the school, the date being set by the school representative. It was hoped that the tear-off reply and return-by date would help parents and students to return their replies to the school within the scheduled timeframe, thereby increasing response rates.

The information sheet and consent form were stapled and collated into class groups (typically around 30 per class) in envelopes by the researcher. Given the size and scheduling of the survey, it was possible that one school would conduct the survey with

all classes of the three year levels (i.e., 8-10) during one pastoral care period in the same timeslot on the same day. This could result in over 20 classes completing the survey at one time, clearly making it impossible for the researcher to administer the survey to each class individually. Therefore, teachers administered the questionnaires and included with each envelope containing the preliminary forms was a Teacher Instruction Sheet (Appendix N, p. 381). This sheet gave the scheduled dates and outlined in some detail what was required of the class teacher to administer the survey. Although the school representative had previously informed teachers of the survey procedure, it was considered important to reiterate what was required and detail the administration specifications as a means of standardising (as far as circumstances permitted) the survey process. The instructions given to teachers are presented below.

- Hand surveys to participating students
- Arrange a quiet activity for those not participating
- Instruct students that they
 - will require a pen or pencil
 - will be required to work alone
 - will have the lesson/class to complete the survey
 - should ask the teacher if something is not understood
- Emphasise that
 - student responses will be totally confidential and anonymous
 - students should not put their name anywhere on the form
 - the school, teachers or other students will not see their responses
 - honest answers are important
 - the research is looking at how students really feel
 - their answers will be very helpful in designing bullying programmes

- Read through first page with the practice question “*I enjoy playing sport*”
- Emphasise that
 - students need to read information and each question carefully
 - all students have the same questions, but in differing order
 - some questions may be worded similarly, but they are different
 - most answers require circling the number that best matches how they feel
 - however, one set of questions requires an “*A*” or “*B*” response
 - students need to choose which of the two is closest to how they feel
- Collect surveys upon completion and place in envelope provided

Scales were presented within the survey battery in a random order based on a Latin squares design to control systematic error arising from the order of presentation of individual scales (Winer, 1971). As discussed previously in Chapter 2 (see section 2.1.4, p. 80), this resulted in 36 different forms, which was considered an acceptable number in terms of counterbalancing and minimising order effects, while also taking into account the practicalities associated with printing and collating the large number of surveys.

Copies of the survey were collated into class groups and delivered to the school by the researcher for distribution to teachers one to two weeks prior to the day of the survey. Included was another copy of the instructions to teachers. Following the collating of returned consent forms by the class teacher, the survey was administered to those students who had consented to participate (with parents’ or guardians’ permission) at the scheduled time. As with the pilot study, the classroom survey process took on average approximately 35 to 40 minutes and those students who had declined to participate were given other quiet tasks by the teacher. Completed surveys were

collected by the teacher and placed in unmarked envelopes provided by the researcher. Where possible, the researcher was present at the school to assist in administering the survey, answer any queries, and collect completed questionnaires. There were no major procedural difficulties encountered at any site. No school or individual received any remuneration for participating in the study.

3.2 Results

The results of the main study are reported in three sections. First, response rates, data screening and transformation are described. The second section presents results of the factor analyses undertaken for each variable. The final section describes other preliminary analyses, showing descriptive statistics and correlation matrices, while also exploring possible confounding relationships between variables. The results of analyses to test each of the hypotheses are presented in Chapter 4. All data from the main study were analysed using SPSS version 11.5 (SPSS Inc., 2003).

3.2.1 Response Rates

Table 3.4 presents response rates for the main study, including the pilot study school Welsh College. As with the pilot study, the researcher did not have access to individual students' details, which proved problematic in determining precise consent and response rates. Consequently, it was not possible to gain information indicating whether it was the individual student who had declined participation, or their parent or guardian. Neither was it possible to determine specifically why consent forms were not returned by students, nor the characteristics of these students.

Table 3.4
Approximate Response Rates, by School and Year Level

School	Year 7	Year 8	Year 9	Year 10	Total
Welsh					
Consent forms distributed	69	92	92		253
Completed surveys returned	26	25	61		112
Response rate (%)	37.68	27.17	66.30		44.27
Northern					
Consent forms distributed		140	168	112	420
Completed surveys returned		68	74	63	205
Response rate (%)		48.57	44.05	56.28	48.81
Wheatsheaf					
Consent forms distributed		196	196	196	588
Completed surveys returned		118	114	75	307
Response rate (%)		60.20	58.16	38.27	52.21
Forest Hill					
Consent forms distributed		224	224	224	672
Completed surveys returned		143	143	139	425
Response rate (%)		63.84	63.84	62.05	63.24
Malden					
Consent forms distributed		100	100	75	275
Completed surveys returned		56	52	45	153
Response rate (%)		56.00	52.00	60.00	55.64
Spencer					
Consent forms distributed		207	207	184	598
Completed surveys returned		176	128	122	426
Response rate (%)		85.02	63.84	66.30	71.24
Total					
Consent forms distributed		959	987	791	2,806
Completed surveys returned		586	572	444	1,628
Response rate (%)		61.11	57.95	56.13	58.02

It also proved impractical to determine to what extent participant response rates were affected by student absences on the day of data collection. Therefore, cited response rates are only approximations, presented as a ratio of the number of consent forms distributed to classes, to the number of completed surveys returned.

Given the above factors, it was considered unlikely that any meaningful information would be gained from in-depth analyses of response rate patterns. Nevertheless, chi-square tests for independence were undertaken to explore year level and school differences in response rates. Significant associations were evident between response rates and school, $\chi^2(5) = 228.48, p < .001$, and between response rates and year level, $\chi^2(3) = 16.52, p = .001$, with a number of trends worth highlighting. First, it is apparent that the response rate for the pilot study school Welsh College was lower than other schools and lower than the overall rate. In addition, Spencer College clearly had the highest response rate at over 70% with their Year 8 cohort having the highest response of all with over 85% of surveys returned. Although there were no obvious reasons for these associations in terms of other variables measured, such as when during the school year the survey was conducted, the issue of response rates will be addressed in some detail in the final discussion chapter of this thesis.

3.2.2 Data Screening

During the data entry process, surveys were checked by the researcher for response sets such as the circling of the same response to all items. Although possibly problematic and requiring some subjective judgment, it was a necessary part of the data entering and screening process. For example, it is entirely possible that a participant could respond to all bullying or victimisation behaviours by circling 1 (*Never*) or 3 (*Sometimes*). Such a response pattern could be an honest one, or it could be due to a

response set. On the other hand, it is rather less likely that a participant would honestly respond to these behaviours by circling 5 (*Very often*). Therefore, if a possible response set of all 1s, 2s, or 3s was found in a bullying or victimisation scale, responses to the participant's other scales were checked for patterns and, if the other scales showed no obvious signs of a response set, the questionnaire data were entered as found. That the bullying and victimisation scales did not contain reverse worded items admittedly contributed to this problem. It was therefore easier, although certainly not foolproof, to determine response sets in the other scales that did have reversed items. Determining response sets in the narcissism scale with its forced-choice and reverse-worded items was more straightforward as, for example, responses of all As, all Bs, or ABABAB on a page or throughout the scale was clear evidence of a response set.

In general, patterns or sets of responses were typically obvious on the page and, whether evident by grouped items on a page or by scale, responses that were clearly suspect were therefore entered as missing data. As there were relatively few participants considered to be presenting with response sets, these data were not quantified other than entering the responses as missing data. Of the whole sample, there were only seven surveys returned that were rejected in full; five boys and two girls (or four boys and three girls; see below) from varying schools and of varying ages. Response patterns on these surveys varied. For example, one participant gave nonsensical responses in the demographic section (e.g., Age: 90 years, Gender: male and female) followed by only extreme responses (e.g., all 1s, 5s, or As) within scales. Two participants responded to only the first 2 or 3 items on each scale, while two others gave only extreme responses (all 5s or 7s) to all scales. The final two surveys were rejected as responses were presented in clear patterns (e.g., 5, 4, 3, 2, 1, 2, 3, 4, 5) resulting in a geometric pattern (an "S" shape) apparent on the page, or a straight line of circles all on the right hand

side of the page (e.g., all 5s). In addition, these participants were not included in final response rates as it was considered that they represented a legitimate (if uncommon) form of participants' withholding of consent.

Prior to analysis, all final data were examined using SPSS for accuracy of data entry, missing data, assumptions of normality, and outliers before component and reliability analyses were conducted for each variable. Where questionable entries were suspected, the original surveys were checked for accuracy and the data file corrected accordingly.

3.2.2.1 Missing value analyses.

An initial missing value analysis was carried out for individual items within each scales. No single item in any scale exhibited over 5% of cases missing, the point at which missingness may be problematic (Tabachnick & Fidell, 2001). Bully scale items with missing cases varied between 1.8% and 2.5% and victim items varied between 1.4% and 2.6%. Similar values were found for items within all other variables: personal self-esteem 1.2-3.0%, collective self-esteem 1.2-2.9%, narcissism 1.8-4.2%, and impression management 0.7-2.7%.

Next, item scores were summated and a missing value analysis was conducted for resultant fullscale variables to get an overall picture of the extent of the problem and, as can be seen in Table 3.5, all variables had greater than 5% of cases missing. In addition, different combinations of variables would result in even further data loss during multivariate analyses as a result of pairwise or listwise case deletion in SPSS. For example, a listwise $n = 1,113$ was possible in some analyses, equating to a loss of over 500 cases; clearly missing data was a major issue. Furthermore, these simple case-deletion procedures may bias results if the respondents who provide complete data are

not actually representative of the total sample (Schafer & Olsen, 1998). Hence, dealing with missing observations by the deletion of cases requires that the data be examined to ensure observations were missing completely at random, that is, the pattern of missing values did not depend on the data values observed (Croy & Novins, 2005; Schafer & Olsen, 1998).

Table 3.5

Missing Value Statistics for Fullscale Scores, for all Variables (N = 1,628)

Variable	Cases missing	%
Bully total	85	5.2
Victim total	113	6.9
Personal self-esteem	86	5.3
Collective self-esteem	120	7.4
Narcissism	275	16.9
Impression management	123	7.6

An SPSS missing value analysis was therefore conducted for all fullscale variables, including age, school, main language spoken at home, and gender to determine missing value relationships between all variables. The resultant Little's Missing Completely At Random (MCAR) test did not reach significance, $\chi^2(143) = 159.79, p = .160$, indicating that the pattern of missing values among these variables did not differ significantly from a random pattern. In addition, none of the separate variance t tests reached significance for any fullscale variables, indicating that values did not significantly vary as a product of missing cases (Tabachnick & Fidell, 2001). Essentially, these results indicated that values were missing in a random fashion, suggesting that the listwise deletion of cases might be a suitable strategy (Croy &

Novins, 2005), however, as stated above, the loss of over 500 participants' responses was an undesirable outcome.

Despite the above Little's MCAR test result, Schafer and Graham (2002) assert that whether data are missing completely randomly is largely an untestable and often an unrealistic assumption. Instead, methods of analysing missing values operate under the assumption that the probability of data missing is dependent upon the data values that are observed (i.e., within the data set), not on the values that are missing (i.e., variables not measured). Known as missing at random (MAR), this assumption allows estimates to be adjusted using information available in the dataset. Furthermore, although maximum likelihood approaches (such as that employed in SPSS) assume MAR, departures from this assumption are generally not large enough in realistic datasets to have a major impact upon results (Collins, Schafer, & Kam, 2001).

Keeping in mind the above assumption of missing at random (i.e., possible patterns of missingness within the observed data), there were some interesting patterns evident in the SPSS missing value analysis output regarding the categorical variables of gender, school, and main language spoken at home. Although these were not flagged in the results of missing value analyses as significantly affecting any of the main variables, they were nevertheless worth investigating further. Consequently, a "data missing" variable was created for each main variable, with a value of 1 assigned to those cases with a missing value on the target variable and 0 for those cases presenting with a full set of responses. Subsequent chi-square tests for independence to explore the relationship between gender and missing values resulted in a significant association for narcissism only, such that males were more likely to present a non-response (i.e., at least 1 of 40 responses missing) on the narcissism scale than females (see Table 3.6). There were no significant gender differences in missing values for any other variable.

Table 3.6

Number of Cases With Missing and non-Missing Values for all Fullscale Scores, by Gender (df = 1, N = 1,628)

Variable		Non-missing	Missing	χ^2	<i>p</i>
Bully	Girls	629 (94.6%)	36 (5.4%)	0.08	.772
	Boys	914 (94.9%)	49 (5.1%)		
Victim	Girls	612 (92.0%)	53 (8.0%)	1.84	.175
	Boys	903 (93.8%)	60 (6.2%)		
Personal SE	Girls	629 (94.6%)	36 (5.4%)	0.04	.844
	Boys	913 (94.8%)	50 (5.2%)		
Collective SE	Girls	613 (92.2%)	52 (7.8%)	0.33	.565
	Boys	895 (92.9%)	68 (7.1%)		
Narcissism	Girls	574 (86.3%)	91 (13.7%)	7.67	.006
	Boys	781 (81.1%)	182 (18.9%)		
IM	Girls	610 (91.7%)	55 (8.3%)	0.82	.364
	Boys	895 (92.9%)	68 (7.1%)		

Note. SE = Self-Esteem, IM = Impression Management. *ps* 2-sided.

Chi-square tests also showed significant associations between school and missing values on the collective self-esteem and narcissism scales, but not on the bullying, victimisation, personal self-esteem, or impression management scales (see Tables 3.7 and 3.8). Participants from Malden High were more likely to present with a missing value on the collective self-esteem scale than were respondents from other schools. Students from Welsh College and Malden High were less likely, and students from Wheatsheaf and Forest Hill schools more likely, to present a non-response on the narcissism scale.

Table 3.7

Number of Cases With Missing and non-Missing Values for Bully, Victim, and Personal Self-Esteem Fullscale Scores, by School (df = 5, N = 1,628)

Variable	School	Non-missing	Missing	χ^2	<i>p</i>
Bully	Welsh	108 (96.4%)	4 (3.6%)	1.79	.877
	Northern	55 (96.5%)	2 (3.5%)		
	Wheatsheaf	429 (94.3%)	26 (5.7%)		
	Forest Hill	400 (94.1%)	25 (5.9%)		
	Malden	145 (94.8%)	8 (5.2%)		
	Spencer	406 (95.3%)	20 (4.7%)		
	Victim	Welsh	104 (92.9%)			8 (7.8%)	7.49	.187
Northern		56 (98.2%)	1 (1.8%)		
Wheatsheaf		421 (92.5%)	34 (7.5%)		
Forest Hill		388 (91.3%)	37 (8.7%)		
Malden		141 (92.2%)	12 (7.8%)		
Spencer		405 (95.1%)	21 (4.9%)		
Personal SE		Welsh	110 (98.2%)	2 (1.8%)	6.75	.240
	Northern	56 (98.2%)	1 (1.8%)		
	Wheatsheaf	426 (93.6%)	29 (6.4%)		
	Forest Hill	406 (95.5%)	19 (4.5%)		
	Malden	145 (94.8%)	8 (5.2%)		
	Spencer	3996 (93.7%)	27 (6.3%)		

Note. SE = Self-Esteem. *ps* 2-sided.

Table 3.8

Number of Cases With Missing and non-Missing Values for Collective Self-Esteem, Narcissism, and Impression Management Fullscale Scores, by School (df = 5, N = 1,628)

Variable	School	Non-missing	Missing	χ^2	<i>p</i>
Collective SE	Welsh	108 (96.4%)	4 (3.6%)	13.55	.019
	Northern	55 (96.5%)	2 (3.5%)		
	Wheatsheaf	415 (91.2%)	40 (8.8%)		
	Forest Hill	398 (93.6%)	27 (6.4%)		
	Malden	133 (86.9%)	20 (13.1%)		
	Spencer	399 (93.7%)	27 (6.3%)		
Narcissism	Welsh	102 (91.1%)	10 (8.9%)	15.23	.009
	Northern	48 (84.2%)	9 (15.8%)		
	Wheatsheaf	372 (81.8%)	83 (18.2%)		
	Forest Hill	340 (80.0%)	85 (20.0%)		
	Malden	139 (90.8%)	14 (9.2%)		
	Spencer	354 (83.2%)	72 (16.9%)		
IM	Welsh	108 (96.4%)	4 (5.8%)	9.67	.085
	Northern	56 (98.2%)	1 (1.8%)		
	Wheatsheaf	415 (91.2%)	40 (8.8%)		
	Forest Hill	392 (92.2%)	33 (7.8%)		
	Malden	136 (88.9%)	17 (11.1%)		
	Spencer	398 (93.4%)	28 (6.6%)		

Note. SE = self-esteem, IM = Impression Management. *ps* 2-sided.

Chi-square tests for independence showed a consistent association between missing values and the main language spoken at home. Before describing these results, it should first be noted that 94.1% of all respondents cited English as their main language spoken at home and, of the remaining 5.9%, a further 25 languages were cited. This produced some very small relative numbers of cases per language, making any statistical analysis difficult (for a full list of languages, see Table L.6 in Appendix L, p.

350). Therefore, this variable was collapsed into a dichotomous variable with two categories of English and language other than English. In addition, one participant did not give a response to this question, resulting in a sample of 1,627 for these analyses (see Table 3.9).

Table 3.9

Number of Cases With Missing and non-Missing Values for all Fullscale Scores, by Main Language Spoken at Home (df = 1, N = 1,627)

Variable		Non-missing	Missing	χ^2	<i>p</i>
Bully	English	1458 (95.2%)	74 (4.8%)	8.23	.014 ^a
	Other	84 (88.4%)	11 (11.6%)		
Victim	English	1431 (93.4%)	101 (6.6%)	5.05	.025
	Other	83 (87.4%)	12 (12.6%)		
Personal SE	English	1455 (95.0%)	77 (5.0%)	3.53	.060
	Other	86 (90.5%)	9 (9.5%)		
Collective SE	English	1423 (92.9%)	109 (7.1%)	2.61	.106
	Other	84 (88.4%)	11 (11.6%)		
Narcissism	English	1282 (83.7%)	250 (16.3%)	3.99	.046
	Other	72 (75.8%)	23 (24.2%)		
IM	English	1426 (93.1%)	106 (6.9%)	15.42	.001
	Other	78 (82.1%)	17 (17.9%)		

Note. ^aFisher's Exact Test. SE = Self-Esteem, IM = Impression Management. *ps* 2-sided.

As can be seen in Table 3.9 above, those who reported English as the main language spoken at home were less likely to present with non-responses on the bullying, victimisation, narcissism, and impression management scales than participants who

spoke mainly another language at home. Note that Fisher's Exact Test was reported for the bullying result as over 20% of cells in this contingency table had an expected count of less than 5 (Pallant, 2001).

Finally, given the above discussion regarding the data set's pattern of missing values being not completely random, and in line with the recommendations of Croy and Novins (2005) and of Tabachnick and Fidell (2001), missing values were imputed using the expectation maximisation method available within SPSS as it is a simple and reasonable approach to the imputing of missing data. Derived from the maximum likelihood approach, this method produces realistic variance estimates and avoids the problems of solution overfitting (i.e., the solution looks better than it actually is) and impossible matrices (Tabachnick & Fidell). All subsequent analyses of the main study data were carried out with the full data set complete with imputed values, although it should be noted that *ns* varied between specific analyses described below as a result of univariate and multivariate outlier identification and removal for each analysis.

The strategy of imputing missing values was not applied to individual narcissism scale items as responses were made in a dichotomous format, scored as either 0 (a non-narcissistic response) or 1 (a narcissistic response). Having values (imputed or otherwise) that lie somewhere between zero and one is somewhat meaningless in the case of a 0/1 dichotomous response format. Therefore, despite the above argument for imputing missing values, it was necessary that component analyses for the Narcissistic Personality Inventory (NPI) be conducted using only those cases with a full set of responses. It was planned that the imputation of missing values would be carried out on total narcissism scores (see Chapter 4, section 4.2, p. 183) and, only if appropriate components were derived and considered worthy of exploration, subscale narcissism scores.

3.2.2.2 *Normality assumptions and variable transformation.*

Prior to missing value imputation and in readiness for factor analyses, individual scale items were checked for normality assumptions. All bullying and victimisation items showed some degree of positive skew, (Kolmogorov-Smirnov z s = 0.57 to 2.90 and 0.52 to 2.55, respectively), which was not surprising given that one would expect aggressive behaviours to cluster around the lower range of scores (e.g., Owens et al., 2005). After analysing histograms and outputs for skewness and kurtosis for all scale items, those with non-normal patterns were subjected to various transformations to reduce violations of normality. If transformations of mildly non-normal variables (e.g., SPSS skewness or kurtosis values around 1) made no marked improvement, they were left in their original form (Tabachnick & Fidell, 2001). Transformations made to bullying and victimisation scale items are listed in Tables 3.10 and 3.11, respectively.

Since the inverse and square root transformations have the effect of reversing the order of the scores, possibly resulting in negative covariances in later reliability analyses of components, items transformed through the inverse or square root function were then also reflected. The reflect transformation has the effect of reordering values as they were and was achieved by subtracting the inversed variable from the constant K , where K equals the largest value on the variable plus one (e.g., reflected variable = $K -$ inversed variable).

Table 3.10
Transformations to Bullying Questionnaire Items

Unchanged	Log10	Inverse (& reflected)
1. hit	2. prank phone call	5. make friends with other as revenge
4. yell	3. shut out of the group	10. bad stories
7. ignore	6. kick	11. threaten to hurt
8. insult	9. trip	12. nasty electronic messages
14. shove	17. say "let's not be with..."	13. plan secretly to bother
15. talk behind back	18. take things	21. write criticising notes
16. call names	19. tell secrets	22. push
20. tease	23. criticise clothes, hair	26. get others to dislike
25. dirty looks, daggers	24. grab	

Table 3.11
Transformations to Victimization Questionnaire Items

Unchanged	Log10	Inverse (& reflected)
1. hit	2. prank phone call	12. nasty electronic messages
4. yell	3. shut out of the group	21. write criticising notes
7. ignore	5. make friends with other as revenge	22. push
8. insult	6. kick	
10. bad stories	9. trip	
14. shove	11. threaten to hurt	
15. talk behind back	13. plan secretly to bother	
16. call names	17. say "let's not be with..."	
18. take things	19. tell secrets	
20. tease	23. criticise clothes, hair	
25. dirty looks, daggers	24. grab	
	26. get others to dislike	

There was only one item on the personal self-esteem scale that required transformation. Following a square root transformation, Item 3 (*I feel that I have a number of good qualities*) no longer significantly violated univariate normality assumptions. Of the collective self-esteem scale, Items 1 (*I am a worthy member of the group that I belong to*), 6 (*In general, I'm glad to be a member of the group I belong to*), 9 (*I am a cooperative participant in the group I belong to*), and 14 (*I feel good about the group I belong to*) were subjected to a Log10 transformation. No other collective self-esteem items required transformation. A number of impression management scale items exhibited mildly non-normal skewness or kurtosis. Given that

no transformation made any appreciable improvement to these items, all items on the impression management scale were left in their original form.

As items on the narcissism scale were dichotomous, normality was determined by assessing the percentage split of 0 to 1 responses. Items that exhibit very high (or low) endorsement rates with a response percentage split exceeding 80/20 indicate that most individuals are responding with the same alternative, suggesting that these items may possibly detract from the scale's psychometric properties (Streiner & Norman, 1995). Clark and Watson (1995) recommend that items on which more than 95% of participants give the same response (i.e., 95/5 response split) should be excluded as they may lead to distorted correlations. Item 38 of the narcissism scale was the only item to fall within the 80/20 interval, with 85.5% of participants choosing the non-narcissistic response (*I don't mind blending into the crowd when I go out in public*) and 14.5% agreeing with the narcissistic response (*I get upset when people don't notice how I look when I go out in public*). As the split did not exceed the 95/5 criteria, Item 38 was included in subsequent analyses.

3.2.3 Scale Component and Reliability Analyses

As principal component analyses were planned for all relevant main variables to confirm factors or components found in previous studies, it was decided that it would be appropriate to impute missing values for individual items before these analyses were conducted. As described above, this was conducted using the expectation maximisation method available within SPSS. Next, as both reliability and factor analyses are sensitive to the effects of outliers, univariate outliers were determined in the manner suggested by Tabachnick and Fidell (2001) via first transforming all scale items to *z* scores. Those cases with standardised scores exceeding 3.29 would then be considered

as possible outliers. There were no univariate outliers found for any of the individual scale items for bullying, victimisation, personal self-esteem, collective self-esteem, or impression management scales. This was not surprising given that transforming non-normal variables often results in a reduction in the effects and, hence, the number of outliers found (Tabachnick & Fidell).

Tabachnick and Fidell (2001) also outline a procedure whereby Mahalanobis distance is used to detect multivariate outliers within a group of variables which, in this case, would be the group of scale items making up the full scale to be subjected to a factor analysis. All cases in a multivariate data set centre, or swarm, around the point (referred to as the centroid) that represents the intersection of the means of all the variables. Mahalanobis distance is the distance of a case from the centroid, with multivariate outliers being those cases that lie some distance beyond the swarm of other cases. Mahalanobis distance can then be evaluated using the χ^2 distribution (see Tabachnick & Fidell, p. 933), with those cases exceeding the critical χ^2 value at an alpha level of .001 considered to be multivariate outliers.

This was achieved in the present study using the multiple regression procedure where a dummy variable was first created wherein each case was randomly assigned a value of between 1 and 100 (an admittedly arbitrary choice). As the values on the dummy variable were essentially random, it was therefore unlikely that any other variables would be significantly related to it (Tabachnick & Fidell, 2001). The dummy variable was subsequently used as a dependent variable in a regression with the relevant scale items (e.g., 26 bullying items) then entered into the regression as a block of independent variables. Mahalanobis distance values for each case were saved as a separate variable in SPSS with those cases exceeding the critical χ^2 value considered to be multivariate outliers and excluded from subsequent factor analyses. Consequently,

and as reflected in the respective *ns* quoted below, the bullying scale lost 85 cases as multivariate outliers, victimisation 86, personal self-esteem 32, collective self-esteem 62, and impression management lost nine cases. There were no multivariate outliers evident for the narcissism scale.

3.2.3.1 Component and reliability analyses for the bullying scale.

Confirmatory factor analysis of the bullying scale using principal components analysis within SPSS was conducted using oblique promax method as it was expected that any underlying components would be correlated (Tabachnick & Fidell, 2001). An inspection of the correlation matrix showed the majority of correlations to exceed .30, the Kaiser-Meyer-Olkin value of .97 was above the recommended minimum of .60, and Bartlett's Test of Sphericity was significant ($p < .001$), all statistics indicating that the matrix was suitable for component analysis (Tabachnick & Fidell). Given the large size of the correlation matrix, it has been placed in Appendix L (Tables L.7a-d, p. 351).

Principal components analysis revealed three components with eigenvalues exceeding 1, explaining 42.01%, 7.88%, and 4.45% of the variance, respectively (54.34% total variance explained). An inspection of the scree plot confirmed this, although a clear break was evident after the second component. As the pattern of components was not clear-cut, promax rotations with Kaiser normalisation were undertaken to explore whether two or three components would better explain the data. The initial rotation asked for three components, expecting that the components may present in line with the original physical, verbal, and indirect subscales of the Direct and Indirect Aggression Scales (DIAS, Björkqvist, Lagerspetz, & Österman, 1992). However, a number of items loaded highly onto more than one component and items within components did not group in an intuitive fashion with, for example, calling

someone names (verbal) and ignoring someone (indirect) loading quite highly onto the same component. Table L.8 in Appendix L (p. 355) shows the pattern matrix for the 3-component solution. The second promax rotation drew two components and, as can be seen in Table 3.12, all but one item loaded clearly on the two components, explaining 49.89% of the variance. Making prank phone calls (Item 2) did not load strongly onto either component, with loadings of .263 and .271 for components 1 and 2, respectively. Consequently, this item was not included in subsequent analyses that included these components.

To aid interpretation, included in Table 3.12 is a column showing the subscale of the DIAS (Björkqvist, Lagerspetz, & Österman, 1992) that individual items should belong to. After removal of Item 2 (prank phone calls), it is apparent that the 2 components derived from the principal components analysis can easily and intuitively be described as Direct (physical and verbal) and Indirect Aggression components, comprising 12 and 13 items, respectively. This was considered reasonable, as the components matched the theoretical and conceptual basis of the instrument and as there are no published reports of factor analyses of the self-report versions of the DIAS (Collett et al., 2003). Consequently, it was decided that subsequent analyses would be conducted using these two bullying components with related hypotheses modified accordingly (see section 4.1, p. 178) and, to that end, reliability analyses of full- and subscales were conducted next. The total bullying scale produced a Cronbach alpha of .91 (25 items, $n = 1,543$), whereas the 12-item Direct subscale had .88 ($n = 1,570$) and 13-item Indirect subscale had .80 ($n = 1,589$), with Table 3.13 presenting detailed results of the reliability analyses. Self-report bullying scale reliabilities for the main study were satisfactory and comparable with values cited in previous research ($r_s = .60-.84$, Österman et al., 1994).

Table 3.12

Bullying Principal Components Analysis Results and DIAS Subscales (n = 1,543)

Item	Component		DIAS subscale
	1	2	
1 hit	.92		P
14 shove	.88		P
6 kick (log10)	.87		P
22 push (inverse)	.79		P
24 grab (log10)	.75		P
9 trip (log10)	.75		P
11 threaten to hurt (inverse)	.67		V
20 tease	.66		V
8 insult	.66		V
4 yell	.63		V
16 call names	.61		V
18 take things (log10)	.55		P
15 talk behind back		.80	I
26 get others to dislike (inverse)		.79	I
17 say "let's not be with..." (log10)		.78	I
19 tell secrets (log10)		.74	I
5 friends with other as revenge (inverse)		.68	I
21 write criticising notes (inverse)		.67	I
3 shut out of the group (log10)		.58	I
7 ignore		.57	I
25 dirty looks, daggers		.57	I
10 bad stories (inverse)		.55	I
23 criticise clothes, hair (log10)		.54	I
13 plan secretly to bother (inverse)		.50	I
12 nasty electronic messages (inverse)		.39	I
2 prank phone call (log10)			I

Note. Loadings less than .30 suppressed. DIAS = Direct and Indirect Aggression Scales, P = Physical, V = Verbal, I = Indirect.

Table 3.13

Scale Alpha if Item Deleted for Total, Direct, and Indirect Bullying Scales

Item	Scale alpha if item deleted		
	Total	Direct	Indirect
1 hit	.90	.87	
3 shut out of the group (log10)	.90		.79
4 yell	.90	.87	
5 friends with other as revenge (inverse)	.90		.79
6 kick (log10)	.90	.88	
7 ignore	.90		.78
8 insult	.90	.86	
9 trip (log10)	.90	.88	
10 bad stories (inverse)	.90		.79
11 threaten to hurt (inverse)	.90	.88	
12 nasty electronic messages (inverse)	.90		.79
13 plan secretly to bother (inverse)	.90		.79
14 shove	.90	.86	
15 talk behind back	.90		.77
16 call names	.90	.86	
17 say "let's not be with..." (log10)	.90		.79
18 take things (log10)	.90	.88	
19 tell secrets (log10)	.90		.79
20 tease	.90	.86	
21 write criticising notes (inverse)	.90		.79
22 push (inverse)	.90	.88	
23 criticise clothes, hair (log10)	.90		.79
24 grab (log10)	.90	.88	
25 dirty looks, daggers	.90		.79
26 get others to dislike (inverse)	.90		.78

Finally, it should be noted that principal components analyses were also conducted with the data set without the imputed missing values to ensure that

imputation did not affect the outcome. Essentially identical results were obtained, with the same two-component solution again providing the most parsimonious explanation.

3.2.3.2 Component and reliability analyses for the victimisation scale.

Principal components analysis was conducted using oblique promax method to determine components in the victimisation scale and patterns similar to those found for the bullying scale quickly became evident. An inspection of the victimisation correlation matrix showed that the majority of correlations exceeded .30, the Kaiser-Meyer-Olkin value of .97 was above the recommended minimum of .60, and Bartlett's Test of Sphericity was significant ($p < .001$), all parameters indicating that the matrix was suitable for component analysis (Tabachnick & Fidell, 2001). Given the large size of the victimisation correlation matrix, it also has been placed in Appendix L (Tables L.9a-d, p. 356).

Principal components analysis revealed three components with eigenvalues exceeding 1 and each component explaining 45.04%, 7.76%, and 4.78% of the variance, respectively, with a total 54.59% of the variance explained by these three components. An inspection of the scree plot confirmed this, although a clear break was evident after the second component. However, as the pattern of components was not clear-cut, promax rotations with Kaiser normalisation were undertaken to explore whether two or three components would better explain the data. The initial rotation asked for three components; however, a number of items loaded on more than one component and items within components did not group in a manner that corresponded clearly with the DIAS or with another similarly intuitive pattern (see Table L.10 in Appendix L, p. 360). For example, indirect items did not all group together clearly and, as with the bullying scale, some verbal and indirect items loaded onto the same component (Table 3.14).

Table 3.14

Victimisation Principal Components Analysis Results and DIAS Subscales (n = 1,542)

Item	Component		DIAS subscale
	1	2	
26 get others to dislike (log10)	.88		I
15 talk behind back	.85		I
25 dirty looks, daggers	.83		I
5 friends with other as revenge (log10)	.78		I
17 say "let's not be with..." (log10)	.77		I
7 ignore	.73		I
19 tell secrets (log10)	.68		I
3 shut out of the group (log10)	.68		I
10 bad stories	.66		I
13 plan secretly to bother (log10)	.65		I
21 write criticising notes (inverse)	.62		I
12 nasty electronic messages (inverse)	.43		I
23 criticise clothes, hair (log10)	.43		I
2 prank phone call (log10)	.38		I
1 hit		.90	P
6 kick (log10)		.85	P
24 grab (log10)		.81	P
22 push (inverse)		.80	P
9 trip (log10)		.79	P
14 shove		.78	P
11 threaten to hurt (log10)		.68	V
18 take things		.54	P
4 yell		.46	V
20 tease	.36	.45	V
8 insult	.37	.45	V
16 call names	.41	.42	V

Note. Loadings less than .30 suppressed. DIAS = Direct and Indirect Aggression Scales, P = Physical, V = Verbal, I = Indirect.

The second promax rotation drew two components and explained 52.58% of the variance. As can be seen in Table 3.14, most items loaded clearly on the two components, although 3 verbal items loaded onto Components 1 and 2, with a greater loading on 2. In contrast to the results of bullying component analysis, making prank phone calls (Item 2) loaded onto a single victimisation component and was therefore retained for subsequent analyses.

Included in Table 3.14 above is a column showing the subscale of the DIAS that items should correspond to aid interpretation of the component matrix. As with the bullying scale, the 2 components derived from the victimisation principal components analysis were easily and intuitively described as direct (physical and verbal) and indirect components, comprising 12 and 14 items, respectively. As with the bullying scale, analyses were also conducted with the data set without the imputed missing values. Again, essentially the same results were obtained with two components explaining the data best. Consequently, subsequent analyses were carried out using the two components Direct Aggression and Indirect Aggression. Reliability analyses of full- and victimisation subscales were conducted next. The total victimisation scale produced a Cronbach alpha of .92 (26 items, $n = 1,542$), whereas the 12-item Direct subscale had .88 ($n = 1,575$) and the 14-item Indirect subscale had .85 ($n = 1,573$), with Table 3.15 presenting detailed results of the reliability analyses. Self-report victimisation scale reliabilities for the main study were satisfactory and comparable with values cited in previous research ($r_s = .73-.82$, Österman et al., 1994).

Table 3.15

Scale Alpha if Item Deleted for Total, Direct, and Indirect Victimization Scales

Item	Scale alpha if item deleted		
	Total	Direct	Indirect
1 hit	.91	.87	
2 prank phone call (log10)	.92		.84
3 shut out of the group (log10)	.92		.84
4 yell	.91	.87	
5 friends with other as revenge (log10)	.92		.84
6 kick (log10)	.92	.88	
7 ignore	.91		.82
8 insult	.91	.86	
9 trip (log10)	.92	.88	
10 bad stories	.91		.82
11 threaten to hurt (log10)	.92	.88	
12 nasty electronic messages (inverse)	.92		.84
13 plan secretly to bother (log10)	.92		.84
14 shove	.91	.86	
15 talk behind back	.91		.81
16 call names	.91	.86	
17 say "let's not be with..." (log10)	.92		.84
18 take things	.91	.87	
19 tell secrets (log10)	.92		.84
20 tease	.91	.86	
21 write criticising notes (inverse)	.92		.84
22 push (inverse)	.92	.88	
23 criticise clothes, hair (log10)	.92		.84
24 grab (log10)	.92	.88	
25 dirty looks, daggers	.91		.83
26 get others to dislike (log10)	.92		.84

3.2.3.3 Component and reliability analyses for the personal self-esteem scale.

A principal components analysis was conducted on the Rosenberg (1979) self-

esteem scale using the oblique promax method to verify that it was indeed a unidimensional instrument (Keith & Bracken, 1996). Results showed a Kaiser-Meyer-Olkin value of .90, Bartlett's Test of Sphericity was significant ($p < .001$), and the correlation matrix showed that the majority of correlations exceeded .30, although a number were marginal (e.g., $r_s = .13-.25$, see Table L.11 in Appendix L, p. 361).

Principal components analysis revealed two components with eigenvalues exceeding 1, explaining 45.17% and 15.25% of the variance, respectively. The scree plot confirmed this, although a clear break was evident after the first component and, as the pattern of components was not clear-cut, a promax rotation with Kaiser normalisation were undertaken. The factor rotation drew two components that explained 60.45% of the variance. As can be seen in Table 3.16, all items loaded heavily onto the first component, although a number of items also loaded slightly onto Component 2.

Table 3.16

Principal Components Analysis and Scale Alpha if Item Deleted for Personal Self-Esteem Scale (n = 1,596)

Item	Component		Scale alpha if item deleted
	1	2	
1 am satisfied with self	.70		.83
2 *think I am no good at all	.63	.47	.83
3 have a number of good qualities (sqroot)	.69	.43	.85
4 able to do as well as most others	.58	.49	.84
5 *do not have much to be proud of	.71		.83
6 *feel useless at times	.71	.44	.83
7 a person of worth, equal with others	.61	.46	.84
8 *wish more respect for self	.57	.45	.84
9 *inclined to feel a failure	.72		.83
10 take a positive attitude towards self	.77		.83

Note. * = reverse-coded items. Loadings less than .30 suppressed.

It was apparent that these analyses would not produce anything meaningful in terms of components within the personal self-esteem scale and it was decided to keep the scale as a unidimensional instrument and sum item scores accordingly, thereby producing a single, fullscale personal self-esteem variable. A reliability analysis of the fullscale personal self-esteem scale produced a Cronbach alpha of .85 (10 items, $n = 1,596$), with alpha if item deleted results presented in Table 3.16 above. This alpha coefficient exceeds that reported by Keith and Bracken (1996, .77) and is comparable with that of the pilot study ($\alpha = .87$).

3.2.3.4 Component and reliability analyses for the collective self-esteem scale.

Although no specific hypotheses were made in terms of collective self-esteem subscales, determining the presence of any components within the scale may facilitate a deeper understanding of the relationships that were hypothesised, even if only in an exploratory fashion. Luhtanen and Crocker (1992) determined that their Collective Self-Esteem Scale (CSES) consisted of four 4-item subscales measuring *membership*, *private*, *public*, and *identity* self-esteem. Membership collective self-esteem measures individuals' self-evaluation of how worthy they feel they are as members of their groups, while Private self-esteem assesses how an individual evaluates the group as a whole. Public self-esteem measures individuals' perceptions of how other people evaluate the group, whereas Identity self-esteem is a subjective indication of how important membership of the group is to one's self-concept. Rather than list subscale items here, Table 3.17 (see below) presents the collective self-esteem scale in a format that clearly separates items by CSES subscales.

Results of the initial principal components analysis showed a Kaiser-Meyer-Olkin value of .90 and a significant Bartlett's Test of Sphericity ($p < .001$), indicating

the scale was suitable for factor analysis. Additionally, the correlation matrix showed that approximately half of the correlations exceeded .30, although there were a number of very low values (e.g., $r_s = .01-.20$, see Table L.12 in Appendix L, p. 362). The initial analysis revealed four components with eigenvalues exceeding 1, respectively explaining 34.63%, 9.15%, 8.03%, and 7.90% of the variance. The scree plot confirmed this, although a clear break was evident after the first component and the pattern of components as shown by the component matrix (see Table L.13 in Appendix L, p. 363) did not clearly match Luhtanen and Crocker's (1992) subscales. Consequently, component rotations using both the orthogonal varimax method (in case the underlying components did not relate) and the oblique promax method (underlying components were related) were conducted to determine the best factor solution (Tabachnick & Fidell, 2001). Both forms of analysis produced similar patterns and only the promax rotation results are reported here, as they were marginally clearer overall. Promax analyses produced an initial solution of four components, which explained 59.71% of the variance but did not produce a clear 4-component pattern in that loadings were not straightforward, although items were roughly grouped as per the CSES subscales. All membership and private items loaded clearly onto one component, three public items loaded solely onto a second component, and identity items were spread over the remaining two components (see Table L.13, Appendix L, p. 363).

Consequently, a 3-component solution was also sought to better explain the data, the results of which are presented in Table 3.17. This solution, which explained 51.81% of the variance, resembled the original CSES subscales and the computing of three subscales and the running of reliability analyses was therefore warranted. As a comparative measure, the corresponding original CSES subscale values were also

computed. That is, the eight items of Component 1 were subdivided into the original CSES subscales of Membership and Private self-esteem.

Table 3.17

Collective Self-Esteem Principal Components Analysis Results and CSES Subscales (n = 1,566)

Item	Component			CSES subscale
	1	2	3	
1 a worthy member of the group (log10)	.77			Member
5 *don't have much to offer the group	.77			Member
9 a cooperative participant in group (log10)	.65			Member
13 *a useless member of group	.88			Member
2 *often regret that belong to group	.70			Private
6 glad to be a member of the group (log10)	.62			Private
10 *feel the group is not worthwhile	.61			Private
14 feel good about the group (log10)	.67			Private
3 group is considered good by others		.76		Public
7 *others consider group to be ineffective		.64		Public
11 others respect the group		.76		Public
15 *others think the group is unworthy		.75		Public
4 *group membership little to do with feel about self			.55	Identity
8 group is important reflection of self			.70	Identity
12 *group is unimportant to sense of self			.75	Identity
16 belonging to group is important part of self image			.76	Identity

Note. CSES = Collective Self-esteem Scale. * = reverse-coded items. Member = Membership. Loadings less than .30 suppressed.

Table 3.18 presents detailed results of internal reliability analyses for total and subscales for the collective self-esteem measure. The total collective self-esteem scale produced a Cronbach alpha of .81 (16 items, $n = 1,566$), comparable to that of the pilot study (.80) and those reported by Luhtanen and Crocker (1992, .86-.89). Regarding the subscales, the Membership/Private subscale gave an alpha of .76 (8 items, $n = 1,586$), Public had .70 (4 items, $n = 1,607$), and the Identity subscale produced an alpha of .60

(4 items, $n = 1,623$). The 4-item CSES subscales of Membership and Private self-esteem produced Cronbach alphas of .60 ($n = 1,617$) and .64 ($n = 1,601$), respectively.

Table 3.18

Scale Alpha if Item Deleted for Collective Self-Esteem Full- and Subscales

Item	Scale alpha if item deleted					
	Total	MePr	Pu	Id	Me	Pr
1 a worthy member of the group (log10)	.80	.76			.61	
2 *often regret that belong to group	.79	.70				.40
3 group is considered good by others	.79		.60			
4 *group membership little to do with feel about self	.81			.65		
5 *don't have much to offer the group	.79	.71			.36	
6 glad to be a member of the group (log10)	.80	.75				.64
7 *others consider group to be ineffective	.80		.73			
8 group is important reflection of self	.79			.47		
9 a cooperative participant in group (log10)	.80	.76			.62	
10 *feel the group is not worthwhile	.78	.71				.43
11 others respect the group	.79		.59			
12 *group is unimportant to sense of self	.80			.49		
13 *a useless member of group	.79	.69			.32	
14 feel good about the group (log10)	.80	.75				.64
15 *others think the group is unworthy	.79		.59			
16 belonging to group is important part of self image	.80			.49		

Note. * = reverse-coded items. MePr = Membership/Private, Pu = Public, Id = Identity, Me = Membership, Pr = Private.

In terms of reliability coefficients for the four corresponding CSES subscales (i.e., Membership, Private, Public, Identity), Luhtanen and Crocker cited internal reliability values that varied between .73 and .86, marginally higher than those found in the present study. Note that ns varied as a result of the removal of multivariate outliers for each reliability analysis. Finally, given that specific hypotheses were not forwarded

in terms of collective self-esteem subscales, and that previous research has also failed to determine a clear component structure for the CSES (e.g., Utsey & Constantine, 2006), no major analyses were subsequently conducted using CSES subscales.

3.2.3.5 Component and reliability analyses for the narcissism scale.

As with collective self-esteem, although no specific hypotheses were made in terms of narcissism subscales, it was considered that determining components within the scale might help to clarify relationships that were hypothesised. Consequently, confirmatory principal components analyses were conducted for the narcissism instrument. The initial oblique principal components analysis produced a Kaiser-Meyer-Olkin value of .88 and a significant Bartlett's Test of Sphericity ($p < .001$), indicating the scale was suitable for factor analysis. However, the correlation matrix, which is presented in Tables L.14a-d in Appendix L (p. 364), showed that few correlations exceeded .30. Despite this shortage of sizeable correlations, which suggested that factor analysis was questionable (Tabachnick & Fidell, 2001), analyses were conducted as a confirmatory procedure.

The initial solution revealed 11 components with eigenvalues exceeding 1, explaining a total of 48.82% of the variance. The scree plot confirmed this, although a clear break was evident after the second component, with smaller breaks after the fourth and seventh components. This reflects the fact that there have been contradictory findings regarding components within the NPI, with researchers uncovering three (Kubarych, Deary, & Austin, 2004), four (Emmons, 1984, 1987), and seven components (Raskin & Terry, 1988). With this in mind, a variety of rotations was conducted to determine which, if any, component pattern might be useful in explaining the current data in greater depth. However, while component patterns emerged that resembled to

varying degrees those reported in previous studies, there were no distinctive, meaningful, and clear patterns evident for the present study. Given the number of items and solutions, details of 2-, 4-, and 7-component solutions are presented in Appendix L (see Tables L15a-b, p. 368, & L.16a-b, p. 370). It should also be noted that, as many items did not load clearly onto components (with many below .30), the tables in Appendix L show loadings greater than .20 to assist interpretation. Finally, given that narcissism components were not an integral part of the present study, either theoretically or in terms of hypotheses, no further factor analyses were conducted.

It was therefore decided to keep the narcissism scale as a unidimensional instrument and sum item scores accordingly, thereby producing a single, fullscale narcissism variable. A reliability analysis of the fullscale instrument produced a Cronbach alpha of .83 (40 items, $n = 1,353$), comparable with the coefficients of .82 ($n = 112$) of the pilot study and .83 cited by Raskin and Terry (1988). The scale alpha if item deleted results are presented in Table 3.19. All subsequent analyses involving the narcissism scale (i.e., Main Study Results II, Chapter 4) were conducted on the fullscale scores and with missing values imputed as per the procedures outlined above.

Table 3.19
Scale Alpha (α) if Item Deleted for Narcissism Scale

Item	α	Item	α
1 I have a natural talent for influencing people	.83	21 I always know what I am doing	.83
2 Modesty doesn't suit me	.84	22 I rarely depend on anyone else to get things done	.84
3 I would do almost anything on a dare	.83	23 Everybody likes to hear my stories	.83
4 I know I am good because everybody keeps telling me	.83	24 I expect a great deal from other people	.83
5 If I ruled the world it would be a better place	.83	25 I will never be satisfied until I get all that I deserve	.83
6 I can usually talk my way out of anything	.83	26 I like to be complimented	.83
7 I like to be the centre of attention	.83	27 I have a strong desire to be in charge	.83
8 I will be a success	.83	28 I like to start new fads and fashions	.83
9 I think I am a special person	.83	29 I like to look at myself in the mirror	.83
10 I see myself as a good leader	.83	30 I really like to be the centre of attention	.83
11 I am confident	.83	31 I can live my life in any way I want to	.83
12 I like having authority over other people	.83	32 People always seem to recognise my authority	.83
13 I find it easy to control other people	.83	33 I would prefer to be a leader	.83
14 I insist upon getting the respect that is due to me	.84	34 I am going to be a great person	.83
15 I like to show off my body	.84	35 I can make anyone believe anything I want them to	.83
16 I can read people like a book	.84	36 I am a born leader	.83
17 I like to take responsibility for making decisions	.83	37 I wish someone would some day write my biography	.83
18 I want to amount to something in the eyes of the world	.83	38 I get upset when people don't notice how I look	.83
19 I like to look at my body	.83	39 I am more capable than other people	.83
20 I will usually show off if I get the chance	.83	40 I am an extraordinary person	.83

3.2.3.6 *Component and reliability analyses for the impression management scale.*

As with the personal self-esteem scale, a principal components analysis was conducted on the impression management scale using the oblique promax method to confirm that it was a unidimensional instrument (Paulhus, 1991). Results showed that, although the Kaiser-Meyer-Olkin value reached .83 and the Bartlett's Test of Sphericity was significant ($p < .001$), the correlation matrix (Table L.15 in Appendix L, p. 368) showed that few correlations exceeded .30. Despite the fact that this shortage of sizeable correlations brought into question the merit of conducting a factor analysis (Tabachnick & Fidell, 2001), an analysis was nevertheless conducted as a confirmatory procedure.

Principal components analysis revealed four components with eigenvalues exceeding 1, explaining 20.90%, 10.45%, 6.40% and 6.18% of the variance, respectively. The scree plot confirmed this, although a clear break was evident after the third component and, as the pattern of components was not clear-cut, a series of promax rotation with Kaiser normalisation was undertaken to examine 2-, 3-, and 4-component solutions. The simplest and clearest factor rotation was a two-component solution that explained 31.35% of the variance. As can be seen in Table 3.20, all items loaded heavily onto either of the two components, with an interesting pattern of loadings evident whereby all items that were reverse scored loaded onto the first component and all other items loaded onto the second. In other words, it appears that the scale comprised two components, one denying items (recall that these were reverse coded) that admit to socially undesirable behaviours (e.g., sometimes telling lies) and another comprising items accepting socially desirable behaviours (e.g., never covering up mistakes). Components 1 and 2 of Table 3.20 correspond, respectively, with the denial (of negative attributes) and enhancement (i.e., acceptance of positive attributes) labels that Paulhus and Reid (1991) applied to factors within the Impression Management and

Self Deception subscales of Balanced Inventory of Desirable Responding (BIDR, Paulhus, 1991).

Table 3.20

Impression Management Principal Components Analysis Matrix (n = 1,619)

Item	Component	
	1	2
1 *sometimes tell lies	.61	
3 *have been occasions when taken advantage of someone	.58	
5 *sometimes try to get even rather than forgive and forget	.54	
7 *said something bad about a friend behind his or her back	.57	
9 *have received too much change from a salesperson	.47	
10 *when younger sometimes stole things	.46	
12 *have done things that don't tell other people about	.68	
14 *have taken sick-leave from school even though not sick	.44	
16 *have some pretty awful habits	.60	
2 never cover up mistakes		.37
4 never swear		.43
6 always obey laws, even if unlikely to get caught		.58
8 when hear people talking privately, avoid listening		.50
11 have never dropped litter on the street		.51
13 never take things that don't belong		.66
15 have never damaged a library book without reporting it		.66
17 don't gossip about other people's business		.55

Note. * = reverse-coded items. Loadings less than .30 suppressed.

Although factor analyses by Paulhus and Reid (1991) did not determine clear factors in the impression management scale, and although such analyses were not essential for hypothesis testing, reliability analyses were nevertheless conducted on the Denial and Enhancement components, as well as on the fullscale variable.

Consequently, individual items were summed to produce the full and subscale

impression management scores. The reliability analysis of the fullscale impression management scale produced an acceptable Cronbach alpha of .76 (17 items, $n = 1,619$), approaching the reliability coefficients of the pilot study ($r = .80$, $N = 112$) and of that reported by Paulhus (1988, $r = .77-.85$). Reliability analyses produced alpha coefficients of .72 (9 items, $n = 1,626$) for the Denial component (i.e., Component 1, Table 3.20) and .66 (8 items, $n = 1,627$) for the Enhancement component (i.e., Component 2). Table 3.21 below presents scale alpha if item deleted results.

Table 3.21

Scale Alpha if Item Deleted for Impression Management Full- and Subscales

Item	Scale alpha if item deleted		
	Total	Denial	Enhance
1 *sometimes tell lies	.74	.69	
2 never cover up mistakes	.76		.66
3 *have been occasions when taken advantage of someone	.74	.69	
4 never swear	.74		.63
5 *sometimes try to get even rather than forgive and forget	.74	.70	
6 always obey laws, even if unlikely to get caught	.74		.62
7 *said something bad about a friend behind his or her back	.75	.70	
8 when hear people talking privately, avoid listening	.75		.63
9 *have received too much change from a salesperson	.74	.70	
10 *when younger sometimes stole things	.74	.70	
11 have never dropped litter on the street	.75		.63
12 *have done things that don't tell other people about	.75	.69	
13 never take things that don't belong	.74		.61
14 *have taken sick-leave from school even though not sick	.74	.70	
15 have never damaged a library book without reporting it	.75		.63
16 *have some pretty awful habits	.75	.70	
17 don't gossip about other people's business	.75		.63

Note. * = reverse-coded items.

3.2.4 Summary

To summarise Chapter 3, the method and procedure of the main study have been detailed and results of a wide range of preliminary analyses presented. Response rates were analysed with results showing significant associations between school and year level with, for example, Year 8 students at Spencer College having a very high rate of over 85%. Spencer College also had the highest response rate of all schools (over 70%), whereas the pilot study school Welsh College had the lowest rate with 44%. These results should be viewed with some caution, however, as response rates were loose approximations based on the number of surveys supplied to schools and the number of completed surveys returned.

Analyses showed that missing data was a serious issue with the potential to lose up to 515 cases (over 30%) from some analyses. Consequently, missing values were imputed for all variables except for narcissism with its dichotomous 0/1 scoring format. The imputation of narcissism missing values is described in Chapter 4 (section 4.2, p. 183). Next, principal component analyses were conducted to determine the presence (expected, as per previous research, or otherwise) of components within all major variables. The bullying and victimisation scales in the present study exhibited components that differed slightly from those expected. The Indirect component of both the bullying and victimisation instruments clearly matched the indirect aggression DIAS subscale as determined by Björkqvist, Lagerspetz, and Österman (1992). However, although the new indirect aggression item of making prank telephone calls did not load onto any component in the bullying scale (and was accordingly removed), it did clearly load on to the victimisation scale. The Direct component of both the bullying and victimisation instruments used in the present study clearly resembled the physical and verbal aggression DIAS subscales. Instead of two distinct physical and verbal

aggression components, the present dataset exhibited one *direct* aggression component that subsumed all physical and verbal items. Full- and subscale internal reliabilities for the bullying and victimisation instruments were respectable ($r_s = .80-.92$) and comparable with previous research and the pilot study.

Principal component analyses of the Rosenberg self-esteem scale (Rosenberg, 1979) confirmed that it was a unidimensional measure of personal self-esteem with acceptable internal reliability ($r = .85$). In contrast, the analysis of components within the Collective Self-Esteem Scale (CSES, Luhtanen & Crocker, 1992) was less straightforward. Although Luhtanen and Crocker determined that the CSES consisted of four subscales (membership, private, public, & identity), principal component analyses of the present dataset produced only three clear components: Membership/Private, Public, and Identity self-esteem. Internal reliability analyses for total and subscales produced reasonable Cronbach alphas ($r_s = .60-.81$) that were comparable to those of the pilot study although lower than those found in previous studies.

Confirmatory principal components analyses were conducted for the narcissism scale, with no useful or clear pattern of components found. It was therefore decided to keep the narcissism scale as a unidimensional instrument producing a single, fullscale narcissism variable. A reliability analysis of the fullscale scores produced a respectable Cronbach alpha of .83, comparable with the pilot study results and with previous research (e.g., Raskin & Terry, 1988).

Principal components analyses conducted on the impression management scale confirmed that it was a unidimensional instrument (Paulhus, 1991). However, two possible components did emerge: Denial and Enhancement. The Denial component comprised socially undesirable (e.g., sometimes telling lies) items that those high in impression management would deny, whereas Enhancement comprised items accepting

socially desirable behaviours. Although unexpected and not related to hypotheses, it was an interesting finding. Internal reliability analyses produced acceptable Cronbach alphas for full- and subscales ($r_s = .66-.76$), with the fullscale coefficient approaching those of the pilot study and of previous research (e.g., Paulhus, 1991). Given that impression management subscales were not an integral part of the present study, all subsequent analyses relating to impression management were conducted using fullscale scores.

Having conducted preliminary analyses, the next stage involved the modifying of hypotheses where appropriate to reflect the above findings and carry out further exploratory analyses of the main study data. The following chapter presents details of these statistical analyses and will include relevant descriptive statistics of instrument full- and subscales as determined in Chapter 3, and describe the results of hypothesis testing.

CHAPTER 4

Main Study Results II

4.1 Reassessment and Modification of Hypotheses

Following data screening and principal component and reliability analyses of the main study data as presented in the previous chapter, this paper now turns to hypothesis testing. To begin, it is appropriate to restate the research hypotheses in their original form as they were put forward at the end of the theoretical literature review of Chapter 1, before reassessing individual hypotheses in light of the results of the pilot study and the initial statistical analyses of Chapter 3.

Although the majority of hypotheses remain as originally stated, results of principal components analyses required that a number of hypotheses be reassessed and modified. As outlined in Chapter 3, the main study uncovered the two components of Indirect and Direct (physical and verbal) bullying and victimisation, rather than three components of physical, verbal, and indirect posited by Björkqvist, Lagerspetz, and Österman (1992). Consequently, those hypotheses predicting relationships between physical or verbal aggression and other variables were modified as outlined below, with Table 4.1 summarising how hypotheses were changed.

It was initially predicted in Chapter 1 that boys would report significantly higher mean scores of physical bullying and of physical victimisation than girls (Hypotheses 1 & 1a, respectively), and that boys would also report significantly higher mean scores of verbal bullying and of verbal victimisation than girls (Hypotheses 2 & 2a, respectively). Given that the Direct aggression component comprised both physical and verbal bullying items, these four hypotheses were collapsed into two. Hypothesis 1 now predicted that boys would report significantly higher mean scores of direct bullying than girls, whereas Hypothesis 2 now predicted that boys would report significantly higher mean scores of direct victimisation than girls. As the Indirect aggression component derived from the main study dataset was essentially identical to that of the pilot study,

hypotheses regarding indirect aggression remained unchanged. Therefore, Hypothesis 3 predicted that girls would report significantly higher mean scores of indirect bullying than boys and Hypothesis 3a predicted that girls would report significantly higher mean scores of indirect victimisation than boys.

In terms of associations between age and the initial physical and verbal aggression components, the pilot study partial correlation results did not show any clear evidence to support hypothesised relationships. There were small correlations between physical bullying and age, and between physical victimisation and age in the predicted negative direction, but these did not reach significance. There was no significant correlation between verbal bullying and age, as predicted, although the small negative correlation between verbal victimisation and age was significant and contrary to the prediction that there would be no age-related effects. Therefore, given the general negative trend shown in the pilot study correlations between age and both physical and verbal aggression, and that the Direct aggression component comprised both physical and verbal bullying items, these four hypotheses were also collapsed into two. Consequently, the original Hypotheses 4 (age & physical bullying), 4a (age & physical victimisation), 5 (age & verbal bullying), and 5a (age & verbal victimisation) were modified to reflect the Direct aggression component as found in principal components analyses. Hypothesis 4 now predicted that age and direct bullying would show a significant negative correlation, while Hypothesis 5 now predicted a significant negative correlation between age and direct victimisation.

As stated above, because the Indirect aggression component derived from the main study dataset was essentially identical to that of the pilot study, the original Hypotheses 6 (age & indirect bullying) and 6a (age & indirect victimisation) were retained unchanged. Of the remaining pilot study predictions, Hypotheses 7 through 13

were also unchanged, as they did not make specific predictions regarding subtypes of aggressive behaviour.

In addition, Hypothesis 14 compared the correlation between collective self-esteem and physical and indirect bullying. Given the argument forwarded in Chapter 1 (see section 1.9, p. 49) that indirect aggression comprises more social or group-level behaviours than physical aggression (e.g., Underwood et al., 2001), it could similarly be argued that indirect aggression also comprises more social or group-level behaviours than direct aggression. Therefore, it was predicted that collective self-esteem would exhibit a stronger positive relationship with indirect bullying than with direct bullying.

Table 4.1

Hypotheses as Modified From Pilot Study to Main Study

<i>Pilot study hypotheses</i>		<i>Main study hypotheses</i>
1	boys will have higher scores of physical bullying	<i>1, 1a, 2, & 2a collapsed into 1 & 2 below</i>
1a	& of physical victimisation than girls	
2	boys will have higher scores of verbal bullying	1 boys will have higher scores of direct bullying than girls
2a	& of verbal victimisation than girls	2 & of direct victimisation than girls
3	<i>unchanged</i>	3 <i>unchanged</i>
4	a negative correlation between physical bullying & age	<i>4, 4a, 5, & 5a collapsed into 4 & 5 below</i>
4a	& between physical victimisation & age	
5	no relationship between verbal bullying & age	
5a	or between verbal victimisation & age	4 a negative correlation between direct bullying & age
		5 a negative correlation between direct victimisation & age
6-13	<i>unchanged</i>	6-13 <i>unchanged</i>
14	collective self-esteem will have a stronger correlation with indirect bullying than with physical bullying	14 collective self-esteem will have a stronger correlation with indirect bullying than with direct bullying

Finally, as discussed in the results section of Chapter 2 (see section 2.3.1.7, p. 117), there are two hypotheses relating to impression management that arose from the pilot study. Corresponding with previous research (e.g., Kroner & Weekes, 1996) and with the pilot study results, it was expected that there would be a significant negative correlation between impression management and self-reported bullying behaviour (Hypothesis 15). Second, although there were no gender differences apparent within the pilot study, larger scale studies have consistently shown females to report higher levels of impression management (Paulhus, 1988). As a consequence, it was predicted that the main study would also exhibit a similar gender difference with girls reporting significantly higher mean impression management scores than boys (Hypothesis 16).

Given the above, and by way of listing all hypotheses to be tested, it was expected that the following would emerge from the main study:

1. That boys would report significantly higher mean scores of direct bullying than girls (Hypothesis 1).
2. That boys would report significantly higher mean scores of direct victimisation than girls (Hypothesis 2).
3. That girls would report significantly higher mean scores of indirect bullying and of indirect victimisation than boys (Hypotheses 3 & 3a, respectively).
4. That there would be a significant negative correlation between direct bullying and age (Hypothesis 4).
5. That there would be a significant negative correlation between direct victimisation and age (Hypothesis 5).
6. That there would be a significant positive correlation between indirect bullying and age (Hypothesis 6), and between indirect victimisation and age (Hypothesis 6a).

7. That there would be a significant negative correlation between global personal self-esteem and victimisation (Hypothesis 7).
8. That there would be a significant positive correlation between global personal self-esteem and bullying (Hypothesis 8).
9. That there would be a significant negative correlation between collective self-esteem and victimisation (Hypothesis 9).
10. That there would be a significant positive correlation between collective self-esteem and bullying (Hypothesis 10).
11. That adolescents with high levels of narcissism combined with high levels of personal self-esteem would report significantly higher levels of bullying behaviour than those with high levels on only one variable, or low levels on both narcissism and personal self-esteem (Hypothesis 11). (See Figure 4.1 below).
12. That adolescents with high levels of narcissism combined with high levels of collective self-esteem would report significantly higher levels of bullying behaviour than individuals with high levels on only one variable, or low levels on both narcissism and collective self-esteem (Hypothesis 12). (See Figure 4.1).
13. That collective self-esteem would have a stronger correlation with bullying behaviour than will global personal self-esteem in adolescent students (Hypothesis 13).
14. That collective self-esteem would exhibit a stronger correlation with indirect bullying than with direct bullying in adolescent students (Hypothesis 14).
15. That there would be a significant negative correlation between impression management and bullying (Hypothesis 15).
16. That girls would report significantly higher mean scores of impression management than boys (Hypothesis 16).

Note that Figure 1.2 from Chapter 1 is presented again below (as Figure 4.1) to graphically portray the predicted interactions of self-esteem (personal and collective) and narcissism on bullying behaviour as stated in Hypotheses 11 and 12.

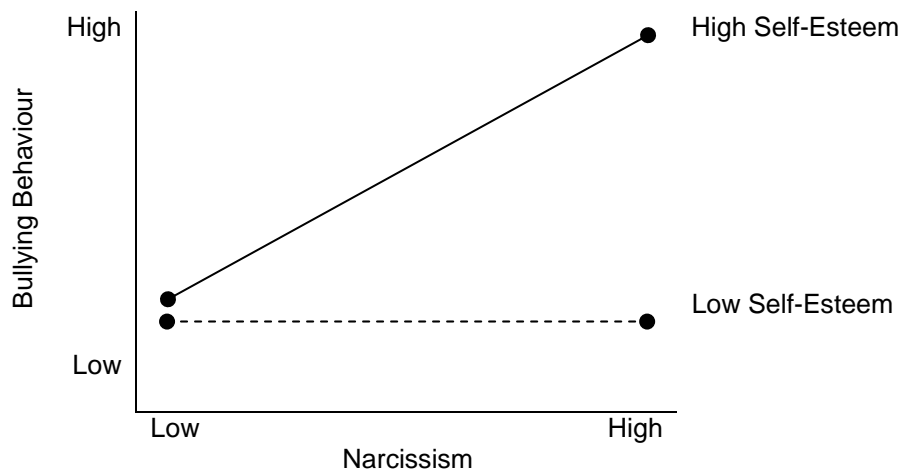


Figure 4.1. Illustration of predicted interactions between narcissism and self-esteem (personal & collective) for bullying behaviour.

Given the number and variety of predicted relationships amongst variables, each hypothesis or group of related hypotheses (e.g., gender differences) will be addressed in turn, with related post-hoc analyses included in each section. Before that, however, full- and subscale scores will be discussed and relevant descriptive statistics presented. Note again that sample sizes varied between analyses as univariate and multivariate outliers were ascertained and removed on a case-by-case basis.

4.2 Descriptive Statistics

Table 4.1 below presents descriptive statistics for all major variables prior to transformation, where required. As outlined in Chapter 3 (see section 3.2.3.5, p. 168), narcissism scores for the main study were produced by summing all 40 scale items to

give a fullscale score with $n = 1,353$ and missing values were then imputed to give a final $n = 1,628$. Note that the minimum recorded values for the indirect bullying (Minimum = 12.98) and indirect victimisation (Minimum = 13.86) subscales fall outside the possible range as a result of missing value imputation.

Table 4.2

Main Study Means, Standard Deviations, Minimum, and Maximum for all Untransformed Major Variables (N = 1,628)

	<i>M</i>	<i>SD</i>	Min	Max	Possible range
Bully direct	23.11	8.97	12.00	60.00	12-60
Bully indirect	21.79	7.89	12.98	65.00	13-65
Bully total	44.90	15.67	25.00	125.00	25-125
Victim direct	24.19	9.18	12.00	60.00	12-60
Victim indirect	25.72	9.79	13.86	70.00	14-70
Victim total	49.91	17.68	26.00	130.00	26-130
Personal SE	36.68	7.44	10.00	50.00	10-50
Collective SE	36.92	8.72	16.00	76.00	16-80
Narcissism	14.57	6.26	0.00	39.00	0-40
IM	69.30	14.83	20.00	115.00	17-119

Note. SE = Self-Esteem; IM = Impression Management.

4.3 Data Screening and Transformation

Following the computation of full- and subscale values, normality assumptions were assessed on all final variables. Personal self-esteem, collective self-esteem, narcissism, and impression management variables were all considered to meet normality assumptions as outlined by Tabachnick and Fidell (2001) and, consequently, no transformation of these variables was undertaken. However, all bullying and

victimisation variables exhibited high degrees of positive skewness (Kolmogorov-Smirnov $z_s = 1.18$ to 1.87 , $ps < .05$), with scores clustering around the lower range as in the pilot study. Bullying and victimisation variables also exhibited high degrees of positive kurtosis ($z_s = 1.69$ to 5.28 , $ps < .05$), indicating that distribution curves were significantly more peaked than normal. Applying a Log10 transformation to these variables reduced skew ($z_s = 0.26$ to 0.71) and kurtosis ($z_s = 0.09$ to -0.42) to acceptable levels, resulting in univariate normal distributions. Note that all subsequent analyses were conducted on transformed bullying and victimisation variables.

A search for univariate outliers was then conducted and offending cases were flagged as outliers and excluded from analyses. Personal self-esteem showed 7 cases to have standardised scores that exceeded the maximum value of 3.29 (Tabachnick & Fidell, 2001), collective self-esteem had 3, narcissism had 8, and impression management had 2 cases. Of the Log10 transformed bullying and victimisation variables, only the indirect bullying (9 cases) and total bullying scales (5 cases) exhibited univariate outliers. Determination of multivariate outliers was carried out on an analysis-by-analysis basis, with those cases exhibiting Mahalanobis distances that exceeded the relevant critical χ^2 value ($p < .001$, see Tabachnick & Fidell, 2001) excluded from the analysis.

4.4 Preliminary Analyses

As a means of showing an overall pattern of relationships, Table 4.2 displays the correlation matrix for all variables and Table 4.3 shows the same correlations split by gender, with girls' correlations in the upper right section of the matrix and boys' in the lower left. Given the large number of correlations and the attendant risk of Type 1 error, significance values are redundant and are therefore not presented (Wilkinson & Task

Force on Statistical Inference, 1999). As with the pilot study, impression management features highly in the correlation matrices, with relatively large negative correlations with all forms of bullying evident. Results of specific tests of hypotheses are outlined below. As was evident in the pilot study, age did not appear to correlate greatly with any other variable, although specific age-related predictions are addressed in the hypothesis testing section below. Additionally, the school week during which the participants completed the survey was tested for associations with other variables. Although not strictly a continuous variable (ranging from week 11 to week 39), it was tested in correlation analyses merely to determine whether the week of testing significantly affected other variables. It was considered possible that the point during the school year may have some effect, as friendship groups are likely to be changeable while they are forming at the beginning of the school year, stabilising as the year progresses (e.g., Adler & Adler, 1995; Owens & MacMullin, 1995). Results showed that participant age was the only variable to exhibit a significant correlation with testing week ($r = .22$, $n = 1,560$, $p < .001$). This result is unremarkable, as one would clearly expect to find a positive correlation between age and elapsed time. Consequently, the school week during which surveys were administered was not included in any subsequent analyses.

Table 4.3

Main Study Intercorrelations Between Major Variables (n = 1,560)

	Bully direct	Bully indirect	Bully total	Victim direct	Victim indirect	Victim total	PSE	CSE	NPI	IM
Age	.07	.05	.07	.03	.03	.04	-.01	.03	-.01	-.09
Bully direct	–	.72	.94	.57	.36	.50	-.13	.17	.21	-.52
Bully indirect		–	.91	.39	.47	.46	-.22	.18	.22	-.52
Bully total			–	.53	.44	.52	-.19	.18	.23	-.56
Victim direct				–	.75	.93	-.28	.34	.01	-.32
Victim indirect					–	.94	-.38	.35	.00	-.29
Victim total						–	-.35	.37	.01	-.33
PSE							–	-.43	.23	.20
CSE								–	-.14	-.12
NPI									–	-.22

Note. All bully and victim variables subjected to Log10 transformation. PSE = Personal Self-Esteem; CSE = Collective Self-Esteem; NPI = Narcissistic Personality Inventory; IM = Impression Management.

Table 4.4

Main Study Intercorrelations Between Major Variables, by Gender (n = 1,560)

		Girls (n = 632)	Age	Bully direct	Bully indirect	Bully total	Victim direct	Victim indirect	Victim total	PSE	CSE	NPI	IM
Boys	Age	–	.00	.05	.03	.01	.03	.02	-.03	.04	-.08	-.06	
(n = 928)	Bully direct	.10	–	.76	.94	.61	.45	.55	-.25	.17	.17	-.50	
	Bully indirect	.04	.79	–	.94	.43	.49	.49	-.25	.18	.21	-.57	
	Bully total	.08	.96	.93	–	.56	.50	.56	-.27	.19	.20	-.58	
	Victim direct	.04	.50	.41	.48	–	.79	.94	-.33	.32	.04	-.33	
	Victim indirect	.04	.38	.46	.44	.81	–	.96	-.35	.35	.03	-.36	
	Victim total	.05	.47	.45	.49	.95	.95	–	-.36	.36	.04	-.37	
	PSE	-.01	-.17	-.21	-.20	-.35	-.39	-.39	–	-.43	.23	.28	
	CSE	.03	.15	.18	.17	.34	.36	.37	-.46	–	-.13	-.09	
	NPI	.05	.22	.24	.24	-.03	.00	-.02	.21	-.15	–	-.22	
	IM	-.10	-.55	-.49	-.55	-.31	-.26	-.30	.17	-.14	-.23	–	

Note. All bully and victim variables subjected to Log10 transformation. PSE = Personal Self-Esteem; CSE = Collective Self-Esteem; NPI = Narcissistic Personality Inventory; IM = Impression Management.

4.5 Hypothesis Testing

4.5.1 Gender Differences

A series of one-way analysis of covariance (ANCOVA) tests was performed to investigate gender differences in self-reported bullying behaviour. Given the complexities of the relationships between variables, impression management and age were entered as covariates to control for variance that may have a confounding effect. Although no specific hypotheses were forwarded in terms of gender and total bullying or total victimisation, these variables were nevertheless included in post-hoc analyses as a means of providing a clearer picture of the data. Following Tabachnick and Fidell (2001), the variables direct, indirect, and total bullying were entered into the ANCOVAs as dependent variables, with gender as the independent variable. As the dependent variables were related, to minimise the risk of Type 1 error, Bonferroni correction was made for multiple comparisons (e.g., Pallant, 2001), resulting in a $p = .0167$ significance level, whereby $p = .05$ was divided by 3, that is, the three forms of bullying (direct, indirect, and total).

In considering the dependent variable subscales separately, it is apparent from Table 4.5 that boys reported significantly higher mean levels of direct bullying than girls, supporting Hypothesis 1. In terms of indirect bullying, Hypothesis 3 was also supported as girls reported significantly higher mean scores for self-reported indirect bullying than boys. The post-hoc ANCOVA for total bullying showed that boys also reported higher mean levels of total bullying than did girls. Note, however, that effect sizes as shown by the eta squared values are generally low, with the gender difference in direct bullying exhibiting the greatest effect. Unfortunately, as bullying variables were subjected to a Log10 transformation, visual comparison of means is less straightforward. Given that analyses of transformed variables effectively use the median

(Tabachnick & Fidell, 2001), median and range values of untransformed bullying variables are presented in Table 4.6 to aid interpretation.

Table 4.5

Main Study Analyses of Covariance, Effect Size, Means, and Standard Deviations for Direct, Indirect, and Total Bullying Scores (Log10), by Gender

Bullying	<i>F</i>	<i>df</i>	η^2	Girls			Boys		
				<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Direct	211.91*	1, 1622	.11	664	1.28 _b	0.14	962	1.37 _a	0.15
Indirect	16.95*	1, 1613	.01	660	1.32 _a	0.13	957	1.31 _b	0.14
Total	39.83*	1, 1619	.02	663	1.60 _b	0.13	960	1.65 _a	0.14

Note. Impression management and age entered as covariates. Horizontal comparisons, subscripts a > b.

* $p < .0167$.

Table 4.6

Medians and Ranges for Untransformed Direct, Indirect, and Total Bullying Scores, by Gender

Bullying	Girls			Boys		
	<i>n</i>	Median	Range	<i>n</i>	Median	Range
Direct	664	18.00	48.00	962	24.00	48.00
Indirect	660	20.00	44.02	957	20.00	41.00
Total	663	39.00	95.00	960	44.00	91.00

A series of one-way ANCOVAs was also performed to investigate gender differences in self-reported victimisation. As described above with bullying, the direct, indirect, and total victimisation variables were entered into the ANCOVAs as dependent variables, with gender as the independent variable and impression management and age as covariates. In addition, and as with the bullying variables, total victimisation scores

were included in analyses as a means of providing an overall picture of gender differences in self-reported victimisation.

Regarding victimisation full- and subscales, Table 4.7 indicates that all scales exhibited a significant gender difference, with Bonferroni correction for multiple comparisons. Results supported Hypothesis 2, as boys reported significantly higher mean direct victimisation scores than girls. Hypothesis 3a was also supported, with girls reporting significantly higher mean indirect victimisation scores than boys. The post-hoc ANCOVA showed that there was also a significant difference between boys and girls in mean total victimisation scores, in that boys reported higher mean levels of total victimisation than girls, although the effect size was small. Values for the median and range of untransformed victimisation variables are presented in Table 4.8 to aid interpretation.

Table 4.7

Main Study Analyses of Covariance, Effect Size, Means, and Standard Deviations for Direct, Indirect, and Total Victimization Scores (Log10), by Gender

Victimisation	<i>F</i>	<i>df</i>	η^2	Girls			Boys		
				<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Direct	108.61*	1, 1621	.06	663	1.31 _b	0.14	962	1.39 _a	0.15
Indirect	24.32*	1, 1622	.02	664	1.40 _a	0.15	962	1.37 _b	0.15
Total	6.28*	1, 1622	.00	664	1.66 _b	0.13	962	1.68 _a	0.14

Note. Impression management and age entered as covariates. Horizontal comparisons, subscripts a > b.

* $p < .0167$.

Table 4.8

Medians and Ranges for Untransformed Direct, Indirect, and Total Victimization Scores, by Gender

Bullying	Girls			Boys		
	<i>n</i>	Median	Range	<i>n</i>	Median	Range
Direct	663	20.00	48.00	962	24.19	48.00
Indirect	664	25.00	56.14	962	23.00	56.00
Total	664	45.00	104.00	962	48.00	104.00

4.5.2 Age Differences

In terms of the predicted relationships between age and the various forms of bullying and victimisation, partial correlations were conducted controlling for impression management. Bonferroni correction for multiple comparisons (e.g., Pallant, 2001) resulted in a $p = .0167$ significance level, whereby $p = .05$ was divided by 3, that is, the three correlations between age and impression management, and the two forms of bullying or victimisation (i.e., direct or indirect). Hypothesis 4, which predicted that there would be a significant negative correlation between direct bullying and age, was not supported, $pr = .04$, $n = 1,623$, $p = .041$. The zero order correlation ($r = .08$) suggested that this relationship was marginally affected by the influence of impression management. However, post-hoc partial correlations looking at a gender split did produce an interesting result. Whereas the partial correlation between direct bullying and age for girls was not significant, $pr = -.03$, $n = 661$, $p = .255$, the partial correlation for boys did reach significance, although it was small, $pr = .08$, $n = 959$, $p = .010$. Zero order correlations showed that the variance associated with impression management was negligible (girls $r = .01$, boys $r = .11$).

Results also did not provide support for Hypothesis 5, which predicted that there would be a significant negative correlation between direct victimisation and age, $pr = .02$, $n = 1,623$, $p = .231$. An inspection of zero order correlations suggested that controlling for impression management had little effect on the strength of this relationship ($r = .04$). Post-hoc partial correlations by gender between direct victimisation and age were also not significant for girls ($pr = -.02$, $n = 661$, $p = .348$) or boys ($pr = .03$, $n = 959$, $p = .184$). Zero order correlations showed no impression management effects on the relationships (girls $r = .01$, boys $r = .06$).

Hypotheses 6 and 6a predicted significant positive correlations between indirect bullying and age, and between indirect victimisation and age, respectively. Results of partial correlations did not support these hypotheses. There were non-significant correlations found between indirect bullying and age ($pr = .01$, $n = 1,614$, $p = .349$), and between indirect victimisation and age ($pr = .02$, $n = 1,622$, $p = .230$). As with direct bullying and direct victimisation and age, zero order correlations suggested that controlling for impression management had little effect on the strength of these relationships (both $r = .04$). These results contradict those of the pilot study, which found self-report indirect bullying and indirect victimisation to decrease with age in that sample.

Gender-related post-hoc analyses of Hypothesis 6 produced similar results. The partial correlations between indirect bullying and age were not significant for girls ($pr = .04$, $n = 657$, $p = .188$) or boys ($pr = .00$, $n = 954$, $p = .489$). Zero order correlations showed minimal impression management effects (girls $r = .07$, boys $r = .05$). Comparable results were found in terms of victimisation gender differences for Hypothesis 6a, with no significant partial correlations found between indirect victimisation and age for girls ($pr = .02$, $n = 660$, $p = .325$) or boys ($pr = .03$, $n = 959$, p

= .204). Zero order correlations again showed minimal impression management effects (girls $r = .04$, boys $r = .05$).

To summarise, it was expected that direct bullying and victimisation would decrease with age (Hypotheses 5 & 6), and that both indirect bullying and victimisation would increase with age (Hypotheses 6 & 6a). Results indicated that these forms of bullying did not vary significantly as a function of age in this sample.

4.5.3 *Self-Esteem, Bullying, and Victimisation Correlations*

Predictions related to self-esteem were tested using partial correlations, controlling for impression management. In addition, given that bullying and victimisation exhibited moderately high correlations, and that self-esteem was differentially related to both bullying and victimisation (see Table 4.3, p. 187), these two variables were included as covariates in partial correlations. That is, when bullying was analysed as the dependent variable, victimisation was controlled, and when victimisation was the dependent variable, bullying was controlled. This also resembles procedures employed in other research that has separated bullies, victims, and bully/victims into discrete groups when exploring self-esteem (e.g., O'Moore & Kirkham, 2001). Admittedly, the controlling for bullying and victimisation in self-esteem analyses by group status in such studies could be an inadvertent by-product of the procedure itself rather than an intentional effort to partial out covariance that may confound results. Note also that bullying and victimisation variables had undergone a Log10 transformation.

Hypothesis 7, which stated that there would be a significant negative correlation between global personal self-esteem and total victimisation, was supported ($pr = -.30$, $n = 1,612$, $p < .001$), showing that adolescents' self-esteem decreased as levels of

victimisation increased. Post-hoc analyses showed that this relationship was apparent regardless of gender, with significant negative partial correlations found between global personal self-esteem and total victimisation for both girls ($pr = -.26, n = 653, p < .001$) and boys ($pr = -.34, n = 955, p < .001$). The zero order correlations (total $r = -.35$, girls $r = -.37$, boys $r = -.38$) indicated that impression management explained little of the variance within these relationships.

The prediction of Hypothesis 8 that personal self-esteem and total bullying would be positively correlated was supported, with a significant positive correlation found ($pr = .06, n = 1,610, p = .017$), although the correlation was low. Post-hoc analyses showed that the personal self-esteem and total bullying relationship differed when analysed by gender. There were no significant negative partial correlations found between global personal self-esteem and total bullying for girls ($pr = .01, n = 652, p = .794$) or boys ($pr = .03, n = 954, p = .360$). Zero order correlations suggested that impression management and total victimisation explained some of the variance in these relationships, especially for girls (total $r = -.17$, girls $r = -.27$, boys $r = -.18$).

Results were mixed in terms of the predictions regarding collective self-esteem, although these hypotheses were exploratory to an extent. Rather than a negative relationship as predicted in Hypothesis 9, the main study showed that collective self-esteem was significantly positively correlated with total victimisation, $pr = .32, n = 1,616, p < .001$. Zero order correlations showed that controlling for impression management and victimisation had no appreciable effect on the strength of this relationship ($r = .37$). Results did not support Hypothesis 10, which predicted a significant positive correlation between collective self-esteem and total bullying, with no significant relationship found, $pr = -.01, n = 1,614, p = .714$. The zero order correlation ($r = .18$) showed that controlling for impression management and

victimisation had some effect on the strength of these relationships. As was found in the pilot study, it is apparent that adolescents with higher collective self-esteem also tended to report higher levels of total victimisation. In contrast with the pilot study, however, there was no significant relationship between collective self-esteem and total bullying.

Post-hoc analyses for Hypothesis 9 produced similar results regardless of gender. The partial correlations between collective self-esteem and total victimisation were significant and positive for both girls ($pr = .30, n = 658, p < .001$) and boys ($pr = .34, n = 954, p < .001$). Zero order correlations showed minimal impression management effects for girls ($r = .35$) or boys ($r = .37$). In terms of post-hoc analyses for Hypothesis 10, results of partial correlations did not show significant positive correlations between collective self-esteem and total bullying for girls ($pr = .01, n = 657, p = .862$) or boys ($pr = -.03, n = 953, p = .355$). Impression management and victimisation did explain some of the variance in these relationships for girls (zero order $r = .20$) and boys ($r = .17$).

4.5.4 *Personal Self-Esteem/Narcissism Interactions*

A hierarchical multiple regression procedure was employed to test the predicted interaction between personal self-esteem and narcissism and bullying. Hypothesis 11 stated that adolescents with high levels of narcissism combined with high levels of personal self-esteem would report significantly higher levels of bullying behaviour than would individuals with high levels on only one variable, or low levels on both narcissism and personal self-esteem. Refer to Figure 4.1 (p. 183) above for a graphical illustration of the predicted interaction.

As with the pilot study analyses (see section 2.2.4.4 of Chapter 2, p. 97), the personal self-esteem and narcissism variables were centred to minimise possible

multicollinearity effects (Aiken & West, 1991; Cohen et al., 2003). In line with the procedures outlined in Chapter 2, and as recommended by Holmbeck (1997), the variables victimisation, age, impression management, gender, and collective self-esteem were entered into the first step of the regression as a means of statistically controlling for these variables. To control any effects arising from differences between the six schools, five dummy variables ($K - 1$) were created and entered as a group into the second step of the regression (Tabachnick & Fidell, 2001). Centred personal self-esteem was entered into the third step, centred narcissism into the fourth, and the interaction term (the product of personal self-esteem multiplied by narcissism) was entered into the fifth and final step of the regression. Hence, the presence of an interaction would be indicated by a significant R^2 change associated with the interaction term entered in Step 5 (as described by Baron & Kenny, 1986). Table 4.9 presents the results of the regression analysis, showing that the predicted personal self-esteem/narcissism interaction of Hypothesis 11 did reach significance, $F(1, 1566) = 3.92, p = .048$.

Although the interaction term was statistically significant, the F value of 3.92 was low. To give a pictorial representation of the relationship, two simple regression lines showing high and low values of the variable personal self-esteem were plotted against narcissism and total bullying (for details of the procedure, see Chapter 2 section 2.2.4.4, p. 97). The simple regression slopes in Figure 4.2 show high-high, high-low, low-low, and low-high values for personal self-esteem and narcissism and it is apparent that the interaction is of a low magnitude.

Table 4.9

Main Study two-way Interaction Between Personal Self-Esteem and Narcissism on Total Bullying (Log10), for Females and Males (n = 1,579)

Variable entered	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1				.44	.44 ^{***}
Victimisation	0.34	0.02	.36		
Age	0.00	0.00	.03		
Gender	0.04	0.01	.11		
Impression Management	0.00	0.00	-.39		
Step 2				.44	.00
Dummy school 1	0.00	0.01	-.01		
Dummy school 2	0.00	0.02	.02		
Dummy school 3	0.00	0.01	.02		
Dummy school 4	0.00	0.01	.01		
Dummy school 5	0.00	0.01	.00		
Step 3				.44	.00
Personal SE	0.00	0.00	-.02		
Step 4				.46	.02 ^{***}
Narcissism	0.00	0.00	.15		
Step 5				.46	.00 [*]
Personal SE X Narcissism	0.00	0.00	-.04		

Note. SE = Self-Esteem.

** $p < .01$, *** $p < .001$.

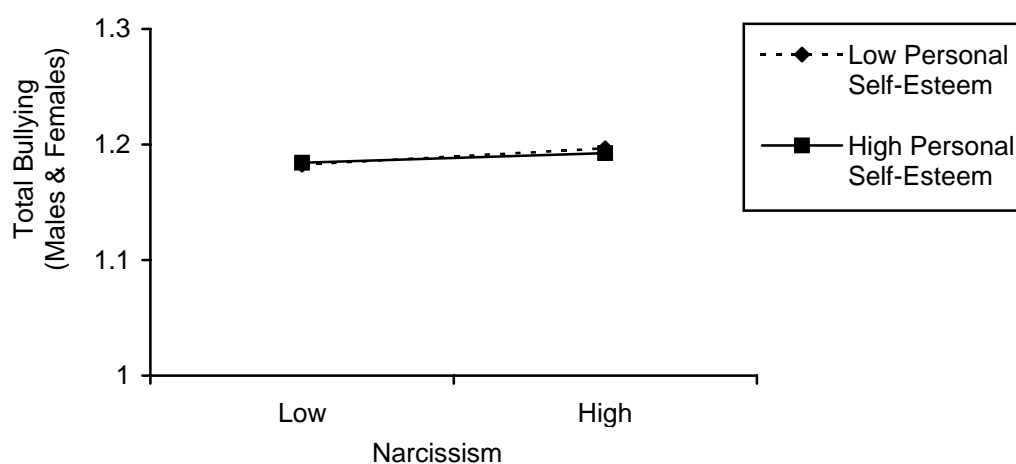


Figure 4.2. Simple regression slopes showing interaction between narcissism and personal self-esteem for total bullying scores for males and females in main study ($n = 1,579$).

As a significant personal self-esteem/narcissism interaction was found in total self-reported bullying scores, and as some interesting relationships arose from post-hoc analyses of the pilot study data, it was considered that further analysis was warranted. Consequently, separate hierarchical multiple regression analyses were conducted by gender to test for interactions between personal self-esteem and narcissism in explaining total, direct, and indirect aggression. As these analyses were split by gender and as two schools were single-sex, the school variable was rendered redundant. Furthermore, as the effect of the school component of the main interaction regression (i.e., Step 2 of Table 4.7) was non-significant, school was therefore not entered as a variable into these regressions. Given the number of separate analyses that this entailed, only the interaction F values of these regressions are presented in Table 4.10 below. The full results for all regression analyses are presented in Appendix L (see Tables L.18 through L.23, pp. 373-375). Table 4.10 shows that there was only one significant interaction evident, that between personal self-esteem and narcissism in explaining indirect aggression in boys (Bonferroni corrected $p = .0167$).

Table 4.10

Main Study Personal Self-Esteem/Narcissism Interaction F-values for Total, Direct, and Indirect Bullying (Log10), by Gender

Bullying variable	<i>F</i>	<i>df</i>	<i>p</i>
Total			
Females	1.76	(1, 633)	.185
Males	5.65	(1, 932)	.018
Direct			
Females	4.31	(1, 633)	.038
Males	4.20	(1, 932)	.041
Indirect			
Females	0.08	(1, 633)	.771
Males	5.87	(1, 932)	.016*

**p* < .0167, Bonferroni corrected.

4.5.5 Collective Self-Esteem/Narcissism Interactions

As described above for personal self-esteem, the collective self-esteem and narcissism variables were centred prior to conducting regression analyses, such that both variables then centred around a mean of zero. Age, gender, impression management, and personal self-esteem were entered into the first step of the regression as a means of statistically controlling for these variables. As described above for personal self-esteem, five dummy school variables were created and entered as a group into the second step of the regression to control for school effects. Collective self-esteem was entered into the third step, narcissism into the fourth, and the interaction term (the product of collective self-esteem multiplied by narcissism) was entered into the final step of the regression. Hence, the presence of an interaction would be indicated by a significant R^2 change associated with the interaction term entered in Step 5. Table

4.11 presents the results of the regression analysis, showing that the predicted collective self-esteem/narcissism interaction of Hypothesis 12 did not reach significance, $F(1, 1566) = 3.53, p = .060$. Figure 4.3 graphically presents the non-significant interaction between collective self-esteem and narcissism on total bullying scores.

Table 4.11

Main Study two-way Interaction Between Collective Self-Esteem and Narcissism on Total Bullying, for Females and Males (n = 1,579)

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.44	.44***
Victimisation	0.35	0.02	.37		
Age	0.01	0.01	.03		
Gender	0.00	0.01	.11		
Impression Management	0.00	0.00	-.40		
Step 2				.44	.00
Dummy school 1	0.00	0.01	-.01		
Dummy school 2	0.00	0.02	.02		
Dummy school 3	0.00	0.01	.02		
Dummy school 4	0.00	0.01	.01		
Dummy school 5	0.00	0.01	.00		
Step 3				.44	.00
Collective SE	0.00	0.00	.00		
Step 4				.46	.02***
Narcissism	0.00	0.00	.14		
Step 5				.46	.00
Collective SE X Narcissism	0.00	0.00	.03		

Note. SE = Self-Esteem.

*** $p < .001$.



Figure 4.3. Simple regression slopes showing interaction between narcissism and collective self-esteem for total bullying scores for males and females in main study ($n = 1,579$).

Again, although a significant collective self-esteem/narcissism interaction was not found in total self-reported bullying scores, it was nevertheless considered that further analysis was warranted. Consequently, separate hierarchical multiple regression analyses by gender were conducted to test for interactions between collective self-esteem and narcissism in explaining total, direct, and indirect aggression. Only the interaction F values of these regressions are presented in Table 4.12 below, with the full results for all regression analyses presented in Appendix L (see Tables L.24 through L.29, pp. 376-378). For the reasons outlined above regarding personal self-esteem interaction analyses, school was also not entered as a variable into these post-hoc regressions. As can be seen in Table 4.12, there were no significant interactions evident between collective self-esteem and narcissism in explaining any component of aggression measured in the main study for boys or girls (Bonferroni corrected $p = .0167$).

Table 4.12

Main Study Collective Self-Esteem/Narcissism Interaction F-values for Total, Direct, and Indirect Bullying (Log10), by Gender

Bullying variable	<i>F</i>	<i>df</i>	<i>p</i>
Total			
Females	2.27	(1, 633)	.132
Males	1.84	(1, 932)	.175
Direct			
Females	3.00	(1, 633)	.084
Males	1.42	(1, 932)	.233
Indirect			
Females	0.91	(1, 633)	.341
Males	1.53	(1, 932)	.216

4.5.6 Personal and Collective Self-Esteem and Bullying Correlations

Hypotheses 13 and 14 related to the relative strength of the associations between personal self-esteem and bullying and between collective self-esteem and bullying. Hypothesis 13 predicted that collective self-esteem would exhibit a stronger correlation with total bullying than would personal self-esteem. This was tested using the same method employed in the pilot study (Meng et al., 1992), which used a *Z* (normal curve) test with Fisher *z* transformations to compare correlated coefficients between the dependent variable and the correlated independent variables (for an example of calculations, see section K.1 in Appendix K, p. 335). After controlling for impression management and total victimisation, results did not provide support for Hypothesis 13. There was no significant difference between the partial correlation coefficient for

collective self-esteem and bullying ($pr = -.01$), and the coefficient for personal self-esteem and bullying ($pr = .06$); $Z = 1.64$, $n = 1,606$, $p = .950$, one-tailed, with a 95% confidence interval for the difference between zs (i.e., $z_{pr1} - z_{pr2} = .06 - -.01 = .07$) of $-0.01, 0.15$.

Post-hoc comparisons were conducted to explore whether the above relationships varied by gender, with results of Z tests showing that girls and boys exhibited similar patterns. The partial correlation coefficients for collective self-esteem and bullying did not differ significantly from the correlation coefficients for personal self-esteem and bullying, for girls or boys. For girls, collective self-esteem/bullying partial correlation coefficient ($pr = -.002$) was not significantly different from the personal self-esteem/bullying coefficient ($pr = .01$); $Z = 0.13$, $n = 651$, $p = .552$, one-tailed, with a 95% confidence interval for the difference between zs ($z_{pr1} - z_{pr2} = .01$) of $-0.12, 0.14$. Much the same pattern was evident for boys, with the collective self-esteem/bullying partial correlation coefficient ($pr = -.02$) not differing significantly from the personal self-esteem/bullying coefficient ($pr = .03$); $Z = 1.03$, $n = 951$, $p = .848$, one-tailed, with a 95% confidence interval for the difference between zs ($z_{pr1} - z_{pr2} = .05$) of $-0.05, 0.16$.

Hypothesis 14, which predicted that collective self-esteem would exhibit a stronger correlation with indirect bullying than with direct bullying, was also tested using the above procedure, and after controlling for impression management and total victimisation, results did not support the prediction. The partial correlation between indirect bullying and collective self-esteem ($pr = .00$) did not differ significantly from the correlation between direct bullying and collective self-esteem ($pr = -.02$); $Z = 0.86$, $n = 1,610$, $p = .804$, one-tailed, with a 95% confidence interval for the difference ($z_{pr1} - z_{pr2} = .02$) of $-0.03, 0.07$.

Comparisons were also conducted post-hoc to explore whether the above relationship of Hypothesis 14 varied by gender, with results showing that both girls and boys exhibited similar patterns. The partial correlation coefficients between indirect bullying and collective self-esteem did not differ significantly from the correlation coefficients between direct bullying and collective self-esteem, for girls or boys. The indirect bullying/collective self-esteem partial correlation coefficient ($pr = .03$) for girls, did not differ significantly from the direct bullying/collective self-esteem coefficient ($pr = .00$); $Z = 0.89$, $n = 655$, $p = .813$, one-tailed, with a 95% confidence interval for the difference between z s ($z_{pr1} - z_{pr2} = .03$) of -0.04, 0.10. Neither was a significant difference found for the male cohort, with the indirect bullying/collective self-esteem partial correlation coefficient ($pr = -.01$) showing no significant difference to the direct bullying/collective self-esteem coefficient ($pr = -.06$); $Z = 1.88$, $n = 951$, $p = .970$, one-tailed, with a 95% confidence interval for the difference between z s ($z_{pr1} - z_{pr2} = .05$) of 0.00, 0.10.

4.5.7 Impression Management Predictions

Hypothesis 15 predicted that there would be a significant negative correlation between impression management and bullying. This was tested using partial correlation controlling for the effects of age, with results supporting the hypothesis, such that those reporting higher levels of bullying behaviour tended to report lower levels of impression management ($pr = -.56$, $n = 1,618$, $p < .001$). The zero order correlation showed that controlling for age had no appreciable effect on the strength of the relationship between impression management and total bullying ($r = -.56$).

A one-way analysis of covariance test was conducted to determine gender differences in impression management, with Hypothesis 16 predicting that girls would

report significantly higher mean impression management scores than boys. The ANCOVA results did not support this prediction with no significant difference apparent between mean impression management scores for boys ($M = 68.82$, $SD = 14.60$, $n = 962$) and girls ($M = 70.14$, $SD = 14.89$, $n = 664$); after controlling for age, $F(1, 1623) = 2.82$, $p = .093$, $\eta^2 = .00$.

4.6 Post-hoc Analyses

Given the number and variety of variables, including individual scale components such as Direct and Indirect aggression, a series of post-hoc analyses was carried out to explore and better determine any relationships present. Whilst it was expected that some of these analyses might have direct bearing upon the above hypotheses, others would be purely exploratory in nature. The first analyses conducted searched for differences between the six schools of the main study in terms of the major variables of bullying, victimisation, personal and collective self-esteem, narcissism, and impression management. Note that sample size and degrees of freedom vary between analyses as a result of the exclusion of univariate and multivariate outliers.

4.6.1 School Differences

An analysis of covariance test (ANCOVA), with impression management as a covariate, was conducted to test for school differences in total self-reported bullying scores, showing that there was a significant main effect for school, $F(5, 1619) = 3.83$, $p = .002$, $\eta^2 = .01$. Pairwise comparisons with Scheffé correction showed that students from Malden Girls High School reported significantly lower mean total bullying scores than all but Welsh College students, as illustrated in Table 4.13. Note that as the total bullying variable was transformed using a Log10 procedure, marginal mean values are

reported to three decimal places to aid interpretation. In addition, medians and ranges of the untransformed bullying variable are also presented (Tabachnick & Fidell, 2001).

Table 4.13

Estimated Marginal Means, Standard Errors, Medians, and Ranges for Total Bullying (Log10 & Untransformed), by School (n = 1,621)

School	<i>n</i>	<i>M</i>	<i>SE</i>	Median	Range
Welsh	112	1.622	0.010	42.00	75.00
Northern	57	1.646 _a	0.015	42.00	64.00
Wheatsheaf	454	1.633 _a	0.005	41.00	95.00
Forest Hill	420	1.629 _a	0.005	43.00	87.00
Malden	153	1.593 _b	0.009	36.00	80.00
Spencer	425	1.633 _a	0.005	41.18	76.00

Note. Vertical comparisons, subscripts a > b; all *ps* < .05, Scheffé corrected.

A second ANCOVA, also with impression management as a covariate, was conducted to test for school differences in total victimisation scores, with a significant main effect for school evident, $F(5, 1619) = 5.21$, $p < .001$, $\eta^2 = .02$. As Table 4.14 shows, pairwise comparisons with Scheffé correction indicated that students from Malden Girls High School reported significantly lower mean total victimisation scores than all but Spencer College students. In addition, Spencer College respondents reported lower victimisation scores than students from Forest Hill High. Note that as the total victimisation variable was also transformed using a Log10 procedure, values are reported to three decimal places to aid interpretation. Medians and ranges of the untransformed victimisation variable are also presented (Tabachnick & Fidell, 2001).

Table 4.14

Estimated Marginal Means, Standard Errors, Medians, and Ranges for Total Victimization (Log10 & Untransformed), by School (n = 1,626)

School	<i>n</i>	<i>M</i>	<i>SE</i>	Median	Range
Welsh	112	1.688 _a	0.013	48.00	91.00
Northern	57	1.706 _a	0.018	50.00	81.00
Wheatsheaf	455	1.683 _a	0.006	48.00	102.00
Forest Hill	425	1.686 _{a,c}	0.007	49.45	104.00
Malden	153	1.639 _b	0.011	41.00	80.00
Spencer	426	1.658 _d	0.006	4.00	101.00

Note. Vertical comparisons, subscripts a > b, c > d; all *ps* < .05, Scheffé corrected.

Separate analysis of variance tests were conducted to determine school differences between all other variables, each with the conservative Scheffé calculation to minimise the risk of Type 1 error given the large number of post-hoc pairwise comparisons (Tabachnick & Fidell, 2001). First, results showed a significant main effect for school for personal self-esteem, $F(5, 1615) = 12.87$, $p < .001$, $\eta^2 = .04$. Table 4.15 shows that students of Spencer College reported significantly higher mean personal self-esteem scores than all but Welsh College students, although even this difference approached significance ($p = .079$).

The ANOVA to test for school differences in collective self-esteem scores produced a significant main effect for school, $F(5, 1619) = 5.55$, $p < .001$, $\eta^2 = .02$. As can be seen in Table 4.16, students of Spencer College reported significantly lower mean collective self-esteem scores than respondents from Wheatsheaf and Forest Hill Schools. There were no other significant differences in collective self-esteem scores between schools.

Table 4.15

Means and Standard Deviations for Personal Self-Esteem, by School (n = 1,621)

School	<i>n</i>	<i>M</i>	<i>SD</i>
Welsh	112	36.73	7.72
Northern	57	35.67 _b	7.55
Wheatsheaf	454	36.05 _b	7.37
Forest Hill	422	35.58 _b	7.00
Malden	151	36.30 _b	7.06
Spencer	425	39.12 _a	6.82

Note. Vertical comparisons, subscripts a > b; all *ps* < .05, Scheffé corrected.

Table 4.16

Means and Standard Deviations for Collective Self-Esteem, by School (n = 1,625)

School	<i>n</i>	<i>M</i>	<i>SD</i>
Welsh	112	38.00	7.72
Northern	57	37.04	7.55
Wheatsheaf	454	37.53 _a	7.37
Forest Hill	424	37.81 _a	7.00
Malden	153	35.68	7.06
Spencer	425	35.27 _b	6.82

Note. Vertical comparisons, subscripts a > b; all *ps* < .05, Scheffé corrected.

The ANOVA test for school differences in narcissism scores did not find a significant main effect for school, $F(5, 1614) = 1.34$, $p = .247$, $\eta^2 = .00$. Narcissism mean scores and standard deviations are presented in Table 4.17 below.

Table 4.17

Means and Standard Deviations for Narcissism, by School (n = 1,625)

School	<i>n</i>	<i>M</i>	<i>SD</i>
Welsh	112	14.51	6.46
Northern	56	14.41	5.33
Wheatsheaf	455	14.50	6.01
Forest Hill	421	14.40	6.06
Malden	151	13.37	6.41
Spencer	425	14.85	5.99

In terms of impression management, there was a significant main effect for school, $F(5, 1620) = 5.90$, $p < .001$, $\eta^2 = .02$. As can be seen in Table 4.18, students of Forest Hill School reported significantly lower mean impression management scores than respondents from Malden Girls School and Spencer College. There were no other significant differences between schools in impression management scores.

Table 4.18

Means and Standard Deviations for Impression Management, by School (n = 1,626)

School	<i>n</i>	<i>M</i>	<i>SD</i>
Welsh	112	67.91	15.59
Northern	57	71.21	15.34
Wheatsheaf	455	69.76	14.42
Forest Hill	424	66.54 _b	13.84
Malden	153	72.64 _a	14.56
Spencer	425	70.71 _a	14.73

Note. Vertical comparisons, subscripts a > b; all $ps < .05$, Scheffé corrected.

4.6.2 Gender Differences

Table 4.19 summarises results from separate one-way analysis of variance tests for gender differences in collective self-esteem, personal self-esteem, and narcissism. These analyses were exploratory in nature as no specific hypotheses were forwarded regarding these variables. Results show that boys reported significantly higher mean scores for personal self-esteem, collective self-esteem, and narcissism, although all effect sizes are low. As a specific gender-related hypothesis was put forward for impression management, gender differences in this variable are addressed above (see section 4.5.7, p. 205).

Table 4.19

Main Study Analyses of Variance, Effect Size, Means, and Standard Deviations for Personal Self-Esteem, Collective Self-Esteem, and Narcissism Scores, by Gender

	<i>F</i>	<i>df</i>	η^2	Girls			Boys		
				<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Personal SE	71.52***	1, 1619	.04	659	34.99 _b	7.49	962	38.03 _a	6.84
Collective SE	5.80*	1, 1623	.02	664	36.24 _b	8.64	961	37.28 _a	8.55
Narcissism	8.32**	1, 1618	.01	660	13.93 _b	6.18	960	14.82 _a	5.97

Note. SE = Self-Esteem. Horizontal comparisons, subscripts a > b.

* $p < .05$, ** $p < .01$, *** $p < .001$.

4.6.3 Subscale Correlations

Given that principal component analyses produced clear components within the bullying, victimisation, collective self-esteem, and impression management scales, a correlation matrix of these components was generated to explore how these variables may be related. Table 4.20 presents the matrix and, as mentioned above regarding the correlation matrix for fullscale variables (Table 4.3, p. 187), impression management

features prominently. To reiterate, the impression management scale was comprised of two components: Acceptance, which included items that admit or accept socially undesirable behaviours (e.g., sometimes telling lies), and Denial, which included items denying socially undesirable behaviours (e.g., never covering up mistakes). The Acceptance and Denial components of the impression management scale showing comparatively large negative correlations with all forms of bullying and, to a lesser degree, victimisation. It is also apparent from the correlation matrix below that the Denial component had comparatively smaller correlations with bullying and victimisation than did the Acceptance component. In fact, Denial had comparatively smaller correlations than Acceptance with all other variables. Similarly, the Identity component of the collective self-esteem scale showed comparatively smaller correlations with all variables than either the Membership/Private or the Public components.

To gain some insight into whether gender played some part in these relationships, the same series of bivariate correlation analyses were conducted with correlations split by gender. Table 4.21 displays this matrix, with girls' correlations in the upper right section and boys' in the lower left. A visual examination of the matrix shows that there were no differences evident between girls and boys in the patterns of correlations between sub- and fullscale variables. Consequently, no further post-hoc analyses were undertaken in terms of exploring gender differences in these variables.

Table 4.20

Main Study Intercorrelations Between Bullying, Victimization, Collective Self-Esteem, and Impression Management Components (N = 1,628)

	Bully direct	Bully indirect	Bully total	Victim direct	Victim indirect	Victim total	CSE Mem/Priv	CSE Public	CSE Identity	IM Acceptance	IM Denial
Bully direct	–	.71	.94	.57	.34	.49	.14	.19	.05	-.46	-.37
Bully indirect		–	.91	.38	.48	.46	.17	.18	.01	-.48	-.36
Bully total			–	.52	.44	.52	.17	.20	.03	-.51	-.40
Victim direct				–	.73	.93	.33	.29	.12	-.29	-.19
Victim indirect					–	.93	.37	.27	.10	-.30	-.16
Victim total						–	.38	.31	.12	-.32	-.19
CSE Mem/Priv							–	.51	.40	-.12	-.09
CSE Public								–	.27	-.14	-.09
CSE Identity									–	-.04	.05
IM Acceptance										–	.33

Note. All bully and victim variables subjected to Log10 transformation. CSE = Collective Self-Esteem; Mem/Priv = Membership/Private; IM = Impression Management.

Table 4.21

Main Study Intercorrelations Between Bullying, Victimization, Collective Self-Esteem, and Impression Management Components, by Gender (N = 1,628)

		Girls (n = 665)	Bully direct	Bully indirect	Bully total	Victim direct	Victim indirect	Victim total	CSE Mem/Priv	CSE Public	CSE Identity	IM Acceptance	IM Denial
Boys (n = 963)	Bully direct		–	.76	.94	.62	.47	.57	.16	.21	.06	-.50	-.35
	Bully indirect		.78	–	.94	.44	.52	.51	.17	.19	.03	-.56	-.41
	Bully total		.96	.93	–	.57	.53	.58	.17	.21	.05	-.57	-.41
	Victim direct		.48	.39	.47	–	.78	.93	.30	.29	.11	-.35	-.19
	Victim indirect		.35	.44	.41	.79	–	.96	.36	.32	.11	-.40	-.22
	Victim total		.45	.44	.47	.95	.94	–	.35	.32	.12	-.40	-.22
	CSE Mem/Priv		.12	.17	.15	.35	.40	.40	–	.50	.41	-.14	-.08
	CSE Public		.16	.18	.18	.28	.26	.29	.51	–	.22	-.14	-.06
	CSE Identity		.03	.00	.01	.11	.10	.11	.40	.30	–	.00	.07
	IM Acceptance		-.46	-.43	-.48	-.26	-.24	-.27	-.11	-.14	-.06	–	.41
	IM Denial		-.39	-.34	-.39	-.17	-.13	-.16	-.09	-.10	.05	.28	–

Note. All bully and victim variables subjected to Log10 transformation. CSE = Collective Self-Esteem; Mem/Priv = Membership/Private; IM = Impression Management.

4.6.4 Bully/Victim Status

As was discussed in the pilot study results (see section 2.3.2, p. 123), the larger sample of the main study provided an opportunity to explore these data in terms of bully/victim status. Although group status was not an integral component of the present study's rationale, and although using categorical rather than continuous variables may result in a loss of information (Tabachnick & Fidell, 2001), this method may provide a different perspective and add greater meaning to data analyses. For example, it will allow some comparisons with a number of studies that have focussed upon bully/victim status (e.g., Leff, Patterson, Kupersmidt, & Power, 1999; Menesini et al., 2003; Salmivalli & Nieminen, 2002). Given that the criteria for determining group status in terms of bully, victim, or bully/victim groups may be somewhat arbitrary, the recommendations of Solberg and Olweus (2003) were followed. Employing original and revised versions of the Olweus Bully/Victim Questionnaire (see Olweus, 1999a), and after comparing a number of different cutoff points with a large sample ($n = 5,171$) of 11- to 15-year-old participants (an age profile similar to that of the present sample), Solberg and Olweus concluded that a response category of "2 or 3 times a month" (p. 263) provided a reasonable lower cutoff point for categorising participants as bullies, victims, or bully/victims.

However, there were important differences between the measure used by Solberg and Olweus (2003) and the bullying scale used in the present study. First, to determine the frequency of being bullied (or bullying others) in the preceding two months, the measure employed by Solberg and Olweus had response categories of "Not been bullied/not bullied others... Only once or twice... 2 or 3 times a month... About once a week... Several times a week" (p. 256). The scale used in the present research had response categories of "*Hardly ever* (e.g., perhaps once per term)... *Sometimes* (e.g., once or twice per month)... *Quite often* (e.g., once or twice per week)... *Very*

often (e.g., almost every day)". Given that Solberg and Olweus recommended 2 or 3 times a month as a conservative lower cutoff to minimise the risk of false positive classification, it was considered that the present study's category of once or twice per week represented an approximate, although more conservative, equivalent.

In addition, the Olweus Bully/Victim Questionnaire (see Olweus, 1999a) is a global measure of bullying, which contrasts with the specific behavioural items comprising the Direct and Indirect Aggression Scales (DIAS, Björkqvist, Lagerspetz, & Österman, 1992) as used in the present study. To elaborate, the Olweus scale gives participants a definition of bullying that includes specific examples of behaviours that constitute bullying, with participants then required to respond to a single item and indicate how often bullying occurs. In contrast, the scale used in the present study asked respondents to indicate separately how often each of 26 distinct bullying behaviours occurred. Therefore, rather than calculate the sum of the scale scores and determining a cutoff as being x standard deviations above the scale mean to determine bullying status, it is reasonable that individuals could be classified as bully and/or victim solely on their response to any one of the 26 items. To illustrate, a student may respond to 25 victimisation items with "never", but report being subjected to a single bullying behaviour, such as being hit, on a daily basis. That this person's victimisation score may place them well below a cutoff point based on the mean plus 1 or 2 standard deviations, it is questionable to consider him or her as a non-victim given that they are physically bullied every day.

Consequently, the two highest categories of "quite often" and "very often" were collapsed to give a measure of bully/victim status, such that participants were classified as bully and/or victim if they had responded to at least one item with a frequency of at least once per week (i.e., "quite often"). This resulted in the four categories of bully (performing at least one bullying behaviour per week), victim (subjected to at least one

bullying behaviour per week), bully/victim (performed and subjected to at least one bullying behaviour per week), and non-involved. These categories are descriptive and not necessarily representative of the roles that individuals may take in a bullying situation. Hence, these categories do not imply that participants classified as non-involved were not actually involved in bullying situations, as they may have been assistants or reinforcers (Salmivalli et al., 1996). Furthermore, as the cutoff point was a reported frequency of at least once per week, those who reported performing a bullying act on a fortnightly basis were classified as non-involved, which is clearly an issue worthy of deeper consideration and something that will be addressed further in the discussion section.

Following classification of participants ($n = 1,623$) into bully/victim status groups, 199 students (12.3%) were categorised as bully, 288 as victim (17.7%), 398 as bully/victim (24.5%), and 738 as non-involved (45.5%). In other words, 597 students (36.8%), whether as bully or bully/victim, reported performing one or more specific bullying behaviours at least once per week. In contrast, 686 students (42.3%), whether as victim or bully/victim, reported being victimised at least once per week. To explore gender and school differences in bully/victim status, chi-square tests for independence were conducted. Significant associations were evident between bully/victim status and gender, $\chi^2(3) = 22.52, p < .001$, and between bully/victim status and school, $\chi^2(15) = 40.78, p < .001$. Frequency tables are presented below for bully/victim status by gender (Table 4.22) and by school (Table 4.23).

Table 4.22

Frequency of Bully/Victim Status, by Gender (n = 1,623)

	Bully	Victim	Bully/ victim	Non- involved	Total
Girls	57	117	149	340	663
%	8.6	17.6	22.5	51.3	
Boys	142	171	249	398	960
%	14.8	17.8	25.9	41.5	
Total	199	288	398	738	1,623

Note. % = percentage within gender.

Table 4.22 clearly shows that there were more boys classified as bully, whereas there were minimal gender differences apparent in the number of victims, bully/victims, or those classified as non-involved. In terms of differences between schools, Table 4.23 shows that Northern School and Spencer College had a higher percentage of students classified as bully, although Northern School students were less likely than students from other schools (except possibly Malden High) to be categorised as bully/victim. In terms of victim status, Welsh, Northern, and Wheatsheaf had similarly high percentages of students falling in the victim category, whereas the remaining schools formed a group having comparable lower levels of students classified as victim. Compared to all other schools, Forest Hill School had a considerably larger percentage of students classified as bully/victim. In more general terms, it is also apparent that with fewer than 40% of students classified as involved either as bully, victim, or bully/victim, Malden Girls High School had the highest frequency of students classified as non-involved. However, this is probably related to gender differences, in that boys were more likely than girls to be classified as bully, and that the all-boys school Spencer College exhibited the lowest percentage of non-involved students.

Table 4.23

Frequency of Bully/Victim Status, by School (n = 1,623)

	Bully	Victim	Bully/ victim	Non- involved	Total
Welsh	12	26	25	49	112
%	10.7	23.2	22.3	43.8	
Northern	9	14	16	18	57
%	15.8	24.6	14.0	31.6	
Wheatsheaf	49	91	119	195	454
%	10.8	20.0	26.2	43.0	
Forest Hill	49	70	128	174	421
%	11.6	16.6	30.4	41.3	
Malden	16	20	25	92	153
%	10.5	13.1	16.3	60.1	
Spencer	64	67	85	210	426
%	15.0	15.7	20.0	49.3	
Total	199	288	398	738	1,623

Note. % = percentage within each school.

A series of one-way analysis of variance tests were conducted to examine differences in bully/victim status in relation to personal self-esteem, collective self-esteem, narcissism, and impression management. Post-hoc pairwise comparisons were conducted using the conservative Scheffé correction to minimise the risk of Type 1 error (Tabachnick & Fidell, 2001). In terms of personal self-esteem, there was a significant main effect for bully/victim status, $F(3, 1610) = 33.30$, $p < .001$, $\eta^2 = .06$. As can be seen in Table 4.24, victims and bully/victims reported significantly lower mean personal self-esteem scores than bullies and lower than those classified as non-involved.

Table 4.24

Means and Standard Deviations for Personal Self-Esteem, by Bully/Victim Status (n = 1,614)

Status	<i>n</i>	<i>M</i>	<i>SD</i>
Bully	197	37.66 _a	6.81
Victim	285	35.34 _{b,d}	7.53
Bully/victim	396	34.36 _{b,d}	7.27
Non-involved	736	38.40 _c	6.82

Note. Vertical comparisons, subscripts a > b, c > d; all *ps* < .05, Scheffé corrected.

There was a significant main effect for bully/victim status on collective self-esteem, $F(3, 1614) = 25.03$, $p < .001$, $\eta^2 = .04$. Comparisons between bully/victim status groups for collective self-esteem exhibited a pattern of differences that was the reverse of that found for personal self-esteem. Table 4.25 shows that victims and bully/victims reported significantly higher mean levels of collective self-esteem (vs. lower personal self-esteem) than both bullies and non-involved participants.

Table 4.25

Means and Standard Deviations for Collective Self-Esteem, by Bully/Victim Status (n = 1,618)

Status	<i>n</i>	<i>M</i>	<i>SD</i>
Bully	198	36.14 _{b,d}	8.19
Victim	287	38.68 _a	8.67
Bully/victim	396	39.13 _c	8.96
Non-involved	737	35.13 _{b,d}	8.05

Note. Vertical comparisons, subscripts a > b, c > d; all *ps* < .05, Scheffé corrected.

An analysis of variance test found a significant main effect for bully/victim status on narcissism, $F(3, 1616) = 25.61$, $p < .001$, $\eta^2 = .05$. Post-hoc comparisons of mean narcissism scores between bully/victim status groups showed that bullies and bully/victims reported significantly higher mean narcissism scores than victims and participants categorised as non-involved (see Table 4.26).

Table 4.26

Means and Standard Deviations for Narcissism, by Bully/Victim Status (n = 1,618)

Status	<i>n</i>	<i>M</i>	<i>SD</i>
Bully	198	16.82 _a	6.51
Victim	288	13.91 _{b,d}	5.75
Bully/victim	399	15.71 _c	6.20
Non-involved	735	13.35 _{b,d}	5.70

Note. Vertical comparisons, subscripts $a > b, c > d$; all $ps < .05$, Scheffé corrected.

There was a significant main effect for bully/victim status on impression management, $F(3, 1622) = 120.56$, $p < .001$, $\eta^2 = .18$. Table 4.27 present results of post-hoc comparisons between bully/victim status groups, showing that victims reported significantly higher mean impression management scores than bullies and bully/victims. Participants categorised as non-involved reported significantly higher mean impression management scores than all other groups.

Table 4.27

Means and Standard Deviations for Impression Management, by Bully/Victim Status (n = 1,626)

Status	<i>n</i>	<i>M</i>	<i>SD</i>
Bully	198	61.95 _{b,d}	12.78
Victim	288	71.13 _{a,d}	13.62
Bully/victim	399	61.09 _{b,d}	13.66
Non-involved	735	75.18 _c	13.18

Note. Vertical comparisons, subscripts a > b, c > d; all *ps* < .05, Scheffé corrected.

4.6.5 Direct/Indirect bully status

To further explore differences between participants in terms of bully/victim status, respondents were classified according to the type of bullying behaviours that respondents reported carrying out, that is, direct, indirect, or both. Victimization was not included, as this would create 15 groups of participants (not including non-involved) that were classified according to type of bullying and/or victimisation, as a function of the type of behaviour (i.e., direct and/or indirect). Given the large number of groups and corresponding analyses that this would create, it was considered that this strategy would not contribute greatly to clear and simple results. Following classification of those participants categorised as bullies (*n* = 602) into bully status groups, 187 students (31.1%) were categorised as direct bully, 119 as indirect (19.8%), and 296 as direct/indirect bullies (49.2%). Following chi-square tests for independence, significant associations were evident between bully type and gender, $\chi^2(2) = 35.18, p < .001$, and between bully status and school, $\chi^2(10) = 19.88, p = .038$. Note that the chi-square result for school should be viewed with some caution as there were over 5% of cases with an expected count of less than 5 (e.g., Pallant, 2001). Frequency tables are presented below for bully status by gender (Table 4.28) and by school (Table 4.29).

Table 4.28
Frequency of Bully Status, by Gender (n = 602)

	Direct	Indirect	Direct & Indirect	Total
Girls	42	66	100	208
%	20.2	31.7	48.1	
Boys	145	53	196	394
%	36.8	13.5	49.7	
Total	187	119	296	602

Note. % = percentage within gender.

Table 4.28 above clearly shows that of those classified as bully, almost half of both boys and girls used a combination of direct and indirect bullying behaviours. Of the remainder, proportions between solely direct or indirect bullying were similar for both boys and girls, although the split was in the opposite direction. There were more girls categorised as indirect bullies than as direct bullies, whereas there were more boys classified as direct bullies than as indirect. This corresponds with the gender differences found in the continuous variables direct and indirect bullying above (see Table 4.5, p. 190).

Regarding specific differences between schools, the frequency table below presents bully status (direct and/or indirect) by school (Table 4.29). The frequency of indirect bullies did not vary greatly between schools, although Malden Girls' High had the highest frequency and Spencer College the lowest. Conversely, Malden had the lowest frequency of direct and Spencer the equal highest frequency. Again, this overall pattern of differences is likely to be a result of gender differences. Nonetheless, it is interesting that the coeducational Northern High School presents a pattern that is very similar to the all-boys Spencer College, with higher frequencies of direct and lower

frequencies of indirect bullies. As mentioned above, however, the low number of cases makes it difficult to draw conclusions with any certainty.

Table 4.29

Frequency of Bully Status, by School (n = 602)

	Direct	Indirect	Direct & Indirect	Total
Welsh	13	7	17	37
%	35.1	18.9	45.9	
Northern	10	4	11	25
%	40.0	16.0	44.0	
Wheatsheaf	41	35	93	169
%	24.3	20.7	55.0	
Forest Hill	56	40	85	181
%	30.9	22.1	47.0	
Malden	6	12	23	41
%	14.6	29.3	56.1	
Spencer	61	21	67	149
%	40.9	14.1	45.0	
Total	187	119	296	602

Note. % = percentage within each school.

A series of one-way analysis of variance tests was conducted to examine differences in direct and/or indirect bully status in relation to personal self-esteem, collective self-esteem, narcissism, and impression management. Post-hoc pairwise comparisons were conducted using the conservative Scheffé correction. There was a significant main effect for bully status and personal self-esteem, $F(2, 590) = 4.91$, $p = .008$, $\eta^2 = .02$. Table 4.30 below shows that participants categorised as direct bullies

reported significantly higher mean personal self-esteem scores than those categorised as indirect bullies and significantly higher than those who acted with a combination of direct and indirect bullying behaviours.

Table 4.30

Means and Standard Deviations for Personal Self-Esteem, by Bully Status (n = 593)

Status	<i>n</i>	<i>M</i>	<i>SD</i>
Direct	187	36.81 _a	6.84
Indirect	117	34.55 _b	7.60
Direct & Indirect	289	34.95 _b	6.82

Note. Vertical comparisons, subscripts a > b; all $ps < .05$, Scheffé corrected.

The main effect for direct and/or indirect bully status on collective self-esteem did not reach significance, $F(2, 591) = 1.48$, $p = .228$, $\eta^2 = .00$. Table 4.31 below presents collective self-esteem means and standard deviations as a function of type of bully status, showing that the mean level of collective self-esteem did not vary significantly between participants categorised as using direct, indirect, or a combination of direct and indirect bullying behaviours.

Table 4.31

Means and Standard Deviations for Collective Self-Esteem, by Bully Status (n = 594)

Status	<i>n</i>	<i>M</i>	<i>SD</i>
Direct	186	32.22	8.62
Indirect	118	38.50	9.29
Direct & Indirect	290	38.14	8.82

An analysis of variance test found a significant main effect for direct and/or indirect bully status on narcissism, $F(2, 594) = 10.68$, $p < .001$, $\eta^2 = .04$. Table 4.32 presents results of post-hoc comparisons of mean narcissism scores between bully status groups, showing that those categorised as acting with a combination of direct and indirect bullying behaviours reported significantly higher mean narcissism scores than participants categorised as solely direct or indirect bullies.

Table 4.32

Means and Standard Deviations for Narcissism, by Bully Status (n = 597)

Status	<i>n</i>	<i>M</i>	<i>SD</i>
Direct	186	15.12 _b	5.64
Indirect	119	14.66 _b	6.16
Direct & Indirect	292	17.27 _a	6.58

Note. Vertical comparisons, subscripts a > b; all $ps < .05$, Scheffé corrected.

There was also a significant main effect for bully/victim status on impression management, $F(2, 598) = 24.63$, $p < .001$, $\eta^2 = .08$. Results of post-hoc comparisons between bully status groups (Table 4.33) showed that those who used only either direct or indirect bullying behaviours reported significantly higher mean impression management scores than bullies who used a combination of direct and indirect aggressive behaviours.

Table 4.33

Means and Standard Deviations for Impression Management, by Bully Status (n = 601)

Status	<i>n</i>	<i>M</i>	<i>SD</i>
Direct	187	64.76 _a	12.08
Indirect	119	65.35 _a	12.98
Direct & Indirect	295	57.63 _b	13.32

Note. Vertical comparisons, subscripts a > b; all *ps* < .05, Scheffé corrected.

4.7 Summary

In summary, this chapter began with the reappraisal of research hypotheses to take into account changes to variables as a result of the principal components analyses outlined in the preceding Chapter 3. Descriptive statistics were then presented for major variables before data screening, variable transformation, and outlier identification procedures were described and discussed. Results of preliminary analyses were considered, with the finding that, other than age, the point during the school year that the survey was conducted had no significant effect on any of the major variables. The next section of this chapter described results of hypothesis testing, beginning with gender differences, before moving on to summarising results of post-hoc analyses.

4.7.1 Hypothesis Testing

In terms of gender differences, Hypothesis 1 was supported, with results showing that boys reported significantly higher mean direct bullying scores than girls. Results also supported Hypothesis 2, which predicted that boys would report significantly higher mean direct victimisation scores than girls. Predictions regarding indirect bullying were supported, with results showing that girls reported significantly higher mean indirect bullying (Hypothesis 3) and indirect victimisation scores than boys (Hypothesis 3a). Post-hoc analyses were conducted to explore overall levels of bullying

and victimisation by testing gender differences in total bullying and total victimisation scores. Results indicated that boys reported significantly higher mean total bullying and total victimisation scores than girls.

Results of partial correlation analyses did not support Hypothesis 4, which predicted that there would be significant negative correlation between direct bullying and age, with a small non-significant positive coefficient found. However, post-hoc analyses found a small significant negative partial correlation between direct bullying and age for boys. Hypothesis 5, which predicted that there would be a significant negative correlation between direct victimisation and age, was not supported by results of partial correlation analyses. Post-hoc analyses by gender between direct victimisation and age found non-significant partial correlations for both girls and boys. Hypothesis 6, which predicted a significant positive correlation between indirect bullying and age, was not supported, nor were significant post-hoc partial correlations evident for girls or boys. Results of partial correlations did not support the prediction of Hypothesis 6a that there would be a significant positive correlation between indirect victimisation and age. Comparable results were found in terms of post-hoc analyses by gender, with no significant partial correlations found between indirect victimisation and age for girls or boys.

To summarise age differences, it was expected that direct bullying and direct victimisation would decrease with age (Hypotheses 4 & 5), and that indirect bullying and indirect victimisation would increase with age (Hypotheses 6 & 6a). Results of partial correlation analyses showed that these forms of bullying did not vary significantly as a function of age, and these findings contrast with the results of the pilot study, which found self-report indirect bullying and indirect victimisation to decrease with age.

Partial correlation analyses were also employed to test hypotheses relating to self-esteem, bullying, and victimisation. Results supported Hypothesis 7, which stated that there would be a significant negative correlation between global personal self-esteem and total victimisation. Results of post-hoc analyses showed this relationship to be evident regardless of gender, with significant negative partial correlations found between global personal self-esteem and total victimisation for both girls and boys. Hypothesis 8, which predicted that personal self-esteem and total bullying would be positively correlated, was supported, with a low positive negative correlation found. Post-hoc analyses showed that the relationship between personal self-esteem and total bullying differed, although it did not vary as a result of gender, with no significant partial correlations found between global personal self-esteem and total bullying for both girls or boys.

In terms of collective self-esteem predictions, results were mixed. Hypothesis 9 predicted a negative correlation between collective self-esteem and total victimisation; however, analyses found a significant positive partial correlation. Post-hoc analyses also produced significant positive partial correlations between collective self-esteem and total victimisation for both girls and boys. Results also did not support Hypothesis 10, which predicted a significant positive correlation between collective self-esteem and total bullying. Results of post-hoc partial correlations also did not find significant correlations between collective self-esteem and total bullying for either girls or boys. This differed from results of the pilot study which, in contrast, found that adolescents with higher collective self-esteem also tended to report higher levels of total bullying and total victimisation.

Hypothesis 11 stated that adolescents with high levels of narcissism combined with high levels of personal self-esteem would report significantly higher levels of bullying behaviour than would individuals with high levels on only one variable, or low

levels on both narcissism and personal self-esteem. Results of a hierarchical multiple regression analysis showed that the predicted personal self-esteem/narcissism interaction of Hypothesis 11 was statistically significant. Although the effect size was small, it indicated that those who were high in both personal self-esteem and in narcissism reported higher levels of bullying behaviour. Exploratory post-hoc analyses were conducted by gender to test for interactions between personal self-esteem and narcissism in explaining total, direct, and indirect aggression. There was only one significant interaction found, such that boys who reported high levels of narcissism and of personal self-esteem were more likely to report higher levels of indirect aggression. The remaining results showed that there were no other significant interactions evident between personal self-esteem and narcissism in explaining any component of aggression measured in the main study for boys or girls.

A hierarchical multiple regression procedure was conducted to test Hypothesis 12, which predicted that adolescents with high levels of narcissism combined with high levels of collective self-esteem will report significantly higher levels of bullying behaviour than individuals with high levels on only one variable, or low levels on both narcissism and collective self-esteem. Results of the regression analysis showed that the predicted collective self-esteem/narcissism interaction of Hypothesis 12 did not reach significance, although there was a trend in the predicted direction. As with personal self-esteem interaction analyses, separate hierarchical multiple regression analyses by gender were conducted to test for interactions between collective self-esteem and narcissism in explaining total, direct, and indirect aggression. Again, there were no significant interactions evident between collective self-esteem and narcissism in explaining any component of aggression measured in the main study for boys or girls.

Hypothesis 13 predicted that collective self-esteem would exhibit a stronger correlation with total bullying than would personal self-esteem. Results did not provide

support for this prediction, with the partial correlation coefficient for collective self-esteem and bullying not differing significantly from the coefficient for personal self-esteem and bullying. Results of post-hoc comparisons by gender showed similar patterns, with the partial correlation coefficients for collective self-esteem and bullying not differing significantly from the correlation coefficients for personal self-esteem and bullying, for either girls or boys.

Results did not support Hypothesis 14, which predicted that collective self-esteem would exhibit a stronger correlation with indirect bullying than with direct bullying, with no significant difference found between the partial correlations. To explore whether this relationship varied by gender, separate post-hoc comparisons were conducted for boys and girls, with results showing that the partial correlation coefficients between indirect bullying and collective self-esteem did not differ significantly from the correlation coefficients between direct bullying and collective self-esteem, for either girls or boys.

The final two hypotheses related to impression management, with Hypothesis 15 predicting that there would be a significant negative correlation between impression management and bullying. Results of partial correlation analyses supported this hypothesis, such that those reporting higher levels of bullying behaviour reported lower levels of impression management. Hypothesis 16 predicted that girls would report significantly higher mean impression management scores than boys. Results of an analysis of covariance test did not support this hypothesis, with no significant difference apparent between boys' and girls' mean impression management scores.

4.7.2 Post-hoc Analyses

Testing for differences between schools was the first series of post-hoc analyses carried out, with results showing that there were significant school differences in total

bullying, total victimisation, personal self-esteem, collective self-esteem, and impression management, but not in narcissism. Results of analysis of variance tests showed that students from Malden Girls High School reported significantly lower mean bullying scores than students from all other schools, except for Welsh College students. Similarly, students from Malden Girls School also reported lower mean victimisation scores than students in all other schools, except for Spencer College students.

Results showed that respondents from Spencer College reported significantly higher mean personal self-esteem scores than all but Welsh College students. In terms of collective self-esteem, there were fewer differences apparent between schools, although Wheatsheaf and Forest Hill students reported significantly higher mean collective self-esteem scores than students from Spencer College. As indicated above, results did not indicate any significant differences between schools in mean narcissism scores. Results showed that students from both Malden Girls High School and Spencer College reported significantly higher mean impression management scores than Forest Hill High students.

Post-hoc analyses were also conducted to test gender differences in those variables that did not have related research hypotheses forwarded. Results of analysis of variance tests showed that boys reported significantly higher mean scores for personal self-esteem, collective self-esteem, and for narcissism.

A correlation matrix was generated to explore relationships between the distinct components within the bullying, victimisation, collective self-esteem, and impression management scales that arose from principal components analyses described in Chapter 3 (see section 3.2.3, p. 153). A visual comparison of the fullscale (Table 4.3, p. 187) and subscale (Table 4.18, p. 210) correlation matrices shows that there were minimal differences evident between full- and subscale correlations and other major variables. Analyses employing a gender split of the data also did not suggest the presence of any

remarkable patterns. However, the Identity component of the collective self-esteem scale showed comparatively much smaller correlations with all variables than either the total score or the Membership/Private or Public components.

To provide an alternative view of the data, participants were categorised by bully/victim status, resulting in the four groups of bully, victim, bully/victim, and non-involved. Summary frequencies showed that over one third of participants performed a bullying behaviour on a weekly basis, with more than 40% reporting being victimised at least once per week. Results of chi-square analyses showed that boys were more likely than girls to be classified as bully, with few gender differences evident in victim, bully/victim, or non-involved groups.

Chi-square analyses showed significant differences between schools in terms of the frequencies of participants classified according to their bully/victim status. In summary, these results showed that Northern School and Spencer College had higher percentages of students classified as bully. Welsh, Northern, and Wheatsheaf schools exhibited comparably high percentages of students categorised as victim, with all other schools showing similar low levels of students classified as victim. In terms of percentages of students classified as bully/victim, Forest Hill School had a considerably larger percentage of students who met the criteria for this category, whereas Northern School students were less likely than students from other schools (except possibly Malden High) to be categorised as bully/victim. Spencer College exhibited the lowest percentage of non-involved students, with Malden Girls High School having the highest frequency of students classified as non-involved.

One-way analysis of variance tests were conducted to examine differences in bully/victim status in relation to the variables personal self-esteem, collective self-esteem, narcissism, and impression management. Results showed that victims and bully/victims reported significantly lower mean personal self-esteem scores than

students classified as bullies and non-involved. In contrast, victims and bully/victims reported significantly higher mean levels of collective self-esteem than both bullies and non-involved participants. Post-hoc comparisons also showed that bullies and bully/victims had significantly higher mean narcissism scores than victims and participants categorised as non-involved. In terms of impression management, results showed that victims reported significantly higher mean impression management scores than both bullies and bully/victims. In addition, students categorised as non-involved reported significantly higher mean impression management scores than all other groups.

In the final series of analyses, respondents were classified according to the type of bullying behaviours carried out (i.e., direct, indirect, or both) as a means of further exploring relationships among variables. Of those categorised as bullies, almost half reported carrying out a combination of direct and indirect bullying behaviours, with almost one third categorised as direct bullies and the remaining 20% classified as indirect bullies. In terms of gender differences, the majority of both boys and girls used a combination of direct and indirect bullying behaviours, whereas girls were more likely to be categorised as indirect bullies and boys more likely to be categorised as direct bullies.

Regarding school differences, although the frequency of indirect bullies did not vary greatly between schools, Malden Girls' High had the highest and Spencer College the lowest percentage of students categorised as indirect bullies. In contrast, Malden had the lowest percentage and Spencer the equal highest (with Northern) percentage of students categorised as direct bullies. One particularly interesting result was the finding that coeducational Northern High School resembled the all-boys Spencer College, with both schools showing higher percentages of direct and lower percentages of indirect bullies than the other schools.

In terms of personal self-esteem, collective self-esteem, narcissism, and impression management, a series of one-way analysis of variance tests were conducted to examine differences in direct and/or indirect bully status. Results showed that participants categorised as direct bullies reported significantly higher mean personal self-esteem scores than those categorised as indirect bullies and students who reported using a combination of direct and indirect bullying behaviours. In contrast, results showed that collective self-esteem did not vary significantly between participants as a function of their classification as direct, indirect, or direct and indirect bullies.

Results showed that those categorised as acting with a combination of direct and indirect bullying behaviours reported significantly higher mean narcissism scores than participants categorised as solely direct or indirect bullies. In contrast, those who used only either direct or indirect bullying behaviours reported significantly higher mean impression management scores than bullies who used a combination of direct and indirect aggressive behaviours.

This chapter presented the results of analyses conducted to test hypotheses, as well as a range of post-hoc and exploratory analyses. The next and final chapter will critically discuss these results in terms of the existing literature as reviewed in Chapter 1 and draw conclusions, drawing particular attention to those results that were unexpected or that do not follow from previous findings.

CHAPTER 5

Discussion

5.1 Overview

The general aim of the present investigation was to explore and analyse the relationships between bullying, victimisation, personal and collective self-esteem, and narcissism in adolescents. Following an extensive literature review, a number of initial hypotheses were proposed and initially tested in a pilot study. As a consequence of the findings of the pilot study, a number of hypotheses required minor modification, some new predictions were introduced, and minor modifications were made to the survey procedure before the main study was conducted. Given that the findings of the pilot study were discussed in Chapter 2 (see section 2.3.4, p. 126), the present chapter begins by discussing the main study findings as they relate to specific hypotheses and to relevant dependent variables, making reference to specific pilot study findings only where necessary. Results of post-hoc analyses associated with individual hypotheses will be discussed within each relevant section, with a separate section presenting and discussing findings of exploratory post-hoc analyses. There will be an ongoing examination of possible limitations of the current study with suggestions for future research throughout this discussion. Finally, additional implications for interventions and methodological considerations will be discussed before a concluding summary is presented.

5.2 Hypothesis Testing

Given the number and variety of predicted relationships amongst variables, each hypothesis or group of related hypotheses (e.g., gender or age differences) will be addressed in turn, with related post-hoc findings included within each section. Findings arising from preliminary data analyses, such as issues associated with missing data, will be discussed following the sections addressing hypothesis testing. Hypotheses will be

considered in numerical order beginning with Hypotheses 1 through 3a, which made predictions relating to gender differences.

5.2.1 Gender Differences

It is worth reiterating here that the original hypotheses arising from the literature review of Chapter 1 related to specific forms of aggression, namely the indirect, physical, and verbal aggression types as put forward by Björkqvist, Österman et al. (1992). Furthermore, the instrument chosen to measure bullying in the present study was based upon the Direct and Indirect Aggression Scales (DIAS), which comprises the three subscales of physical, verbal, and indirect aggression (Björkqvist, Lagerspetz, & Österman, 1992). Despite this, principal components analysis of the data did not produce these three distinct components, finding instead the two components of Direct and Indirect aggression, with the Direct component comprising all physical and verbal bullying behaviour items (see section 3.2.3.1, p. 155). This was not considered to be problematic, as the components matched the theoretical and conceptual basis of the instrument and as there are no published reports of factor analyses of the self-report versions of the DIAS (Collett et al., 2003). Therefore, as the original hypotheses predicted the same gender differences for both physical and verbal bullying (i.e., boys greater than girls), and as the individual physical and verbal items were combined to form the direct bullying component, the original hypotheses were consolidated (see also section 4.1, p. 178).

Therefore, Hypothesis 1 predicted that boys would report significantly higher mean scores of direct bullying than girls, and results showed clear support for this hypothesis. These results correspond with those of Owens and MacMullin (1995) who used a peer-estimation method based on the DIAS (Björkqvist, Lagerspetz, & Österman,

1992) with a similar sample and found that boys used significantly more physical and verbal aggression (i.e., Direct aggression in the present study) than girls.

Results of the present study also supported the related prediction of Hypothesis 2, which stated that boys would report significantly higher mean direct victimisation scores than would girls. This finding corresponds with those of Paquette and Underwood (1999) who also found that boys reported experiencing significantly more physical aggression than girls. The present study's findings in terms of gender differences in direct victimisation also closely match those of Owens et al. (2005). Using a self-report instrument based on the DIAS with a sample of Australian high school students, with components that were essentially the same as those of the present study, Owens et al. also found that boys reported significantly more physical and verbal (i.e., direct) victimisation than girls.

That the present study found boys to report higher levels of direct aggression and direct victimisation than girls is not surprising, as this result corresponds with the findings of meta-analyses of studies exploring gender differences in aggression. Reviews by both Archer (2004), who analysed aggression studies arising from real-world settings, and Bettencourt and Miller (1996), who analysed experimental studies, concluded that males were more physically and verbally aggressive than females.

In terms of indirect aggression, predictions arising from the literature review were supported, with results showing that girls reported significantly higher mean indirect bullying scores (Hypothesis 3) and indirect victimisation scores than boys (Hypothesis 3a). These findings converge with the large body of research that has consistently found that adolescent girls typically exhibit more indirect aggressive behaviour than boys. For example, a cross-cultural study of aggression in 8- to 15-year-old children employed peer-estimations to show that girls' aggressive behaviour comprised a significantly higher proportion of indirect aggressive behaviours than boys.

Other studies using peer-nomination and peer-ratings have also found that girls exhibit more indirect aggressive behaviour than boys (e.g., Björkqvist, 1994; Lagerspetz et al., 1988). Of note, particularly in terms of the prediction regarding indirect victimisation, is that a recent study that employed a self-report questionnaire based on the DIAS with a similar sample to the present study (Australian adolescent students) also found girls to experience significantly higher levels of indirect victimisation than boys (Owens et al., 2005).

The present study's findings contradict other research, with a number of studies finding that boys and girls did not differ in levels of indirect aggression (e.g., Österman et al., 1994; Salmivalli & Kaukiainen, 2004). Indeed, some research has found boys to report higher levels of indirect aggression, at least in terms of specific behaviours such as spreading rumours, shutting another out of a group, or telling another's secrets (Baldry, 2004; Toldos, 2005). As to why these studies have found minimal differences between boys and girls in indirect aggressive behaviours, Daly and Owens (in press) suggest that school interventions may provide some explanation. Although there are no published studies addressing this specific issue, it is reasonable to assume that as school bullying interventions become more widely employed and, as a result of continuing research and evaluation, more effective, it is likely that bullying levels within schools will decrease. This is especially true with the more obvious types of bullying, such as the physical aggression more typical of boys, as these forms of aggression are more apparent and more likely to be targeted, resulting in reduced prevalence rates and, therefore, possibly reduced gender differences in physical bullying (see also Woods & Wolke, 2003).

To take this one step further, as boys become more aware that aggression will not be tolerated, it is possible that boys will seek novel ways to bully that are less likely to result in detection and sanction. Consequently, if boys learn to employ, for example,

the indirect behaviours more typically exhibited by girls, we may also see fewer differences between genders in the prevalence of indirect aggression. It is important to note that, although significant gender differences were found in direct and indirect aggression, this is not to say that boys do not engage in indirect aggression or that girls do not engage in direct aggression. Instead, it indicates that boys use predominantly direct aggressive behaviours and girls predominantly indirect.

Nonetheless, the findings of the present study generally correspond with and provide support for Eagly's (1987) social role theory, which proposes that gender differences in social behaviour occur because males are more agentic (instrumental, masculine) and females are more communal (expressive, feminine) in their behaviour (Archer, 2004). Aggression, as defined and measured in the present study, can be categorised into direct (physical, verbal) and indirect (or relational/social) forms, with direct aggression corresponding with agentic behaviours and indirect with the communal behaviours of social role theory. The findings of the present study that males exhibited more direct agentic bullying behaviour and girls more indirect communal bullying behaviour converges with the pattern of gender differences in behaviour that one would expect according to social role theory.

Additionally, results of post-hoc analyses indicated that boys reported significantly higher mean total bullying scores and total victimisation scores than girls, a result that coincides with recently published findings arising from research with a sample of Australian primary and secondary schoolchildren (Rigby & Johnson, 2006). Although this finding corresponds with much of the research into aggression and bullying, there are some limitations to the present study relating to gender differences that nevertheless warrant some discussion.

For example, the measures employed in the present study did not take into account provocation as a possible factor in these gender differences. As Berkowitz

(1989) noted, the type of provocation (e.g., accidental mishap or intentional harm) can influence whether a person is likely to react aggressively. In their review of experimental studies, Bettencourt and Miller (1996) applied this concept to explain gender differences in aggression, whereby they found that provocation resulted in reduced gender differences in physical and verbal aggression, such that females' aggression levels approached those of males under conditions of perceived intentional provocation. However, their review did not address indirect aggressive behaviours, either in terms of provocation or of retaliation. Furthermore, although there has been some research into bullying from a proactive/reactive aggression perspective (e.g., Crick & Dodge, 1996; Pellegrini et al., 1999; Salmivalli & Nieminen, 2002), none has specifically explored gender differences and indirect aggression. There is, therefore, an opportunity for future research to explore the effect of provocation or motivation on adolescent gender differences in indirect aggression.

There is another aspect of gender differences in aggression that the present study did not account for, as there was no distinction made in terms of the gender of the perpetrators or the targets of the aggressive behaviours measured. This is clearly an issue given that Archer (2004) considered it likely that respondents generally answer aggression questionnaires with the same gender in mind, unless specifically asked about opposite gender targets or partners. Bettencourt and Miller (1996) proposed that individuals behave more aggressively against targets of the same gender, such that males display relatively more aggression towards males than towards females, and females display more aggression towards females than males. Interestingly, Archer (2004) noted that real-world studies generally do not specify the gender of the target of aggressive behaviour and, of the few that did in his review, none considered indirect aggression. A study by Russell and Owens (1999) illustrates the limited research into within- and across-gender aggression, particularly in relation to indirect aggression.

Using a peer-estimation technique, they found that both boys and girls used relatively more physical and verbal aggressive behaviours against boys, and relatively more indirect aggressive behaviours against girls. The authors noted that, in using peer-estimation to measure aggression, results might have been influenced to an extent by the effect of gender norms of behaviour upon respondents. Nevertheless, it is clear that further research into the interaction between gender of actor and gender of target in adolescent aggression and bullying is warranted.

In summary, gender differences in both direct and indirect aggression were as predicted and in accordance with previous research and social role theory, although there were some minor limitations that may provide opportunities for future research. As the next section shows, the results relating to predicted relationships between age and bullying and victimisation were, however, less straightforward.

5.2.2 Age Differences

Hypothesis 4, which predicted that there would be a significant negative correlation between direct bullying and age, was not supported. Similarly, results did not support Hypothesis 5, which predicted a significant negative correlation between direct victimisation and age. First, it should be considered that the collapsing of physical and verbal aggressive behaviours into the single direct bullying and direct victimisation factors through principal components analysis might possibly have confounded these results. However, as the pilot study results also failed to find significant age effects for physical or verbal bullying and victimisation, it is unlikely that the aggregating of data into a direct component substantially influenced results. Nevertheless, it does create some difficulty in making direct comparisons with previous research that has analysed aggression or bullying using separate physical and verbal factors.

Generally, the findings of the present study contradict the body of previous research that has consistently found physical aggression to decrease throughout adolescence. For example, Österman et al. (1998) found an age-related trend of decreased use of physical aggression by boys and girls in their cross-cultural study of peer estimates of aggression in adolescents, although there was a slight increase in levels of verbal aggression with age. The present study's findings also diverge from those of Pellegrini and Long (2002) who found that children exhibited an increase in levels of bullying during the transition from primary to secondary school, with levels declining in the higher grades. Pellegrini and Long proposed that as incoming primary students encountered and formed new social groupings in the early years of secondary school, they were put at greater risk of being bullied until new social hierarchies were established. If the present study had taken a wider age cross-section to include students in the latter primary and secondary school years, it may have found evidence of developmental differences although, as Archer (2004) noted, longitudinal studies are a more effective method of determining developmental changes.

Results of post-hoc analyses by gender also failed to find significant relationships between direct victimisation and age for either girls or boys, or a significant relationship between direct bullying and age for girls. Interestingly, there was a significant, although small, negative correlation found between direct bullying and age for boys. That direct bullying levels declined with age for boys provides partial support for the predictions of the present study and corresponds with Björkqvist, Österman et al.'s (1992) proposition that physical behaviours decline during childhood as social and verbal skills develop. However, Björkqvist and colleagues also proposed that, in conjunction with the development of social and verbal skills, there is an increase in the level of indirect aggression behaviours during adolescence – a trend that was not evident in the results of the present study.

To elaborate, Hypothesis 6 predicted a significant positive correlation between indirect bullying and age, with Hypothesis 6a predicting a corresponding significant positive correlation between indirect victimisation and age. Neither of these predictions was supported by the results of the present study, with no significant age-related correlations evident. Furthermore, post-hoc analyses by gender did not find significant correlations between direct or indirect victimisation and age for either girls or boys. These findings contradict those of Owens (1996), who found levels of indirect aggression to increase with age through Years 2, 6, 9, and 11, although this was only apparent in girls with no significant age-related changes evident for boys. In contrast, the findings of the present study coincide with a number of other studies that did not discover significant relationships between age and indirect aggression (e.g., Rivers & Smith, 1994; Whitney & Smith, 1993).

The present study's finding that age and indirect aggression were not related provides contradictory evidence for social learning theory (Bandura, 1973), as it relates to social role theory (Eagly, 1987), in predicting the influence of age and gender on indirect aggression. Archer (2004) proposed that these two theories parallel each other, whereby social learning processes, such as observation and modelling, facilitate the acquisition and maintenance of aggressive behaviours in accordance with social roles. Therefore, social learning predicts that gender differences in indirect aggression will be apparent and increase through childhood as a result of the cumulative impact of socialisation processes such as parental, peer, and media influences (Archer, 2004). Nevertheless, the statement that the lack of age-related changes in indirect aggression in the present study contradicts social learning theory is a qualified one. Social learning processes would undoubtedly be taking place, but in terms of the acquisition of indirect aggressive behaviours in the present sample, the effects of social learning had probably

reached a plateau. These participants had, for the most part, already learned these behaviours at the time of the survey.

To elaborate, the present study, in drawing upon a sample with a relatively restricted (in a developmental sense) age range of 12 to 17 years, may simply have missed the age group wherein changes in levels of indirect aggression are typically evident. It could be that by the time a child reaches 12 years or thereabouts, he or she may already have all the necessary social and cognitive skills needed to aggress indirectly and there will be no further age-related changes. Had the present cross-sectional study included the final years of secondary school and the later primary years, the expected developmental changes may have been found.

As discussed following the pilot study results, these findings could also be explained in terms of contemporary school bullying interventions. It is possible that the more obvious physical (and verbal, for that matter) forms of bullying are being successfully addressed in schools and that students are learning at an earlier age that bullying is unacceptable. This may have resulted in a floor effect, such that participants in the present study simply exhibited lower levels of direct aggression due to an increased awareness of the consequences of bullying, but at an earlier age than might otherwise be expected from the literature. Similarly, it could be suggested that adolescents have adapted to the contemporary school environment with its stricter codes of conduct relating to bullying behaviour by learning to manipulate their social surroundings in different ways. Consequently, one could expect that adolescents might learn indirect (less obvious and punishable) aggressive behaviours at a younger age (i.e., prior to secondary school) than previous research might predict. This may have, therefore, resulted in a ceiling effect in the results of the present study, as illustrated by the lack of significant relationships between age and bullying variables.

It is a clear limitation of the present study that no information was obtained to determine whether any anti-bullying programmes were in place in individual schools and how this may have affected the results. It is reasonable to assume that all schools would have at least an awareness of the prevalence and negative consequences of bullying, as well as some form of anti-bullying programme or procedure in place (for examples see Cross, Hall, Hamilton, Pintabona, & Erceg, 2004; Rigby & Slee, 1999). Despite this, it is unlikely that merely determining the presence in a school of an anti-bullying programme will be sufficient to fully control for possible effects of a programme on the results of a study, both within and between schools. However, the process of gaining additional information such as the type of programme, its duration, and the degree of success, will likely result in a study of unwieldy complexity and one that resembles an intervention evaluation.

Returning to indirect aggression, the main study findings are worthy of further discussion as they also contrast with the results of the pilot study, which found self-report indirect bullying and indirect victimisation to decrease with age, although the correlation was low to moderate and the sample size was relatively small. The pilot study school, Welsh College, was distinct from other schools in one respect, in that it was drawn from a middle school (years 7-9). This sample therefore included a small cohort of younger students, who were initially included as a means of ensuring that the survey procedure and individual scale items were suitable for the main study target sample. In addition, as it was a middle school, not only did it include a younger cohort, but it also lacked the older cohort of students (i.e., Year 10) that was present in samples drawn from other schools. This suggests that there may have been something distinctive about Welsh College in general or about Year 7 in particular. Yet Welsh College did not differ significantly from the other schools in terms of other major variables, either in a statistical or in a general sense. Had the main study included other Year 7 students from

other schools, comparisons could possibly be drawn more readily to explore this anomaly. However, this strategy is not very practical as the majority of metropolitan Adelaide schools are either primary (e.g., years 1-7) or secondary (years 8-12) schools at single sites or campuses, with few possessing a structure that includes a separate middle (e.g., years 7-9) school.

Finally, although Year 7 had higher mean levels of indirect bullying and victimisation than Years 8 and 9 of Welsh College, the differences did not reach significance. It is possible that this particular small cohort of students is a little more indirectly aggressive than their older and younger peers. If we were to conduct the same survey the following year we could determine a cohort effect if the now-Year 8 students still exhibited higher levels of indirect aggression than students in years 7 and 9. Alternatively, if the Year 8 students' levels of indirect aggression had reduced or the new Year 7 students exhibited higher indirect aggression levels than their older peers, it may be a developmental effect. As mentioned above, longitudinal studies provide a more effective method of determining developmental changes.

To summarise age differences, although it was predicted that direct bullying and direct victimisation would decrease with age and that indirect bullying and indirect victimisation would increase with age, results showed that these forms of bullying did not vary significantly as a function of age. Results of post-hoc analyses showed that, correspondingly, neither total bullying nor total victimisation exhibit significant age-related relationships. The discussion will now turn to the present study's findings in regard to self-esteem.

5.2.3 Self-Esteem, Bullying, and Victimisation Relationships

Hypothesis 7, which predicted a significant negative correlation between global personal self-esteem and total victimisation, was supported by the results of the present

study. In addition, post-hoc analyses found this relationship to be evident for both females and males, with a significant negative relationship found between personal self-esteem and total victimisation for both genders. These results correspond with the large body of research that has consistently found victims of aggression to report lower levels of global personal self-esteem. For example, research by Austin and Joseph (1996) and Rigby and Slee (1993) both found significant negative correlations between victimisation and self-esteem, with the latter study using the same measure of self-esteem with a sample similar to that of the present study.

Given the correlational nature of the present study and of much of the associated research in this area, it is not possible to draw any clear causal conclusions regarding the relationship between self-esteem and victimisation. Nevertheless, it is generally accepted that low self-esteem is a consequence of victimisation and findings from a number of non-experimental studies provide some clear evidence for this relationship. For example, Egan and Perry (1998) measured global self-worth and victimisation at the beginning of the school year and again 5.5 months later and found self-worth to decrease over time as a function of victimisation. Despite this finding, Egan and Perry cautioned that the self-esteem/victimisation relationship might be a reciprocal one, with victimisation and self-esteem mutually influencing each other. Not only are those who are low in self-esteem possibly lacking the resiliency provided by higher levels of self-esteem, but also being victimised may further reduce their self-esteem, making these individuals even more susceptible to the effects of victimisation. In addition, research has found low self-esteem to be related to individuals making more negative interpretations of an event and a greater likelihood of perceived victimisation (Verkuyten & Thijs, 2001). Therefore, not only do victims have low self-esteem, possibly as a direct result of being victimised, but also their low self-esteem primes them to view events negatively and makes it more likely that they will consider a

particular incident to be victimisation. Verkuyten and Thijs further conclude that victims' low self-esteem also reduces their resiliency to deal with being victimised.

In terms of self-esteem and bullying, the results of the present study provided support for Hypothesis 8, which predicted that personal self-esteem and total bullying would be positively correlated. Although the partial correlation was low, it showed that as self-reported bullying increased, so did levels of personal self-esteem. These results correspond with previous studies that have found a positive relationship between bullying and self-esteem. For example, Kaukiainen et al. (2002) found global self-concept to be positively correlated with bullying scores, although the methodology differed in that they utilised a peer-nomination procedure to determine bullying in a comparatively smaller and younger sample of children ($N = 141$, 11-12 years), so direct comparisons are difficult. In combination with the findings of previous research, the present study's findings suggest that those who bully might be building and maintaining their self-esteem through the domination and harassment of weaker individuals (Kaukiainen et al., 2002).

On the other hand, the findings of the present study contradict research that has found negative correlations between bullying behaviour and self-esteem. For example, Austin and Joseph (1996), found significant negative correlations between bullying behaviour and global self-worth for boys and girls, although these correlations were evident only when participants were not grouped according to bully/victim status. When analyses were conducted using the categories of bully, victim, bully/victim, and non-involved participants, the difference between self-esteem scores for bullies and those not involved did not reach significance. As discussed below, the present study data were also split to allow classification of participants into bully/victim status groups similar to those used by Austin and Joseph. Interestingly, the present study also found that bullies and non-involved reported the same levels of personal self-esteem.

In addition, post-hoc analyses of the present study's data showed that the personal self-esteem and total bullying relationship differed somewhat when analysed by gender, as there were no significant partial correlations found between global personal self-esteem and total bullying for either girls or boys. That the correlation did not hold when split by gender is not especially surprising given that the personal self-esteem/bullying partial correlation for the full data set was very low. It is probable that the combined sample size was large enough to allow a statistically significant correlation to emerge despite the low coefficient (Tabachnick & Fidell, 2001). Regardless, this gender-related finding illustrates that the self-esteem/aggression relationship is complex and corresponds with studies that have found no relationship between aggressive or bullying behaviour and global self-esteem (see Ireland, 2002; Salmivalli et al., 1999).

Finally, and despite the low correlation coefficient, the present study's findings in terms of personal self-esteem and bullying correspond with Baumeister et al.'s (1996) proposition that aggression is related to high self-esteem, although they emphasised that self-esteem is not a direct independent cause of aggression. Rather, it is high self-esteem in conjunction with a threat to favourable self-views that is more likely to lead to aggression, and this particular aspect of the aggression/self-esteem relationship is addressed below with the specific narcissism-related Hypotheses 11 and 12. Before addressing these interactions, the hypotheses relating to specific collective self-esteem and bullying correlations will be discussed.

In terms of predictions concerning collective self-esteem relationships with victimisation and bullying, results were generally not as expected and, in the case of victimisation in particular, somewhat surprising. Hypothesis 9 predicted a negative correlation between collective self-esteem and total victimisation; however, analyses found a significant positive partial correlation. Post-hoc analyses by gender also

produced significant positive partial correlations between collective self-esteem and total victimisation for both girls and boys. In other words, adolescents with higher collective self-esteem also tended to report higher levels of total victimisation.

Although there has been no research to date that specifically addresses collective self-esteem and aggression, the present study extrapolated findings from the large body of research that has found global personal self-esteem to be negatively related to victimisation (e.g., Egan & Perry, 1998). This was considered appropriate given that collective self-esteem is related to personal self-esteem and that the collective and personal self-esteem scales used in the present study have exhibited low to moderate positive correlations in previous research (Luhtanen & Crocker, 1992). In addition, results of studies that have used measures that tap into self-esteem domains such as social (e.g., Boulton & Smith, 1994) or ethnic self-esteem (Cassidy et al., 2004; Verkuyten & Thijs, 2001) also suggest that predicting a negative relationship between collective self-esteem and victimisation was a reasonable strategy.

Rather than the predicted significant negative correlation, both the pilot and the main studies found significant moderate positive correlations between collective self-esteem and victimisation. It is difficult to determine why increased victimisation might result in increased levels of collective self-esteem, or vice versa for that matter. Regardless of the inability of non-experimental research to allow clear causal inferences to be drawn, the relationship is unlikely to be a causal one because, not only is there no research to suggest that being victimised is likely to increase one's self-esteem (in fact, the contrary is typically reported), but it also does not make plain intuitive sense.

Furthermore, although the results of the present study add weight to Luhtanen and Crocker's (1992) statement that collective self-esteem is related to, yet distinct from, personal self-esteem, it does so in a manner that cannot easily be explained. Specifically, Luhtanen and Crocker cite moderate positive correlations between

collective self-esteem and personal self-esteem to support what is a reasonable assertion. Although there is no evidence in the literature to suggest a negative relationship, as was found in the present study, there is some research indicating that the personal/collective self-esteem relationship is not universal. For example, Lay and Verkuyten (1999) used a version of the Collective Self-Esteem Scale (Luhtanen & Crocker, 1992) to measure self-esteem as derived from one's ethnic group, finding that the positive relationship between personal self-esteem and collective self-esteem was dependent upon the context. They found a positive relationship between personal and collective self-esteem for foreign-born (e.g., Hong Kong) Chinese adolescents living in Canada. In contrast, they found that the personal self-esteem of Canadian-born Chinese adolescents was unrelated to their collective self-esteem arising from their membership of their Chinese ethnic group. This suggests that the saliency of the group membership has some bearing on the relationship between collective and personal self-esteem.

The question remains, what is it about the present study and its sample of adolescents that produces a finding indicating that those with higher levels of being victimised are likely to also report higher levels of collective self-esteem, while also reporting lower personal self-esteem? It is possible that the measures employed contributed in some way to these unusual findings. For example, it could be that the preamble to the collective self-esteem scale was too specific: "We are all members of different social groups. We would like you to think about your favourite group of friends at school. We would then like you to think carefully about your membership of this particular favourite group of friends or classmates and then respond to the following statements." Given the precise nature of the wording, it is possible that the preamble produced a mild form of auto-suggestion, as it clearly states that everybody is a member of a group. Consequently, the preamble may have put some respondents in mind of the group they would like to be a member of, even if those respondents were not actually

members of that “particular favourite group of friends or classmates”, or possibly loners. Given that victims are often socially isolated (e.g., Pellegrini et al., 1999), it is difficult to conclude that respondents who reported higher levels of victimisation were all members of friendship groups from which they also happened to gain high levels of collective self-esteem.

Related to the above is the fact that the scale may have been not specific enough, as it did not ask respondents to describe or identify their particular friendship group in any way. Hence, we cannot clearly state or define respondents’ groups to draw conclusions as to group type and structure (e.g., mixed or same age, gender, or class) and whether these factors influenced results. To illustrate, despite the preamble clearly asking students to consider friends at school, there was no means of confirming whether the group in question was actually based in or outside the school. These issues, however, provide an opportunity for future research using other methodologies, such as peer-nomination or sociometric techniques, to explore whether specific (e.g., to the point of naming group members) adolescent friendship groups differentially affect individuals’ collective self-esteem. This also coincides with the above discussion regarding the effect of the saliency of group membership upon collective self-esteem and suggests another avenue for future research in aggression amongst adolescents.

Returning to the present study, it is reasonable to assume that the circle of friends that respondents had in mind when reporting their collective self-esteem did not include the individuals who had been responsible for the victimising, although, admittedly, this is not necessarily so given the very social and relational nature of bullying and of indirect aggression in particular. Therefore, first let us consider the possibility that those who were responsible for the perceived victimisation were also members of the friendship group from which victims derived their collective self-esteem.

For example, it might be that respondents did not really perceive the specific behaviours of the victimisation scale to represent examples of bullying or aggression, despite the definition presented in the scale preamble. It is possible that respondents did not fully read or understand the preamble, or maybe the bullying definition was not explicit enough. If this was the case, it suggests that these behaviours were perceived to be less about bullying or aggression and more about different ways of communicating with peers. This is an unlikely scenario, however, as negative correlations were found between personal self-esteem and victimisation, indicating that the expected self-esteem/victimisation connection was present. The issue of providing a clear bullying definition could be overcome by introducing a form of manipulation check. For instance, placing a general bullying question within the closing stages of the preamble (e.g., "Have you been bullied in this way during school this term?") would help ensure that respondents had read and understood the definition. The questionnaire would then proceed to address specific behaviours and frequencies.

So, if we are to assume that the preamble was read and understood, and we return to the notion that those responsible for the victimisation were also members of the friendship group, the issue of how collective self-esteem remained high while personal self-esteem was reduced still requires consideration. It is possible that those who were acting aggressively, while they were a part of the wider social group, they were not among the close friends from whom respondents gained social support and their collective self-esteem. Those who are victimised, because they are low in personal self-esteem and in need of social support, might be more forgiving of aggressive members of their friendship group, because their membership of the group provides them with much-needed collective self-esteem. This possibility is understandable when one recalls that peer group membership has a significant effect upon adolescent social identity (Denholm et al., 1992; Kinney, 1999; Tarrant et al., 2001). Whether this is in

fact the case can be investigated by other studies which could, as suggested above, employ sociometric techniques to examine specific aspects of social and group networks to further explore how group membership, collective self-esteem, and victimisation are related. It might also be informative to determine how long students had been at their school. Moreover, future research might determine the characteristics of the actors in school bullying and victimisation by, for example, determining participant roles (Salmivalli, 1999) or the gender of victim and target (e.g., Russell & Owens, 1999) and how they relate to group membership and collective self-esteem.

The importance of the adolescent social group features in another possible explanation for the present study's finding of a positive relationship between collective self-esteem and victimisation. Research has shown that, if a person is victimised, they are likely to turn to others for support and help (e.g., Naylor & Cowie, 1999). Adolescents, in relying upon their group membership as a source of self-esteem, may understandably turn to their friendship group in times of need, such as when they are being victimised by their peers and especially by an aggressive peer from outside of their immediate group. Assuming that the friendship group provides the required social support, resulting in increased levels of collective self-esteem, it is entirely possible that a victim of bullying could report low personal self-esteem while also reporting high levels of collective self-esteem.

There has been some research to explore to whom adolescents turn when they find themselves the victims of bullying behaviour. For example, Glover et al. (2000) found that over half of secondary school students reported that their best friend was the most common source of help in school, followed by mothers and teachers. Similarly, research has also shown that having friends is a protective factor against victimisation and its negative consequences (Pellegrini et al., 1999). This assertion, however, requires some qualification with, for example, research also showing that victims are often

socially isolated (e.g., Cairns, Cairns, Neckerman, Gest, & Gariépy, 1988), with one study finding that almost all victims were rejected by their peers (Schuster, 1999). Such studies also suggest that it could be that those who are socially isolated are victimised because, for example, they may appear to be easy targets for aggressive peers. In addition, if victims are typically socially isolated, this makes it more difficult to state categorically that victims turn to, and gain collective self-esteem from, their friendship groups.

If it is the case that those who are victimised are socially isolated, how is it possible that they reported higher levels of collective self-esteem in the present study? Salmivalli et al. (1999) found that some children in their study who had been victimised made attributions that favoured their self-perception, thereby bolstering their self-esteem. Research has also found that rejected children overestimate their social acceptance by overstating the degree to which they perceive themselves to be liked by others, compared with actual liking as reported by peers (Patterson, Kupersmidt, & Griesler, 1990). Hence, if we accept that collective self-esteem is important to adolescent wellbeing, it may be that those who are victimised by their peers and in greatest need of this form of self-esteem overestimate it as a defensive strategy to offset their lowered self-worth. To an extent this mirrors the tendency for people to typically report having a global self-esteem level that is slightly above the midpoint of self-esteem scales, as people generally do feel good about themselves (e.g., Brown, 1998).

It is also possible that, although the personal self-esteem of participants in the current study suffered as a result of victimisation, their collective self-esteem was enhanced because they felt that they were at least part of a group, even if their role was probably a very lowly and painful one. Therefore, although the reporting of high collective self-esteem was possibly a form of self-deception, otherwise socially isolated victims may have felt that any attention was good attention. Alternatively, although

victims may have been unhappy at school and suffered low personal self-esteem as a result of victimisation, they were able to draw upon social support from friendship groups outside of the school, thereby increasing their collective self-esteem. This latter proposition, however, is unlikely given that the preamble to the collective self-esteem scale asked students to consider their membership of their friendship groups at school. Finally, and as suggested above, future research utilising sociometric methods to measure participants' social networks and groups would provide further insight into the connections between collective self-esteem and peer victimisation in adolescents.

In terms of bullying and collective self-esteem, results of the main study did not support Hypothesis 10's prediction that there would be a significant positive correlation found between collective self-esteem and total bullying, with no significant relationship evident. Additionally, results of post-hoc partial correlations failed to find any significant correlations between collective self-esteem and total bullying for girls or boys. This hypothesis reflected the prediction for global personal self-esteem and bullying (i.e., Hypothesis 8) and was based in part on the personal self-esteem/bullying-related literature, and on the expectation that collective self-esteem would be moderately and positively related to personal self-esteem (Luhtanen & Crocker, 1992). Therefore, given the present study's unexpected finding that collective self-esteem and personal self-esteem were in fact significantly negatively correlated, it is not altogether surprising to discover that collective self-esteem relates to bullying in a manner distinct from that of personal self-esteem.

That bullying and collective self-esteem were not significantly related in the main study contrasts with the findings of the pilot study, which did find a significant positive relationship between collective self-esteem and total bullying. It also contradicts previous research into self-esteem domains and bullying. For example, Austin and Joseph (1996) found bullies to report significantly higher mean scholastic

competence self-esteem scores than bully/victims and higher social acceptance self-esteem than either bully/victims or victims. The main study's findings do, however, correspond with previous research that has found, for example, bullies to report the same levels of self-esteem as non-bullies in popularity and physical appearance domains (O'Moore & Kirkham, 2001), as well as social and physical domains (Salmivalli, 1998). Despite these corresponding findings, it is difficult to draw concrete conclusions in terms of collective self-esteem, as there are no published findings specifically connecting collective self-esteem and aggression or bullying. As discussed above, future studies employing different methodologies (e.g., peer nomination or sociometrics) may discover some as yet unknown factors influencing the collective self-esteem/bullying relationship, although such studies are unlikely to be supported by South Australian ethics committees.

5.2.4 Self-Esteem/Narcissism Interactions

Results of the main study supported Hypothesis 11, which stated that adolescents with high levels of narcissism combined with high levels of personal self-esteem would report significantly higher levels of bullying behaviour than would individuals with high levels on only one variable, or low levels on both narcissism and personal self-esteem. Hierarchical multiple regression analysis results showed a significant interaction between personal self-esteem and narcissism in predicting bullying behaviour, indicating that those who were high in personal self-esteem and high in narcissism reported higher levels of bullying behaviour, although the effect size was small. Results of gender-related post-hoc analyses found that boys who reported high levels of narcissism and of personal self-esteem were more likely to report higher levels of indirect aggression. Remaining results did not show any other significant

interactions between personal self-esteem and narcissism in predicting any component of aggression for either girls or boys.

The present study's finding of a significant interaction between personal self-esteem and narcissism in predicting bullying corresponds with research by Salmivalli et al. (1999). That study found an interaction between a narcissism-like construct (defensive egotism) and personal self-esteem, such that those who exhibited very high defensive egotism and above-average global personal self-esteem scores were more likely to participate in bullying situations. In sum, these findings contradict the view that low self-esteem is a cause of violence (e.g., Anderson, 1994), and supports Baumeister et al.'s (1996) contention that those with high narcissism and high (inflated or not necessarily based in reality) personal self-esteem are more likely to react aggressively when their self-esteem is threatened. It should be noted that the present study's results do not provide direct or unequivocal support for the Baumeister et al. proposition, as the current study did not measure whether individuals' self-esteem was inflated, or whether respondents' self-esteem was under threat.

In addition, the results of the main study in terms of collective self-esteem and narcissism complicate the issue further. Hypothesis 12 predicted that adolescents with high levels of narcissism combined with high levels of collective self-esteem would report significantly higher levels of bullying behaviour than individuals with high levels on only one variable, or low levels on both narcissism and collective self-esteem. Results showed that the predicted collective self-esteem/narcissism interaction did not reach significance, although the interaction term did exhibit a trend that approached significance ($p = .060$). As with personal self-esteem interaction analyses, post-hoc analyses were also conducted by gender, with no significant interactions evident between collective self-esteem and narcissism in explaining any component of aggression measured in the main study for boys or girls.

Overall, the findings of the present study provide only qualified support for the high narcissism/high self-esteem relationship in explaining aggression (Baumeister et al., 1996). As stated above, because the current study did not specifically measure self-esteem threat or whether individuals' self-esteem was inflated, it is not possible to easily match the current findings to other aggression research. Nevertheless, the present study produced some interesting and unique findings, which may provide a basis for future research, both experimental and correlational, to further explore the self-esteem/aggression (and bullying in particular) relationship. For example, previous experimental research has explored stability of self-esteem, narcissism, and aggression (e.g., Kernis, 2001; Kernis, Grannemann, & Barclay, 1989), and other researchers may be able to extrapolate such methodologies and constructs to aggression and bullying in schools.

5.2.5 Personal and Collective Self-Esteem and Bullying Relationships

Hypothesis 13 predicted that collective self-esteem would have a stronger correlation with bullying behaviour than would global personal self-esteem in adolescent students. Results did not support this hypothesis, with the partial correlation coefficients for collective self-esteem and bullying, and for personal self-esteem and bullying not differing significantly. Post-hoc comparisons by gender gave similar results, with the partial correlation coefficients for the two types of self-esteem and bullying not differing significantly, for either girls or boys. These results correspond with those of the pilot study, which also failed to find significant differences between the two types of self-esteem correlations.

Drawing upon social identity theory (Tajfel & Turner, 1986), the present study posited that bullying is an example of group-level behaviour and that, therefore, bullying would show a stronger relationship with a measure of group-based self-esteem,

such as the collective self-esteem scale (Luhtanen & Crocker, 1992), than with a personal self-esteem measure. The findings of the present study did not provide support for this assertion and failed to find that collective self-esteem contributed to the explanation of bullying behaviour over that afforded by global personal self-esteem. The aim of the present study was not to test social identity theory or how it might explain aggression and bullying in adolescents and, hence, no such conclusions can be drawn. Rather, the current study took a more exploratory approach with this hypothesis, and the next, in aiming to explain how certain aspects of adolescents' social relationships relate to bullying.

Therefore, in predicting that collective self-esteem would exhibit a stronger correlation with indirect bullying than with direct bullying, Hypothesis 14 had a similar social perspective. Results did not, however, support this hypothesis, with no significant difference found between the partial correlations for indirect and direct bullying. Separate post-hoc comparisons were conducted by gender to explore whether this relationship varied for boys and girls, with results showing that the partial correlation coefficients between indirect bullying and collective self-esteem did not differ significantly from the direct bullying coefficients, for girls or boys. The results for Hypothesis 14 correspond with those of the pilot study, which also failed to find significant differences between the correlations for indirect and direct bullying and collective self-esteem.

Given that there has been no previous research specifically exploring collective self-esteem and bullying or aggression, the present study examined whether levels of collective self-esteem were differentially associated with the different types of bullying. Given that bullying is a social behaviour (Lagerspetz et al., 1982) and that it can take different forms such as direct or indirect aggression (e.g., Björkqvist, Lagerspetz, & Kaukiainen, 1992), the present study argued that indirect bullying (e.g., exclusion) is

more qualitatively social in nature than physical bullying behaviours such as pushing or hitting. Hence, if indirect aggression comprises more social or group-level behaviours than physical aggression, it was predicted that collective self-esteem, a specific and “socially”-based measure of self-esteem, would exhibit a stronger positive relationship with indirect bullying than with physical bullying. The findings of the present study, however, did not provide support for this hypothesis.

The predictions of Hypotheses 13 and 14 examined the differences between collective and personal self-esteem, and direct and indirect aggression, and how they all related to and explained adolescent aggression. The present study aimed to explore whether the bullying construct comprised aspects of social behaviour that were distinguishable by degree (collective > personal) or type (indirect vs. direct). That these predictions were not supported does not suggest that bullying or aggression are not social in nature, rather, it suggests that the different types of bullying behaviour are not necessarily distinguishable in terms of how “social” a particular behaviour or group of behaviours are. This corresponds with the work of Björkqvist (2001) and Archer (2001), who have asserted that all aggression is social in nature, whether it is classed as physical, verbal, indirect, social, or relational. Although subtypes of aggression may differ qualitatively by, for example, being more or less physical or more or less direct, it is not possible to determine how “social” one particular behaviour might be in comparison with another. To illustrate, and as Archer (2001) stated, aggression can be used to achieve social goals (e.g., social status) and it occurs within a social context (e.g., school friendship groups). Archer also stated that aggressiveness is influenced by, for example, individual differences in motivation (e.g., retaliation, entertainment, boosting self-esteem) and a tendency to aggress (e.g., through social learning). From this, future research might explore what motivates an individual to employ particular strategies or choose one aggressive behaviour over another, with this information then

used to guide the development and implementation of interventions in schools. This could also then be related to personal and collective self-esteem, allowing a comparison of how the two types of self-esteem influence the choice.

5.2.6 Impression Management Predictions

The final two hypotheses of the main study were related to impression management. A measure of impression management (the tailoring of answers to create a positive image) was initially included in the present study as a means of controlling for this response bias in analyses. This strategy was aimed at countering the commonly held view that self-report methodology is problematic when measuring aggression, whereby respondents may be reluctant to admit to acting aggressively or have difficulty recognising some behaviours as aggression or bullying, particularly with relation to indirect aggression, thereby giving socially desirable answers (Björkqvist, Österman et al., 1992).

Hypothesis 15 predicted that there would be a significant negative correlation between impression management and bullying. Results supported this hypothesis, such that those reporting higher levels of bullying behaviour reported lower levels of impression management. This finding corresponds with the results of the pilot study and with previous research that has found negative correlations between impression management and aggression or bullying. Of the few bullying-related studies that have included a measure of social desirability or impression management, a pattern of findings is discernable. These studies have used either the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964), or the Lie scale of the Eysenck Personality Questionnaire (1975). Using the Marlowe-Crowne scale, Ojala and Nesdale (2004) found that socially desirable responses were not significantly related to attitudes towards bullies or helpers. In contrast, two studies that used the Eysenck inventory

found that bullies scored significantly lower on the lie scale than did victims (Mynard & Joseph, 1997; Slee & Rigby, 1993).

There has been a good deal more research into socially desirable responding and self-reported violent behaviour and, overall, there is an apparent pattern of negative correlations between socially desirable responding and violent behaviour. This inverse relationship suggests that those with high social desirability scores have a greater need for social approval and are less likely to report socially unacceptable behaviours. In other words, social desirability is a response bias that results in respondents underreporting socially unacceptable behaviour (see Sugarman & Hotaling, 1997), a concern voiced by many in the field of bullying and aggression research (e.g., Archer, 2004; Björkqvist, Österman et al., 1992).

Sugarman and Hotaling (1997) proposed an alternative conclusion, suggesting that those who report higher levels of socially desirable responding have a greater need for social approval and are actually less likely to behave in socially unacceptable ways, rather than simply respond by underreporting undesirable behaviours. In terms of the present findings, adolescents with higher impression management scores reported lower levels of bullying behaviour. This may indicate underreporting, yet these individuals may have been responding honestly, such that individuals with higher levels of social desirability are actually less likely to act aggressively. Conversely, those who are less concerned with presenting themselves in a socially desirable manner are, therefore, more likely to behave aggressively and report it, as they do not consider that acting in such a way is something that requires a deceptive response (see also Tedeschi & Felston, 1994).

Post-hoc analyses provided further corroborating evidence for this conclusion when the main study data were split and analysed according to bully/victim status. Note that the procedure for this was detailed in Chapter 4 (see section 4.6.4, p. 215) and

specific results arising from these analyses are discussed below. Following classification into bully, victim, bully/victim, and non-involved groups, impression management scores were compared according to group status. Interestingly, results showed that bullies and bully/victims had the equal lowest impression management scores of all groups, with those who were not involved in bullying reporting the highest levels. This implies that those classified as bullies exhibited the least socially desirable response bias – they were less likely to respond in a manner designed to manage an impression to suit an audience. This does not then suggest that those not involved in bullying were being less honest; rather, it suggests that they were more concerned with presenting a socially acceptable persona and behaving accordingly, by bullying less than their peers. Those who admitted behaving in an aggressive and bullying manner simply did not consider those behaviours, or the items in the impression management scale, to be socially undesirable.

This supports the notion that those with a moralistic bias (i.e., high in impression management) avoid disapproval by conforming to social norms and not engaging in deviant behaviour (Paulhus & John, 1998). It also corresponds with social interaction theory, which proposes that those who are less concerned with presenting a favourable image are likely to show more aggression (Tedeschi & Felston, 1994). Social interaction theory suggests that a person might be willing to accept the disapproval of one audience if it results in increased influence or social power in relation to a different audience whose approval is considered to be more important. By extension, this finding also provides support for the reformulated frustration-aggression hypothesis, which proposed that conforming to social rules acts to inhibit aggression (Berkowitz, 1989).

This argument is, furthermore, dependent upon which particular persona an adolescent might consider to be a socially acceptable one. For example, those categorised as not involved in bullying would regard the attributes of a person who

behaved “well”, at least according to the items presented in the impression management scale, to be socially desirable. In contrast, those more likely to bully, whatever their reasons or motivation, might consider those attributes to be less desirable. These findings also correspond with other studies that have reported similar negative relationships between social desirability and aggression or violence and concluded that those less in need of social approval tend to be more aggressive (e.g., Kroner & Weekes, 1996; Lange et al., 1995; Mills et al., 2003).

Given the above discussion regarding adolescent self-esteem and the importance of social identity, it is feasible that the impression management scale used in the present study is not totally suited to an adolescent sample. The social image that is inherent within and presented by the impression management scale may not necessarily be an image that matches well with an adolescent’s interpretation of what constitutes a socially desirable image. This is unlikely, however, as much of the bullying research that has been conducted with adolescents and children has used measures (e.g., Crowne & Marlowe, 1964; Eysenck & Eysenck, 1975) that were derived from related theoretical perspectives and were similarly worded to the impression management scale employed in the present study (Paulhus, 1991).

These findings provide a good example of why correlational research such as the present study cannot make clear causal attributions. To illustrate, it is not possible to state categorically that the adolescents in the present sample who were high in impression management did not understate their self-reported bullying behaviours. It does, however, support the notion that impression management should be considered more than a response bias and that its presence, rather than being assumed, requires corroboration (Paulhus, 2002). Future research may use multi-method procedures employing more objective measures (e.g., peer or teacher observations) in conjunction with self-report instruments to determine whether those high in impression management

underreport bullying or aggressive behaviour. As with any research into aggression, care should be taken to ensure that observational or peer-report techniques are not influenced by stereotype or gender bias and take into account forms of aggression, such as social exclusion, that may be hidden or more difficult to observe (e.g., Archer, 2004).

Although impression management scores have a general tendency to increase slightly from college age to old age (D. Paulhus, personal communication, February 17, 2006), there has been no published research with children or adolescents. Consequently, the present study makes a unique contribution to the literature in that it explored impression management in an adolescent sample. Future longitudinal studies, in taking a developmental perspective, might further contribute to impression management research and develop well-validated measures with appropriate norms with younger populations. The present study also makes a unique contribution in measuring impression management as it relates to bullying and victimisation.

Finally, results did not support Hypothesis 16, which predicted that girls would report significantly higher mean impression management scores than boys, as there was no significant difference found between boys' and girls' scores. This corresponds with results of the pilot study and with recent research by Rigby and Johnson (2006) who found no gender differences in the Eysenck lie scale (Eysenck & Eysenck, 1975) in a sample of Australian schoolchildren. The findings contradict research that has found females to report higher levels of impression management (Paulhus, 1988), although these studies were based upon samples of undergraduate students and did not specifically test gender differences. Furthermore, these findings do not correspond with Paulhus and John's (1998) proposal that impression management stems from a moralistic bias, which is derived from the need for approval arising from the value of communion. Correspondingly, the finding that there were no gender differences in impression management does not add support to social role theory (Eagly, 1987), which

proposes that males are more agentic and females more communal. If this were the case, one would expect that females would have exhibited higher levels of impression management than males.

As suggested above, future research might take a developmental perspective and explore socially desirable responding in general, and impression management in particular, to greater depth with child and adolescent populations. Having discussed the results and findings as they relate to the testing of hypotheses, the following section considers results of general and post-hoc analyses. Although these results are not strictly related to hypotheses or the general aims of the study, they nevertheless require some discussion, as it is likely that they will have some bearing on the interpretation of the study's findings.

5.3 General Findings

The following sections discuss methodological limitations and the results of additional analyses. Although no specific predictions were made regarding these additional analyses, they influence how the results of hypothesis testing and the overall study findings are evaluated. Initially, methodological and related issues will be addressed before considering post-hoc and supplementary analyses, prior to a concluding section that summarises major findings of the present study and their impact upon interventions and future research.

5.3.1 Methodological Issues

5.3.1.1 Self-report method.

As outlined in Chapter 2 (section 2.1.1, p. 55), given the difficulties surrounding ethics approval for peer-nomination and similar techniques in South Australian schools, the self-report method was chosen as the most appropriate and effective technique to

collect data for the present study. This strategy, however, was problematic in terms of socially desirable response bias, shared method variance, and response bias.

Socially desirable responding, or impression management as it was operationalised in the present study, was discussed in some detail above (section 5.2.6, p. 264). Although this measure was included to counteract the possibility that respondents might underreport socially undesirable behaviours such as aggression and bullying, this point is worthy of further discussion from a methodological perspective. To illustrate, Archer (2004, p. 296) stated that “indirect aggression... is not well suited to self-reports owing to its covert nature.” This corresponds with the assertion that indirect aggression is inherently covert, that a primary aim of the aggressor is to remain unidentified and that, therefore, participants are less likely to respond honestly (e.g., Björkqvist, Österman et al., 1992; Österman et al., 1998). There are two issues here that require consideration. First, whilst it is generally accepted that indirect aggression is covert, it is difficult to distinguish why this fact makes self-report a less suitable method than peer or teacher report: if a behaviour is hidden, it will be difficult for all parties to observe. In point of fact, one may argue that both types of reporting are equally effective (or ineffective) when measuring indirect aggression or, indeed, that self-report is better suited than other-report. Indeed, research has found that some teachers consider relational bullying to be less serious than physical bullying and that they would be less likely to intervene in instances of relational bullying (Bauman & Del Rio, 2006; Hazler, Miller, Carney, & Green, 2001).

Second, it is somewhat difficult to maintain that indirect aggression, because of its covert nature, is less socially desirable than direct aggression and, therefore, more prone to socially desirable responding and underreporting (see, for example, Russell & Owens, 1999). For example, the more physical or possibly violent forms of aggression could be considered, at least to the casual observer, as less socially desirable forms of

behaviour than spreading rumours or socially excluding a person. Post-hoc analyses conducted within the present study found that, after categorising bullies according to whether they aggressed using predominantly direct or indirect behaviours, impression management did not differ significantly between types of bully. This supports the notion, therefore, that all forms of aggression should be considered to be subject to approximately equal levels of socially desirable response bias and that, as exemplified in the present study, similar research into aggression should include some measure of socially desirable responding. Furthermore, the findings of the present study provide an opportunity for future researchers who, by combining measures of socially desirable responding with multiple methodologies can determine and compare the influence of social desirability upon different methods of reporting various types of aggression. For example, other studies might compare self-report and peer-report, in conjunction with social desirability, and explore how they differentially relate to direct and indirect aggression.

Linked to this issue is one of the present study's primary limitations, in that it employed a single method of gathering data (i.e., self-report), resulting in a likelihood that shared method variance might affect the results and, therefore, findings must be considered with some caution (e.g., Cole, 1987). Shared, or common method variance occurs when the same method is used to measure constructs, such as using all self-report instruments, employing the same observer to record target behaviours for all participants, or using a single interviewer to conduct all research interviews. This measurement variance can be shared, for example, through item overlap, whereby items in different scales measure the same characteristic, or through measures sharing a bias, such as social desirability or literacy level required to answer a questionnaire. Shared method variance, therefore, has the effect of inflating correlations between variables and possibly increasing the risk of Type 1 error (Hawker & Boulton, 2000; Pellegrini &

Long, 2002). Although it is likely that the present study suffered from shared method variance, it was nevertheless minimised to an extent through the measurement and controlling of social desirability bias and through the use of partial correlations and hierarchical multiple regressions (e.g., Dill, Vernberg, Fonagy, Twemlow, & Gamm, 2004) to control variance between related measures (e.g., victimisation and bullying). Furthermore, correlations between variables that were not expected to correlate (e.g., narcissism and victimisation) were near to zero and markedly lower than values between variables that were expected to correlate (e.g., narcissism and bullying, see Table 4.3, p. 187). This suggests that the relationships that were found were not solely or substantially as a result of shared method variance (Solberg & Olweus, 2003).

Although clearly a limitation, the issue of shared method variance does not imply a blanket criticism of self-report methodology. On the contrary, the use of self-report questionnaires allowed data to be efficiently gathered from a relatively large sample and cross-section of individuals and schools, improving the generalisability of findings. In addition, although self-report methods undoubtedly lack objectivity, it is difficult to argue that methods other than self-report provide a better measure of internal states such as self-esteem. Despite this, the employment of multiple methods in future research, as suggested previously in this discussion, would build upon the findings of the present study whilst also minimising the effects of shared method variance.

Related to the above-stated advantage of self-report over other methods in measuring internal states, self-report also has benefits in terms of research ethics, as it allows participants greater control over how much information is disclosed. All respondents in the present study were advised repeatedly that participation was entirely voluntary and that they were free to decline to answer any question, although this may exacerbate the problem of missing values, an issue that is addressed below. In addition, despite the fact that the present procedure was driven by the desire for fully voluntary

participation and active consent, there are issues surrounding this notion that require discussion.

First, the simple act of conducting the survey within the classroom may have influenced respondents, as there are certain expectations inherent within the classroom environment (see Denscombe & Aubrook, 1992). For example, students may have felt some pressure to complete the questionnaire simply as a result of the teacher distributing the survey within class for a number of reasons. In the first instance, the teacher is in a position of power and, regardless of whether a teacher exhorted or otherwise influenced students to complete the survey, there is an implicit power imbalance that may have had an effect. Similarly, the simple act of receiving a survey from a teacher within the classroom engenders certain expectations, whereby the students may consider the survey to be just another piece of schoolwork that needs to be completed. This clearly has the potential to cast a shadow over the notion of fully informed and voluntary participation. Finally, there is also the possibility that students took the opportunity to do a survey simply to avoid doing “normal” schoolwork, which, although not necessarily detrimental to the survey process itself, does bring into question participants’ motives and the quality of responses (Denscombe & Aubrook).

Associated with the issue of consent within a self-report methodology is the possibility that the present sample may have been subject to selection bias. The reasons for which an individual school (via the head), class, parent, or student agreed or declined to participate could not realistically be determined, yet, this factor could have influenced the sample characteristics, including its size (response rates are discussed in detail below). In effect, the present sample was self-selected and it is possible that those who chose not to participate may have differed to the final sample, resulting in, for example, underreporting or overreporting of bullying. Other studies that have employed different consent procedures, such as opt-out versus the opt-in of the present study (see

Chapter 2, section 2.1.1, p. 55), or peer rather than self-report, provide a comparison point. Given that the present study found prevalence rates for bullying and victimisation that were broadly comparable with other such studies (addressed below), it is likely that selection bias effects were minimal and had little influence on the generalisability of the present study's findings.

Furthermore, although self-report methods can increase levels of active consent and control over disclosure, combining this method with mass administration of questionnaire surveys creates other problematic issues. For example, although participant anonymity was assured, given that the survey was administered en masse in the classroom, other students were therefore present, as were teachers or the researcher. This environment may have contributed to increased social desirability pressures compared to a totally anonymous situation (e.g., Paulhus, 2002), with students feeling less able to respond honestly, whether to manage impressions to suit their perceived audience within the classroom or to avoid detection. Despite this question of situational anonymity and self-report, it is considered that the measurement of impression management minimised the effect of this bias on the present study's results.

In summary, although self-report methodology has its limitations and drawbacks, it nevertheless proved to be a very effective and a valid method of data collection. It provided a great deal of interesting and unique information, both within the context of the present study and in the wider milieu of bullying and aggression research, allowing much scope for future researchers to replicate and further explore these findings. The next section, which addresses response rates, has clear links with the self-report issues discussed above relating to the active informed consent process.

5.3.1.2 *Response rates.*

It should first be noted that any discussion in terms of response rates is limited by the fact that rates are loose approximations based on the ratio of the number of surveys supplied to schools, to the number of completed surveys returned, as was explained in Chapters 2 and 3 (sections 2.2.1, p. 83, and 3.2.1, p. 138). The present study employed an opt-in process whereby participants and their parents or guardians were required to sign a consent form that clearly stated their willingness to participate. It is likely that this process resulted in lower response rates than are typically reported for studies that have used opt-out consent procedures, whereby parents or guardians sign and return a form if consent is not given for their children to participate. To illustrate, the almost 60% response rate of the present study is clearly much lower than the 100% reported by Baldry (2004), a study which employed an opt-out process. Nevertheless, the present study's response rate is comparable with, or slightly higher than, rates reported for previous studies using similar consent procedures (e.g., 40-50% Bosworth et al., 1999; Pellegrini et al., 1999).

Analyses found year level and school differences in response rates. For example, the response rate for Year 9 was higher than that for Years 7 and 8 at Welsh College. In addition, Welsh College had the lowest response rate of all schools. In contrast, Year 8 students at Spencer College had the highest year level rate at over 85%, with Spencer also exhibiting the highest response rate of all schools. There were no reasons evident for these differences in terms of other variables measured, such as when during the school year the survey was conducted. Differences in year level and school level rates, as well as response rates overall, could have been due to a number of factors.

For example, it is likely that response rates were influenced by factors other than the opt-in consent process in itself, as the process of gaining agreement to participate comprised a number of stages. First, the school principal had to agree to participate,

followed by class teachers, parents and, finally, individual students, with all of these stages having the potential to influence response rates and, effectively, the characteristics of the final sample. A good deal of effort and time was required by all parties involved in the research programme and this cost may have been, understandably, too high for some to bear. For example, teachers of two Northern Year 10 classes and one Malden Year 9 class declined participation due to high curriculum workloads and, although these classes were not included in response rates, it demonstrates how the consent process affected the research outcomes. School response rates were also affected by events that competed with the research programme. For example, the survey itself had to fit in with: (a) the pre-existing standard curriculum, (b) extra-curricular activities (e.g., an visiting expert speaking on making job applications at one of the schools), (c) other recent research, (d) timetabling issues, (e) excursions or outings, and (f) existing class-, year-, school-, state-level initiatives related to bullying or peer relationships that may have clashed indirectly with the current study. This corresponds with, and is further illustrated by, the above-mentioned study by Pellegrini et al. (1999). The authors concluded that their relatively low response rate was due, in part, to the fact that their study followed on from another unrelated research project and that many schools, teachers, and parents were concerned that yet another study might detract from the teaching programme.

There are other possible barriers to individuals consenting to participate. For example, schools may have not seen the value of the research, either at a school level or in terms of policy or future research. In addition, schools (and individuals) may have had some fear of the results and, therefore, been unwilling to hold the school up to some form of critical appraisal. Although the notion of an appraisal was not in any way suggested or an aim of the research, individuals may have taken a different and more defensive perspective. This is understandable given that the more severe instances of

school bullying, which often include stereotypical images of the thuggish physical bully, are a relatively common topic in various sections of the media (e.g., Howard, 2003; Roberts, 2003; Wyld, 2003).

There is, of course, another aspect to the issue of response rates that requires consideration, because, not only are there factors that reduce rates, there are also factors that can increase response rates. For example, Spencer College had the highest response rate of all schools, with almost three quarters of all students participating and there are a number of possible reasons for this. It may be that this school had a strong ethos of participation in school life, such that the study was widely and positively promoted and that teachers, parents, and students actively and enthusiastically engaged in the research, with the result that relatively few individuals declined participation. There is an alternative scenario, as it is also possible that the study was promoted by the school in such a manner that, although it was made clear in the information letter that participation was voluntary, an impression was given that participation, while not compulsory, was expected.

Given that all these factors were out of the researcher's hands, they are admittedly conjecture. Had resources been less restrictive, funding and training a team of researchers to conduct the survey in a more involved fashion would have given the process greater rigour and better controlled extraneous variables, thereby improving response rates generally and minimising bias. Despite the speculative nature of the above factors, they do provide many opportunities for future researchers to expand and explore how different approaches to the consent and recruiting processes can affect and improve research in schools. These factors can also affect how interventions, bullying-related or otherwise, are effectively introduced and conducted in schools.

Regardless of the above, the present study's participating schools were generally all welcoming, open, helpful, and eager for results. In addition, each school requested

and received basic findings in terms of a brief report describing preliminary overall findings and giving approximate prevalence rates and types of bullying within the school.

5.3.1.3 Missing values.

The problem of missing data became an important issue in the present study, with listwise deletion in some analyses potentially resulting in a loss of over 500 cases, or almost one third of the data set. Clearly, this is not an ideal situation for a number of reasons. As Tabachnick and Fidell (2001) clearly stated, it is likely that any researcher would be loath to summarily disregard a large proportion of his or her data set. Second, it is debatable whether the disregarding of these values is useful in a statistical sense. Finally, it is also questionable whether it is appropriate in an ethical sense.

Regarding the first point, I was admittedly loath to disregard a large proportion of the data set after investing often-scarce resources to obtain those data. In terms of the second point, there are a number of issues that need to be addressed, not the least of which is determining the best approach to deal with missing values. It is possible that simply deleting cases (e.g., pairwise deletion through SPSS), will bias results, as those respondents who provided complete data might not actually be representative of the total sample (Schafer & Olsen, 1998; Tabachnick & Fidell, 2001). An examination of missing values showed that non-response patterns were not specifically related to the scales or individual items, as such. Instead, it appeared that non-response patterns were a result of participants not responding to a scale at all, responding only to items on one page and not on others, or simply missing an item accidentally. A total non-response to a single scale, if it was the final scale in the series, could have been the result of a participant suffering fatigue or running out of time. If fatigue or time were factors in survey incompleteness, it is unlikely that resultant missing data would exhibit systematic

patterns, as scales were presented within the survey battery in a random order. Details of the ordering process can be found in Chapter 2 (section 2.1.4, p. 80).

Given that the item behaviours of the bully and victim scales were identical, and that the wording was essentially the same, it is likely some respondents felt that they had already answered these questions and, therefore, simply ignored what they believed to be a mistaken second version. It is also possible that boredom or perceived difficulty resulted in some participants not attempting various scales or items within the questionnaire battery, although there is no practical way of determining if this was indeed the case. A partial non-response by, for example, not answering the final group of items in a scale, may also have been the result of fatigue or, alternatively, because pages were simply stuck together with some participants consequently not aware that there were further questions requiring their attention.

Finally, there are ethical issues surrounding the exclusion of cases from analyses. At an individual level, respondents invested quite a lot of time and effort in the survey after actively consenting to participate, a process that itself required some effort in practical terms. To then disregard a respondent's total subset of data simply because he or she did not respond to a single item, whether purposefully, accidentally, or through a lack of understanding, seems disrespectful. It is difficult to conceive the circumstances under which participants would accept that their efforts were of no consequence, statistically or otherwise, simply as a result of their lack of response on one item.

It was clear that the narcissism scale, the Narcissistic Personality Inventory (NPI, Raskin & Hall, 1981), attracted the highest proportion of non-responses and this may have been due to the fact that the scale was designed for adult populations. This is unlikely to be the case, however, as the collective self-esteem and impression management scales were also initially designed for adults and these scales exhibited

missing value proportions resembling those of the bullying, victimisation, and personal self-esteem scales, all of which were written for young people. The forced-choice response format of the narcissism scale might have been a contributing factor in the missing values levels, particularly as all other scales used Likert-style response formats and exhibited similar lower levels of missing values. For example, item 12 of the narcissism scale asked respondents to choose either “I like having authority over other people” or “I don’t mind following orders”. This precludes participants from responding such that they may feel a little of each, and possibly the present sample found the forced-choice format difficult or unrealistic.

It may also be the case that the wording of the narcissism items was problematic for this adolescent sample. Whereas the other scales comprised rather simple (conceptually speaking) items, the narcissism scale comprised items that were more complex. To illustrate, the impression management and aggression scales comprised straightforward behaviour-based items and the self-esteem scales comprised “I feel...” or “I think...” items. In contrast, the narcissism scale comprised items that were less about specific behaviours or feelings and generally more abstract, such as “The thought of ruling the world frightens the hell out of me” and “If I ruled the world it would be a better place.” Overall, it is probably a combination of these factors that resulted in the narcissism scale exhibiting a high level of missing values. It should be noted that, although relatively high in the context of the present study, this level of missing values is not unique, as Sutton and Keogh (2000) recorded comparable missing values when using a Machiavellianism (not unlike narcissism in some respects) scale with a similar sample. Finally, a preadolescent version of the NPI has recently been developed with the item wording changed to reflect a younger sample and with the addition of an endorsement rating for each item (Barry, Frick, & Killian, 2003). Although details

relating to response rates and missing values were not reported, this new scale might be utilised to good effect in future research into narcissism and bullying.

It was ultimately decided that, on balance, the replacement of missing values was an effective and appropriate solution. Consequently, missing values were imputed using relatively straightforward methods that resulted in realistic variance estimates that avoided problems such as solution overfitting (Croy & Novins, 2005; Tabachnick & Fidell, 2001). This strategy addressed possible ethical issues surrounding the exclusion of responses given in good faith and allowed the retention of much information that would otherwise be disregarded.

5.3.2 School Characteristics

In addition to the school features discussed above in terms of response rates, there are other school-level factors that need to be addressed. For example, the present study included an indicator of when during the school year the survey was conducted, as previous research has shown that the stability of peer groups fluctuates as a function of the school year. For example, Adler and Adler (1995) found that there was a period of fluctuation during the early part of the school year as classes and social groupings were reconfigured, with peer groups tending to be more stable later in the year. The present study found that the point during the school year that the survey was conducted did not significantly affect any variables. This is not surprising given that the earliest point in the year that a survey was conducted was during week 11 and it is likely that social groups were probably already well established by this time. This indicates that the strategy of conducting the data collection phases during the latter part of the school year was a successful one.

Post-hoc analyses found significant school differences in total bullying, total victimisation, personal self-esteem, collective self-esteem, and impression management,

but not in narcissism. Students from Malden Girls High School reported significantly lower bullying scores than students from all other schools, except for Welsh College. Similarly, students from Malden Girls School also reported lower victimisation scores than students in all other schools, except for Spencer College. This variation is probably due, in part, to gender differences: Malden is an all-girls school and, as findings from the present study confirmed, girls typically report lower levels of bullying and victimisation than boys. That the all-boys Spencer College reported essentially the same level of victimisation as Malden girls is interesting and difficult to explain, as there is a school-level limitation to the present study, whereby no measure was taken of schools' anti-bullying programmes.

Clearly, it is likely that prevalence rates for bullying and victimisation within a school will vary as a function of the nature, extent, and success of the school's bullying interventions or policies. For example, indirect aggression may be considered a less-severe form of bullying and consequently less deserving of attention in an anti-bullying intervention. Therefore, whereas the more direct forms of aggression may be addressed and reduced, it is apparent that indirect aggression levels may, at best, remain unchanged. Furthermore, although aggression via email or mobile phone was included in bullying and victimisation instruments, it is nevertheless unclear how a school's approaches to students' use of these electronic media may have affected the extent to which these behaviours were reported. For example, although all participating schools prohibited the use of mobile phones in class, anecdotal evidence suggested that the degree to which such policies were enforced varied between and within schools. Regardless, mobile phones were a ready tool for indirect aggression as they were certainly in wide usage outside of school and students might be able to send text messages inside the classroom, using silent or vibrate mode to avoid detection.

In summary, it is apparent that school differences may have influenced findings, even if only to the extent that a bullying policy might increase awareness of what constitutes bullying by, for example, making it clear to students, parents, and teachers that indirect or social bullying is a form of aggression. This also presents an opportunity for future researchers to explore how variations between schools and their bullying initiatives might influence the relationships between personality correlates, such as self-esteem and narcissism, and self-reported bullying and victimisation. Furthermore, this approach could be extended to include the evaluation of bullying programmes, as well as interventions aimed at improving student wellbeing (e.g., self-esteem).

5.3.3 Personal and Collective Self-Esteem

Results show that boys reported higher levels of personal self-esteem, although the effect size was small. This corresponds with the meta-analysis by Feingold (1994), who also found that males had slightly higher self-esteem than females with effect sizes that were “sometimes miniscule” (p. 438). Therefore, the findings of the present study correspond with the large body of previous research that has found the gender differences in self-esteem to be, on the whole, negligible (see Brown, 1998; Maccoby & Jacklin, 1974). That boys showed marginally higher personal self-esteem than girls is reflected, to a degree, in the differences apparent between schools, wherein students from the all-boys Spencer College reported higher personal self-esteem scores than all but Welsh College students. To what extent this is a gender difference is difficult to determine, as it may simply be that there are aspects of student life at Spencer College that engender higher levels of self-esteem that are not found in most other schools. That Spencer College and the coeducational Welsh College students did not differ in personal self-esteem levels suggests that it is probably a combination of school and gender differences. Future studies might include an instrument that measures student

satisfaction or the degree to which students feel a sense of school belongingness to shed some light on this relationship.

The present study found no significant age-related changes in personal self-esteem, a finding that accords with previous research that has found age and global self-esteem to be unrelated during adolescence (e.g., DuBois, Bull, Sherman, & Roberts, 1998). There is, however, contradictory research that has found evidence of developmental changes during childhood, whereby, following a normative decline in self-esteem during the transition from primary to middle school, there is a gradual increase in self-esteem through the high school years (see Harter, 1999; Harter & Whitesell, 2003). That the present study did not find such a pattern might be due to the age range of the sample being relatively restricted, in that it did not include the final year levels of secondary school or, for that matter, primary school. As discussed above with regard to developmental changes in many of the present study's constructs, employing a longitudinal methodology would allow a deeper exploration of any relationship between age and self-esteem. Alternatively, the use of cross-sectional studies with samples covering a wider age range, comprising participants from both primary and upper secondary (i.e., years 11 and 12) schools might also be effective.

In terms of collective self-esteem, the results were essentially the same as those for personal self-esteem, with boys reporting higher levels of collective self-esteem than girls, although effect sizes were, again, very small. It has been posited, and discussed herein, that gender differences in social behaviour are based on the different socialisation experiences and resultant social roles of males and females (Eagly, 1987). As a consequence, it is likely that self-esteem would exhibit similar gender differences, such that female self-evaluations are derived more from interdependence and relationships with important others, whereas male self-evaluations are derived more from being independent and autonomous (see Josephs, Markus, & Tafarodi, 1992). If

this is indeed the case, then it is reasonable to expect that females would report higher levels than males of self-esteem that is derived from group membership, namely, collective self-esteem.

This notion has previously been explored in a sample of undergraduate adults, with researchers finding that women reported higher levels of collective self-esteem than men (De Cremer, Van Vugt, & Sharp, 1999). The findings of the present study, however, contradict this example of the scant research into gender differences in collective self-esteem. That males reported marginally (although statistically significant) higher levels of collective self-esteem than females indicates that there is much work to be done in this field. It may be that the types and patterns of friendship groups for the present sample exhibited less obvious gender differences, possibly as a result of contemporary cultural forces impacting upon and altering social roles, such that males are becoming more interdependent and females more autonomous. Although this is reflected, to an extent, in the present findings, further research is required before any firm conclusions can be drawn. As suggested above, studies using sociometric or similar methods would facilitate an in-depth study of the specifics of contemporary adolescent groups and an exploration of how gender differences in group membership and collective self-esteem are related.

In terms of school differences, there were fewer differences apparent between schools in collective self-esteem, although Spencer College students reported significantly lower collective self-esteem scores than students from both Wheatshaf and Forest Hill schools. This is not altogether surprising given the negative correlation between the two types of self-esteem and that Spencer College students reported higher personal self-esteem than most other students. As Spencer College is an all-boys school, this does not match the gender-related collective self-esteem finding that boys reported higher collective self-esteem scores overall. This suggests that it may be something

specific about the friendship groups within Spencer College and, clearly, further research is necessary to find concrete explanations. Again, employing a measure of friendship groups and patterns to determine differences between schools would provide a unique and more-detailed perspective of how adolescent social relationships affect self-esteem.

Finally, the present study did not find a significant correlation between age and collective self-esteem. Although there is no comparable research to use as a barometer, the findings of the present study provide numerous avenues for future exploration into developmental changes in collective self-esteem, whether with longitudinal or larger cross-sectional studies. In any event, the present study itself was necessarily exploratory in terms of adolescent collective self-esteem and the findings are, therefore, unique. In addition, some unusual findings relating to personal self-esteem were unearthed and future studies might include sociometric techniques to determine patterns in adolescent friendship groups and how they may differentially relate to personal and collective self-esteem.

5.3.4 Narcissism and Impression Management

Results of the present study show that boys reported higher narcissism levels than girls, although the effect size was low. This finding corresponds with other research that has found males to report higher levels of narcissism than females using the Narcissistic Personality Inventory (NPI, e.g., Raskin & Terry, 1988; Tschanz, Morf, & Turner, 1998). Morf and Rhodewalt (2001) concluded that these differences tend to be small and suggested that these variations arise from gender differences in development and socialisation, which also corresponds with Eagly's (1987) social role theory. For example, one feature of narcissism is an excessive effort to dominate others and, generally, it is more socially acceptable for males to use explicit, instrumental

means to assert superiority over others. In contrast, and as a result of differences in resources and social constraints, females are likely to use “more subtle, indirect, and affiliative” methods that conform to gender role expectations (Morf & Rhodewalt, 2001, p. 191). In other words, males may find the stereotypical narcissistic behaviours, as measured by the NPI, to be more effective, whereas females may find these behaviours more costly in terms of social pressure to conform. The result is that, rather than simply concluding that males are more narcissistic than females, it is likely that the NPI (or any similar narcissism instrument, for that matter) does not measure the full range of narcissistic behaviours that might typically be used by females. This provides future researchers with many opportunities to explore and develop narcissism measures that provide better indicators of narcissism in both males and females.

The present research did not find any significant relationships between narcissism and age, a results that corresponds with the findings of Raskin and Terry (1988). As there has been little research into the developmental aspects of narcissism, it is not possible to state categorically that there is no relationship between age and narcissism. Rather, it suggests that the present study might have discovered an association with age had the sample included a wider cross section of age groups or year levels. In addition, that the current study also found that narcissism did not vary as a function of school suggests that narcissism is a relatively stable personality trait that is not subject to fluctuation. Future research might take the above into account and specifically explore narcissism from developmental, life span, or cross-cultural perspectives.

As discussed above, the present study did not find that impression management scores differed between boys and girls, nor was there an association with age, although there were some school differences apparent. That there were no age influences found suggests that impression management is relatively stable and not greatly influenced by

developmental forces, although longitudinal research may discover trends not apparent in the present sample. In terms of school differences, results showed that students from Malden Girls High School and Spencer College reported higher impression management scores than Forest Hill High students. Malden was an all-girls state school, Spencer an all-boys private school, and Forest Hill a coeducational state school. All were of a similar socioeconomic standing and, as discussed above, there were no gender differences in impression management.

Given that there were many school-level characteristics, such as bullying or emotional health and wellbeing initiatives, that were not accounted for or explored in the present study, it is difficult to determine the specific factors that caused these three schools to stand out. It is possible that school ethos and image contributed to the differences. If, for example, Malden and Spencer schools promoted and portrayed similarly strong images of their students as honest, socially upright young people, these students may have tended to respond to the impression management items in a more socially desirable manner. Conversely, Forest Hill High may have portrayed, in a strictly relative sense, a more relaxed and liberal image, resulting in these students responding in a less socially desirable way than their Malden and Spencer counterparts. Future researchers would do well to consider the influence of such school-level factors upon impression management in particular or socially desirable responding in general. For example, the addition of a qualitative component to tease out the varying individual and school characteristics in terms of school ethos and image might be a productive approach to clarify how school factors influence students' impression management responses.

5.3.5 *Bully/Victim Status*

Despite the fact that bully/victim group status was not integral to the present study's rationale and that using categorical rather than continuous variables may result in a loss of information (Tabachnick & Fidell, 2001), the data were categorised in this way to provide another perspective and add depth to post-hoc and exploratory data analyses. Therefore, following the recommendations of Solberg and Olweus (2003), the two highest responses of "quite often" and "very often" relating to bullying and victimisation items were collapsed to give a measure of bully/victim status. This resulted in participants being classified as bully and/or victim if they had responded to at least one item with a frequency of at least once per week (i.e., "quite often"). This produced the four categories of bully (performing at least one bullying behaviour per week), victim (subjected to at least one bullying behaviour per week), bully/victim (performed and subjected to at least one bullying behaviour per week), and non-involved.

It is important to note that these categories are essentially descriptive in nature and not necessarily representative of the roles that individuals may take in a bullying situation. Hence, these categories do not imply that participants classified as non-involved were not actually participating in bullying situations, as they may have been involved by, for example, assisting or reinforcing the bullies, or defending victims (see Salmivalli et al., 1996). Furthermore, as the category cutoff point was a reported bullying or victimisation behaviour frequency of at least once per week, those who reported performing a bullying act on a fortnightly basis were, therefore, classified as non-involved. This clearly does not present a true picture, because a person who regularly bullies others, whether on a fortnightly or even a monthly basis, cannot realistically be considered to be someone who is not involved in bullying. Nor, for that matter, could one realistically consider that a student who is victimised every two weeks

is not a victim of bullying. Rather than a criticism, this is a caveat that can be applied to any research that takes the viewpoint that aggressive behaviour can be categorised in such a manner, because this method does provide a useful perspective, particularly in terms of prevalence rates (Solberg & Olweus, 2003).

Regarding prevalence rates, percentages by bully/victim status are re-presented for the present sample and for previous studies to allow specific comparisons to be made and discussed. Overall, frequencies were generally higher than previous studies have found, with over one third of the current study's students reporting performing one or more specific bullying behaviours at least once per week, whether as bully or bully/victim. Specifically, 12.3% of respondents were categorised as bully and 24.5% as bully/victim (36.8% total), compared with previous studies that have reported 6.3% (United States, Nansel et al., 2001), 7% (Norway, Olweus, 1991), and 6% (United Kingdom, Whitney & Smith, 1993). Recent Australian research has found that 24% of secondary school boys and 7% of girls reported bullying many times in the current year (Rigby & Johnson, 2006), although participants were not categorised according to bully/victim status. In comparison, the present study, using a very similar sample, found that over 40% of boys and over 30% of girls reported bullying at least once per week as bully or bully/victim.

There are certainly differences between these studies and the current research, particularly in terms of defining and measuring bullying and prevalence rates, that contribute to the differences in rates. Nevertheless, the rates found in the present study are undoubtedly high and disturbing. As mentioned above, the cutoff point for categorising into bully/victim status was somewhat arbitrary, but it was also conservative. If the chosen threshold had been less restrictive and included the "Sometimes" (once or twice per month) response, the prevalence rates clearly would have been much higher. There is, however, the risk that there would be large numbers of

participants classified as bullies or victims who may not exhibit marked bully or victim characteristics (i.e., false positives, Solberg & Olweus, 2003). This also raises a number of other issues.

First, it suggests that bullying and aggression prevalence rates as reported in the literature should be considered and compared with some caution, although the present study's rates are without question markedly higher than most, regardless of variations in category thresholds. Second, the comparatively high prevalence rates of the present study strengthen the case that socially desirable responding does not exert a major influence on self-reported bullying or aggressive behaviour, suggesting that the "real" rates would be higher still if socially desirable responding was not a factor, which is unlikely. Third, it brings into question the practice of categorising individuals or data into groups, rather than considering behaviours to occur on a continuum. For example, there is a risk that lower level or less frequent, yet still aversive, bullying behaviours are not accounted for, in terms of both research and interventions. In addition, whereas it can be helpful to apply labels to individuals to explain behaviour, there is a risk that those labels might become derogatory or value-laden. There is also the contrasting possibility that expressions such as bully and bullying become catchall terms that lose meaning and import through overuse, diluting their effectiveness in the dissemination of research to practitioners and to the general public.

Conversely, if there is no threshold or criterion to determine whether a person is considered aggressive or a bully, then it is likely that the vast majority of individuals are, to some extent, guilty of some form of aggressive or bullying behaviour. It is in this way, therefore, that bullying and aggression can become normative in a statistical sense, or normal in a social sense, making it difficult to develop and evaluate effective interventions (see Archer, 2001, for a brief discussion of this topic). To illustrate, and to place it within context, only 2.8% of students in the present sample responded "never"

to all 26 items on the bullying scale; the remaining 97% reported having performed at least one of the 26 aggressive behaviours, to some degree and at some time during the school year. Despite the above discussion, it is also possible that the higher prevalence rates of the present study are, indirectly, a function of the widespread anti-bullying initiatives and policies. Rather than rates being unusually high, it is awareness that has increased, as students are more aware of and are better able to recognise what constitutes bullying, and report it accordingly.

Results of analyses of gender differences in bully/victim status reflected the gender differences found in the continuous forms of the bullying and victimisation variables. That boys reported higher levels of bullying behaviour than girls is clearly reflected in the finding that there were more boys than girls classified as bully, which also corresponds with much previous research that has consistently found higher percentages of boys classed as bullies (e.g., Rigby & Johnson, 2006).

Findings regarding school differences in bully/victim status were less straightforward and should be considered with the above issues surrounding group status criteria in mind. Given that it is an all-boys school and considering the gender differences outlined above, it is unsurprising that Spencer College had higher percentages of students classified as bully and the lowest percentage of non-involved students. Whereas Northern School had similarly higher percentages of students classified as bully, these students were less likely to be categorised as bully/victim than students from other schools, although Malden High had similar low bully/victim frequencies.

As discussed above, there were limitations to the present study that make clear explanations of school differences problematic. Had there been some gauge of the presence and effectiveness of school initiatives that might have influenced the constructs under examination in the current research (e.g., anti-bullying programmes), it

would be possible to better control extraneous variables and explain the relationships explored herein.

Regarding the other major variables and bully/victim status, results showed that victims and bully/victims reported lower personal self-esteem and higher collective self-esteem levels than students classified as bullies and non-involved. The finding that bullies and non-involved students reported the same level of personal self-esteem corresponds with previous research that found bullies and those classed as not involved in bullying did not exhibit significant differences in self-esteem (Austin & Joseph, 1996).

In addition, results of the current study showed that bullies and bully/victims had higher narcissism scores than victims and participants categorised as non-involved. Finally, students categorised as non-involved reported impression management scores that were higher than all other groups, with victims reporting higher impression management levels than both bullies and bully/victims. Generally, these findings correspond with those relating to the continuous form of the bullying and victimisation variables as discussed above and indicate that splitting data into categories does not necessarily add more in terms of explanatory power. Note that limitations and opportunities for future research regarding these relationships were discussed in some detail in the relevant sections above.

For the final round of post-hoc analyses, the data were further split into categories such that respondents who were categorised as bullies were then classified according to the type of bullying behaviours reported, that is, direct bullying, indirect bullying, or a combination of both. Approximately 30% were categorised as direct bullies, 20% as indirect bullies, and the remaining 50% employed both direct and indirect bullying behaviours. As the gender differences in bullying discussed above would lead one to expect, boys were more likely to be categorised as direct bullies and

girls were more likely to be classified as indirect bullies. It is important to note, however, that any findings in terms of bully type should be considered with some caution, as the manner in which respondents were classified as combined direct/indirect bullies did not fully take into account the extent to which each type of aggressive behaviour was used. For example, whereas direct bullies used solely direct behaviours and indirect bullies solely indirect, those who employed a combination of aggression types may have used predominantly direct behaviours with only the occasional indirectly aggressive behaviour. This reflects the above discussion regarding the limitations to splitting data and participants into groups and the attendant loss of information.

Regarding school differences, although the frequency of indirect bullies did not vary greatly between schools, Malden Girls' High had the highest and Spencer College the lowest percentage of students categorised as indirect bullies. In contrast, Malden had the lowest percentage and Spencer the equal highest (with Northern) percentage of students categorised as direct bullies. Again, this reflects the hypothesised gender differences found for the continuous variables of direct and indirect bullying as discussed above. There was, however, an expected pattern of frequencies. The all-boys Spencer College and the coeducational Northern High School showed a very similar pattern, with higher percentages of direct bullies and lower percentages of indirect bullies than the other schools. That Spencer College had more direct and fewer indirect bullies is as expected, given that boys typically exhibit more direct bullying behaviours.

Although the low number of cases makes it difficult to draw conclusions with any degree of certainty, it raises the question of what was different about Northern High School. In approximate socioeconomic terms (for details of the classification process see section 3.1.2, p. 128), Northern High School had the lowest socioeconomic status of the six schools, although the differences were probably minimal. The research into the

relationship between bullying and socioeconomic status is not comprehensive, with findings suggesting that individuals from lower socioeconomic groupings report higher levels of bullying (e.g., O'Moore, Kirkham, & Smith, 1997; Whitney & Smith, 1993), although this relationship is not universal (e.g., O'Moore & Hillery, 1989). Regardless, had the present study included a more specific measure of socioeconomic status, it would be possible to exclude it as a confounding variable or explore it as a correlate of bullying in its own right. It is also possible that other factors, such as academic achievement, influence the relationship between school or individual socioeconomic status and bullying. Furthermore, the measurement of socioeconomic status is problematic in itself, as one might argue, for example, that a school's economic status does not necessarily equate to an individual student's status (e.g., Hauser, 1994; Soobader, LeClere, Hadden, & Maury, 2001).

The final series of analyses related to direct and/or indirect bully status and explored associations with personal self-esteem, collective self-esteem, narcissism, and impression management. Results showed that participants categorised as direct bullies reported higher personal self-esteem scores than those categorised as indirect bullies or those who used a combination of direct and indirect bullying behaviours. The very low effect size indicates that this difference in means was marginal and, although there was no significant gender interaction, this finding may be explained to an extent in terms of gender. To illustrate, as boys typically exhibit more direct bullying behaviours and slightly higher personal self-esteem, it is therefore reasonable to expect that direct bullies are probably more likely to report higher personal self-esteem.

Given the above argument regarding personal self-esteem, and as boys reported higher collective self-esteem, one would also expect direct bullies to show higher collective self-esteem levels. Results of collective self-esteem analyses did not, however, provide confirmation of this assertion. Instead, results indicated that collective

self-esteem did not vary significantly between participants as a function of their classification as either direct, indirect, or direct/indirect bullies.

The present study found that participants using a combination of direct and indirect bullying behaviours reported higher narcissism scores than those categorised as direct or indirect bullies. Given that similar proportions of boys and girls used direct and indirect aggressive behaviours in combination, it is unlikely that gender plays a major role in explaining this relationship. It might be that those who are high in narcissism, with their greater need to manipulate their social environment to bolster their fragile self-esteem, are more willing and able to employ all available methods to meet that need. They might also be prepared to use aggressive behaviours that do not necessarily conform to typical social or gender roles, as reflected in their willingness to employ both direct and indirect bullying behaviours. This notion is strengthened by the fact that those who are lower in narcissism generally exhibited aggression in a manner that corresponded with the accepted gender pattern of boys using more direct and girls more indirect bullying behaviours.

The proposal that those high in narcissism are less concerned with conforming to social norms and gender roles, at least in terms of the current study, is corroborated indirectly by results of the impression management analyses. Results indicated that those classified as bullies who employed a combination of direct and indirect aggressive behaviours reported lower levels of impression management than those who used solely either direct or indirect bullying behaviours. In other words, bullies who are high in narcissism are less concerned with typical notions of what constitutes socially desirable behaviour and they are, therefore, more willing to act aggressively in ways that do not strictly meet typical social gender expectations.

Despite the above assertions, the analyses relating to type of bully status were purely exploratory and findings were not straightforward. In addition, all effect sizes

were low indicating that differences were not great in an absolute sense. Nevertheless, they do shed some light on the complex interplay between self-esteem, narcissism, and aggression, whilst also affording other researchers and theorists many opportunities to expand the knowledge base in this field. As mentioned previously, future studies might take different approaches to these questions by, for example, employing longitudinal methods to examine developmental aspects of these relationships or qualitative procedures to explore individuals' motivations for their behaviour.

5.4 Summary and Implications for Interventions and Future Research

This chapter discussed the findings of analyses that explored the relationships between bullying, victimisation, personal and collective self-esteem, and narcissism in adolescents, whilst also considering prevalence rates. This section summarises the major findings and limitations of the present study, beginning with age and gender differences, and discusses how they might provide opportunities for future research and influence the development and evaluation of school bullying interventions.

Generally speaking, gender differences in bullying and victimisation were as expected and as social role theory and previous research would predict, with boys reporting higher direct and overall levels of bullying and victimisation than girls. Similarly, and in accordance with the literature, girls reported higher levels of indirect bullying and victimisation than boys. In contrast, findings in terms of age-related associations did not follow patterns generally predicted by theory or previous research, as there were no significant relationships between age and any form of bullying or victimisation.

Findings related to self-esteem were mixed and, in some cases, surprising. Regarding personal self-esteem, findings were generally as hypothesised and as one would expect in terms of previous research, with victims reporting lower and bullies

reporting higher personal self-esteem. In contrast, the present study produced some unusual findings in terms of collective self-esteem. First, collective self-esteem did not exhibit the moderate positive relationship with personal self-esteem that previous research would lead one to predict, and this resulted in collective self-esteem exhibiting relationships with other variables that did not correspond with those of personal self-esteem. Rather than victimisation resulting in low collective self-esteem, it was apparent that as victimisation levels increased, so did collective self-esteem. It is difficult to explain this unique and counterintuitive finding, because it almost defies logic to expect that victimisation could in any way lead to an increase in collective self-esteem.

A number of explanations were proposed to clarify this finding, including the possibility that children who are victimised by their peers and in greatest need of collective self-esteem overestimate it as a defensive strategy to enhance the lowered self-worth they feel probably as a result of that victimisation. Given that this relationship held after controlling for impression management, it is likely that these children really believe their responses and it may, therefore, be a self-deceptive form of defence. There is some evidence in the literature to support this assertion, as rejected children often overestimate their level of social acceptance, overstating their perception of being liked by others. Alternatively, although victims' personal self-esteem levels were reduced, their collective self-esteem was enhanced simply as a result of being the target of bullies. As aversive as it was, the attention that they received inferred that they were at least part of a group, even if their status was lowly. It may simply be a reflection of the proverb that any publicity is good publicity (Knowles, 1999), with the socially isolated and victimised adolescent feeling that any attention was good attention.

There is also the possibility that, although unhappy at school as a result of being bullied, victims were able to increase their collective self-esteem through the social support provided by friendship groups outside of the school. This explanation is less

likely, however, as the preamble to the collective self-esteem scale specifically asked students to consider their membership of their friendship groups at school. These possible explanations for the present findings provide ample scope for future researchers, if only to discount the explanations. In the first instance, a replication of the present study with both similar and contrasting samples would give some measure of the extent to which these findings can be generalised to adolescents universally. Second, a more qualitative focus, even in the simple guise of an open ended question or two, could specifically determine the group respondents were referring to and whether they were, indeed, school friends. In addition, it could enable researchers to discern the ways that respondents feel that their collective self-esteem is gained. A sociometric approach, whereby respondents name and classify the members of their social networks could provide a means of comparing respondents' with others' perceptions of group membership.

One of the primary tenets of the present study was that high self-esteem, in conjunction with high levels of narcissism, would predict greater levels of bullying and this hypothesis was clearly upheld. Although this finding was limited to the extent that effect sizes were low, it nevertheless provides clear confirmation that the conventional view of bullies as possessing, and being motivated by, a lack of self-esteem, requires reassessment. Admittedly, the present study was limited in that it did not specifically measure self-esteem threat or stability. Nonetheless, these findings provide clear evidence that future research should further explore the role of self-esteem in bullying and that clarity may be gained by incorporating experimental methods to manipulate self-esteem threat, measuring its influence on adolescent aggression.

The present study explored whether the bullying construct, as it was defined herein, comprised aspects of social behaviour that were qualitatively distinguishable and whether they differed by degree. Findings showed, contrary to predictions, that

collective self-esteem did not explain greater variance in bullying behaviour than personal self-esteem, and that collective self-esteem did not exhibit a stronger relation with indirect than direct bullying. These findings indicate that specific bullying behaviours or subtypes of aggression cannot readily, or possibly usefully, be categorised according to how social they may appear to be. Instead, it shows that aggression is by nature a social behaviour regardless of the specific method used (e.g., Björkqvist, 1994). Future studies in this field would do well to explore individuals' motivations and reasons for choosing one method over another. Again, qualitative methods may provide a valuable tool in determining why individuals feel that certain specific behaviours may or may not be an effective way of achieving a social goal, as well as discovering what that social goal might be.

The impression management scale employed in the present study was initially included as a means of statistically controlling the possible effects of socially desirable responding upon self-report measures of bullying. Results of the pilot study showed that impression management was an interesting variable in itself and the focus of the main study was modified slightly to reflect this. As impression management per se had not been employed before in bullying research, and certainly not with an adolescent sample, the findings of the present study are unique. The findings illustrate that the relationship between socially desirable responding and self-reports of aggressive behaviour is not straightforward. Research typically shows that socially desirable responding (and impression management) and self-reports of aggression or violence are negatively related, with the general assumption being that respondents are underreporting aggression (Sugarman & Hotaling, 1997). If this was the case with the present sample and these adolescents were indeed underreporting bullying behaviours, it suggests that the already unusually high and conservatively determined prevalence rates are underestimated. This is unlikely, although replicating this study will help determine this

with greater confidence. A more likely explanation for this negative relationship is that those who are more likely to behave aggressively and report it honestly are effectively less concerned with presenting themselves in a socially desirable manner (Sugarman & Hotaling, 1997). Despite the fact that this explanation is not novel, finding this relationship in an adolescent sample with relatively low-level aggressive behaviours, compared to the adult offences typically researched, is a unique and important finding, particularly in terms of self-report methodology.

Although the inclusion of an impression management scale served to offset many of the issues regarding self-report of undesirable behaviours, the problem of shared method variance remains. Within the context of the present study, this issue was to a large extent unavoidable and, on balance, well worth the potential cost. For example, self-report is well suited to the measurement of internal states such as self-esteem and the information gained may be less clouded by gender stereotypes, something that teacher or peer report may be prone to. Self-report also facilitates the collection of large amounts of survey data, valuable in determining prevalence rates.

The present study's findings and, indeed, its limitations have great potential to inform and drive future research and, at least as importantly, school interventions. For example, the current study was limited in that it did not take into account the nature, extent, or effectiveness of the schools' bullying interventions or policies. Clearly, the most appropriate way to determine this is by conducting a full-scale evaluation study, something that did not fall within the aims of the present study. Nonetheless, it is likely that prevalence rates for bullying and victimisation within a school will vary as a function of interventions and policies. For example, it is clear that indirect aggression is less observable and, therefore, likely to be more difficult to detect and manage. Furthermore, research has shown that indirect aggression may be considered by teachers to be a less-severe form of bullying (e.g., Bauman & Del Rio, 2006; Hazler et al., 2001),

implying that it is consequently less deserving of attention in anti-bullying interventions. This suggests that, not only should school interventions include the less observable indirect aggression within their range of target behaviours, but that teachers should be better trained in detecting these forms of bullying.

As stated above, there has been some research showing that trainee teachers consider relational bullying to be less serious than physical bullying and that they would be less likely to intervene in instances of relational bullying (Bauman & Del Rio, 2006). It is clear, therefore, that the training of teachers, whether at the inservice or preservice level, may be an effective form of intervention or prevention. The present study's prevalence rates for both direct and indirect aggression provide clear evidence that school bullying is widespread and that research should continue to gain up-to-date information to ensure that schools and educationalists are aware of the extent and consequences of all forms of bullying. Furthermore, that teachers are less likely to notice indirect forms of aggression provides support for the notion discussed above that a self-report methodology as used in the present study is probably a more effective way to gather information regarding prevalence rates (see Solberg & Olweus, 2003).

Related to the above issue of teachers perceptions of what constitutes bullying is the question of students' understanding and perceptions of bullying and victimisation. Although much meaningful information was gained from the present study's use of specific behavioural items, qualitative methods may provide different information, particularly if used in conjunction with quantitative methods. For example, a qualitative approach may better uncover what adolescents consider to be bullying or gender role expectations in terms of aggressive behaviour (see, for example, Owens, Shute, & Slee, 2005). It may discover whether adolescents consider certain types of bullying to be more serious than others, or determine the influence of context and situational factors in bullying situations, or their motivations and expectations of acting aggressively.

The present findings regarding self-esteem highlight the important question of motivations. Specifically, the present study found that bullying was related to high personal self-esteem, which contrasts with the commonly held view that those who act aggressively do so as a result of low self-esteem, using aggression as a way of enhancing their low self-esteem (e.g., Anderson, 1994). The current findings indicate that a school intervention or programme that aims to increase students' self-esteem, regardless of whether bullying is a specific focus of the programme, may be counterproductive. It is clear that victims may benefit from a self-esteem building intervention. On the other hand, given that bullies reported relatively high levels of self-esteem, whether as a cause or an outcome cannot be established, it may be unwise to boost that self-esteem and run the risk of reinforcing problematic behaviour. Furthermore, although there is a reasonable body of research that has addressed self-esteem interventions and their effect on outcomes, the results are equivocal (see Haney & Durlak, 1998). Regardless, little research has been done in specific terms of self-esteem interventions and bullying and the present findings indicate that there are many avenues for social scientists to explore.

The findings regarding collective self-esteem prove that any approach to interventions and self-esteem requires critical consideration. The present finding that victims reported higher levels of collective self-esteem, as opposed to lower levels of personal self-esteem, further complicates the picture. It gives added support for the above proposal that self-esteem interventions should not be implemented without careful deliberation and probably not in a blanket fashion, given that the different types of self-esteem relate differentially to bullying and to victimisation.

Employing interventions that focus upon individual characteristics other than self-esteem might also provide effective means of dealing with bullying in school. For example, interventions based upon empathy building in aggressive students may be

effective in reducing aggression. To illustrate how this might be the case, the present study found a relationship between narcissism and aggression, whereas previous studies have found empathy to be related to both narcissism (Biscardi & Schill, 1985) and aggression (Kaukiainen et al., 1999). Note, however, that Kaukiainen et al. did not find an association between empathy and indirect aggression in their 12-year-old participants, indicating that more research is required before definitive answers can be given in terms of effective interventions.

There are a number of strategies that might be employed to build empathy and generally address the issue of bullying in school, with the two approaches of peer support and restorative justice showing some promise (e.g., Cowie & Wallace, 2000; Hopkins, 2004). Peer support takes a problem-solving approach employing basic listening skills, such that students are trained to find solutions to their own problems, with adults retaining a supervisory role (Cowie & Wallace, 2000). This approach aims, amongst other things, to promote a positive and respectful ethos within the school and to engender empathy and a willingness to take a supportive role in dealing with interpersonal difficulties, such as providing support for victims of bullying. Incidentally, the use of peers rather than adults also goes some way towards minimising the risk of instances of the less observable forms of bullying being overlooked or discounted. In addition, there has been some research into the use of the internet and web-based resources to complement this process and make it more accessible to young people (Cowie & Hutson, 2005). Furthermore, not only does a peer support system benefit users of the service, it also benefits the peer supporters and the school community as a whole (Cowie & Wallace, 2000).

The restorative justice approach to interpersonal conflicts, such as incidents of bullying and aggression, aims to involve the whole school community, encourage accountability, and increase communication and understanding, all within an ethos that

engenders trust and mutual respect (Hopkins, 2004). Often using a peer mediation approach, restorative practice aims to involve all interested parties in the process, including victims and offenders, to clearly determine what happened and to collaboratively repair any harm done and avoid similar incidents happening again.

Through building empathy and increasing offenders' awareness of the consequences of their actions, restorative practice and similar approaches aim to reduce the incidence of bullying in schools in a more specific way through dealing with individual students and incidents. Nevertheless, if used in conjunction with the more general school-wide anti-bullying policies and initiatives, particularly if these initiatives are well evaluated and based on up-to-date research, this combination of specific and broad approaches has the potential to greatly reduce the incidence and impact of bullying in schools.

5.5 Conclusion

A major goal of the current study was to test the hypothesis that those with high self-esteem and high narcissism are more likely to engage in bullying behaviour, and this hypothesis was supported. This finding has implications for interventions, particularly those that might follow the conventional notion that the typical bully is lacking in self-esteem. If an intervention includes a component that aims to boost self-esteem, whether generally or specifically for those who bully, it may be counterproductive in enhancing self-esteem and possibly reinforcing aggressive behaviour. The findings relating to collective self-esteem and victimisation are probably the most interesting. It is not intuitive to predict that those who are victimised by their peers would report higher levels of the self-esteem that they derived from their friendship groups. It is in this aspect that the limitations of the current study become apparent, yet not disturbingly so. The above discussion made it clear that these limitations and novel findings provide many opportunities for researchers to employ

other methodologies, such as qualitative and sociometric methods, to explore adolescent friendship groups and how they relate to collective self-esteem and victimisation.

In terms of gender differences, findings were as predicted with boys reporting higher direct and total bullying and victimisation levels, and girls reporting higher levels of indirect bullying and victimisation. Interestingly, the current study did not find any major variable to vary as a function of age, suggesting that the age range of the sample was possibly too restricted to uncover the finer developmental variations one might expect. Alternatively, it was suggested that these adolescents had already passed the age where physical aggression decreases and indirect aggression increases. In any case, the use of longitudinal research or taking a wider cross section of ages would help to clarify this finding.

With regard to the use of self-report method, the results highlighted some possible limitations in terms of shared method variance, although findings in terms of impression management were methodologically significant. Results suggested that, rather than running the risk of underreporting of socially undesirable behaviours, self-report methods provide a useful and valid means of measuring internal states and prevalence rates. It was apparent that impression management, or socially desirable responding, was an issue in the present sample's data, but not in the manner that some research would suggest. Rather than underreporting aggressive behaviours, it is likely that respondents were being honest as they did not feel that these behaviours were, in fact, socially undesirable. The finding that prevalence rates were relatively high supports this notion.

To illustrate, the present study found bullying and victimisation prevalence rates to be comparatively high, despite using relatively conservative criteria. Although of some concern, there is the possibility that rates were high due to an increased awareness of what constitutes bullying as a result of government and school anti-bullying policies

and initiatives. Regardless, the high rates illustrate the need for research to be conducted regularly, whether as part of research to evaluate anti-bullying initiatives, or as an inherent component of empirical and exploratory studies such as the present research programme.

In closing, despite some relatively minor limitations to the present study, the findings generally correspond with and build upon previous research. In addition, a number of the results are novel and these findings in particular provide numerous opportunities for future researchers to further explore and test the relationships between self-esteem, bullying, and victimisation.

APPENDIX A

Instruction/Cover Sheet

INSTRUCTIONS

This questionnaire asks you to give your views about how you feel about yourself, your friendship groups and how students treat each other at this school.

Note that you are free to withdraw at any time or to decline to answer particular questions without disadvantage. As you are answering the questions, remember that the questionnaire is ***totally anonymous***. We do not ask you to give your name and nobody will be able to find out who has answered each questionnaire. We ask you to please answer questions **honestly** and **carefully**. When you are finished, the researcher will collect your questionnaire and place it in a sealed envelope.

Most of the questions ask you to ***circle*** the answer that best describes how you feel.

Here is an example of the questions you will be asked:

We ask you to circle the number that **best** describes how **YOU** feel about the following statement.

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
I enjoy playing sport.	1	2	3	4	5

A person who feels that he or she really enjoys playing sport would circle **1**. Someone who enjoys playing sport just a little would circle **4**.

Please complete the following and then begin the questionnaire.

1. What is your Year Level? _____
2. What is your age? _____ years
3. Gender (*please tick*) _____ Female _____ Male
4. What is your main language spoken at home? _____

APPENDIX B

Bullying Scale (Björkqvist et al., 1992)

Your answers to these questions are **confidential** and you will remain **anonymous**.

At times we act in certain bullying ways towards others. We call it bullying when someone deliberately says or does nasty things to another person who can not easily defend himself or herself.

We are interested in how often **YOU** behave in the following ways towards your classmates.

Answer the questions by circling the number which **BEST** describes **how often YOU** perform the following behaviours.

If you think it *Never* happens, circle **1**.

If you do it *Hardly ever* (e.g., perhaps once per term), circle **2**.

If you do it *Sometimes* (e.g., once or twice per month), circle **3**.

If it happens *Quite often* (e.g., once or twice per week), circle **4**.

If it happens *Very often* (e.g., almost every day), circle **5**.

Remember, your identity will remain unknown.

	Never	Hardly ever	Sometimes	Quite often	Very often
1. Hit another person.	1	2	3	4	5
2. Make prank calls to another person's home telephone.	1	2	3	4	5
3. Shut another person out of the group.	1	2	3	4	5
4. Yell at another person.	1	2	3	4	5
5. Become friends with another as a kind of revenge against someone.	1	2	3	4	5
6. Kick another person.	1	2	3	4	5
7. Ignore another person.	1	2	3	4	5
8. Insult another person.	1	2	3	4	5
9. Trip another person.	1	2	3	4	5
10. Tell bad or false stories about people.	1	2	3	4	5
11. Tell another person that you are going to hurt him/her.	1	2	3	4	5
12. Send nasty electronic messages to others (e.g., emails or mobile phone text messages).	1	2	3	4	5
	Never	Hardly ever	Sometimes	Quite often	Very often

	Never	Hardly ever	Sometimes	Quite often	Very often
13. Plan secretly to bother someone.	1	2	3	4	5
14. Shove another person.	1	2	3	4	5
15. Say bad things behind someone's back.	1	2	3	4	5
16. Call someone names.	1	2	3	4	5
17. Say to others "Let's not be with him/her!"	1	2	3	4	5
18. Take things from another person.	1	2	3	4	5
19. Tell someone's secrets to a third person.	1	2	3	4	5
20. Tease another person.	1	2	3	4	5
21. Write small notes criticising another person.	1	2	3	4	5
22. Push another person to the ground.	1	2	3	4	5
23. Criticise another person's hair or clothing.	1	2	3	4	5
24. Grab at another person.	1	2	3	4	5
25. Give dirty looks or "daggers" to someone.	1	2	3	4	5
26. Try to get others to dislike someone.	1	2	3	4	5
	Never	Hardly ever	Sometimes	Quite often	Very often

APPENDIX C

Victimisation Scale (Björkqvist et al., 1992)

Your answers to these questions are **confidential** and you will remain **anonymous**.

At times we are bullied by others. We say we are bullied when someone deliberately says or does nasty things to us when we can not easily defend ourselves.

We are interested in how often **CLASSMATES** behave in certain bullying ways towards you.

Answer the questions by circling the number which **BEST** describes **how often OTHERS** behave in the following ways **towards you**.

If you think it *Never* happens, circle **1**.

If it happens to you *Hardly ever* (e.g., perhaps once per term), circle **2**.

If it happens to you *Sometimes* (e.g., once or twice per month), circle **3**.

If it happens *Quite often* (e.g., once or twice per week), circle **4**.

If it happens *Very often* (e.g., almost every day), circle **5**.

Remember, your answers are confidential and anonymous.

	Never	Hardly ever	Sometimes	Quite often	Very often
1. Hit by another person.	1	2	3	4	5
2. Receive prank telephone calls at home.	1	2	3	4	5
3. Shut out of the group by the others.	1	2	3	4	5
4. Another person yells at you.	1	2	3	4	5
5. The person becomes friends with another as a kind of revenge.	1	2	3	4	5
6. Kicked by the other person.	1	2	3	4	5
7. Ignored by the other person.	1	2	3	4	5
8. Insulted by the other person.	1	2	3	4	5
9. Tripped by the other person.	1	2	3	4	5
10. Have bad or false stories told about you.	1	2	3	4	5
11. The person says they are going to hurt you.	1	2	3	4	5
12. Receive nasty electronic messages (e.g., emails or mobile phone text messages).	1	2	3	4	5
	Never	Hardly ever	Sometimes	Quite often	Very often

	Never	Hardly ever	Sometimes	Quite often	Very often
13. The other person plans secretly to bother you.	1	2	3	4	5
14. Shoved by the other person.	1	2	3	4	5
15. Have bad things said about you behind your back.	1	2	3	4	5
16. Called names by the other person.	1	2	3	4	5
17. The person says to others about you "Let's not be with him/her!"	1	2	3	4	5
18. Have things taken from you.	1	2	3	4	5
19. Have your secrets told to a third person.	1	2	3	4	5
20. Teased by another person.	1	2	3	4	5
21. The other person writes small notes criticising you.	1	2	3	4	5
22. Pushed to the ground by the other person.	1	2	3	4	5
23. Have your hair or clothing criticised by the other person.	1	2	3	4	5
24. Grabbed by the other person.	1	2	3	4	5
25. Receive dirty looks or "daggers".	1	2	3	4	5
26. The person tries to get others to dislike you.	1	2	3	4	5
	Never	Hardly ever	Sometimes	Quite often	Very often

APPENDIX D

Personal Self-Esteem Scale (Rosenberg, 1979)

We would like you to read each statement below and answer the questions by circling the number which **BEST** indicates how well each item describes **YOU**.

	Not at all like me	Somewhat unlike me	Neither like nor unlike me	Somewhat like me	Very much like me
1. On the whole, I am satisfied with myself.	1	2	3	4	5
2. At times I think I am no good at all.	1	2	3	4	5
3. I feel that I have a number of good qualities.	1	2	3	4	5
4. I am able to do things as well as most other people.	1	2	3	4	5
5. I feel I do not have much to be proud of.	1	2	3	4	5
6. I certainly feel useless at times.	1	2	3	4	5
7. I feel that I'm a person of worth, at least on an equal plane with others.	1	2	3	4	5
8. I wish I could have more respect for myself.	1	2	3	4	5
9. All in all, I am inclined to feel that I am a failure.	1	2	3	4	5
10. I take a positive attitude towards myself.	1	2	3	4	5
	Not at all like me	Somewhat unlike me	Neither like nor unlike me	Somewhat like me	Very much like me

APPENDIX E

Collective Self-Esteem Scale (Luhtanen & Crocker, 1992)

We are all members of different social groups. We would like you to think about your favourite group of friends at school. We would then like you to think carefully about your membership of this particular favourite group of friends or classmates and then respond to the following statements.

We ask you to circle the number that **BEST** describes how **YOU** feel about this group and **YOUR** membership in it.

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
1. I am a worthy member of the group that I belong to.	1	2	3	4	5
2. I often regret that I belong to this group.	1	2	3	4	5
3. Overall, my group is considered good by others.	1	2	3	4	5
4. Overall, my group membership has very little to do with how I feel about myself.	1	2	3	4	5
5. I feel I don't have much to offer the group I belong to.	1	2	3	4	5
6. In general, I'm glad to be a member of the group I belong to.	1	2	3	4	5
7. Most people consider my group, on the average, to be more ineffective than other groups.	1	2	3	4	5
8. The group I belong to is an important reflection of who I am.	1	2	3	4	5
9. I am a cooperative participant in the group I belong to.	1	2	3	4	5
10. Overall, I often feel that the group of which I am a member is not worthwhile.	1	2	3	4	5
11. In general, others respect the group that I am a member of.	1	2	3	4	5
12. The group I belong to is unimportant to my sense of what kind of a person I am.	1	2	3	4	5
	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
13. I often feel I'm a useless member of my group.	1	2	3	4	5
14. I feel good about the group I belong to.	1	2	3	4	5
15. In general, others think that the group I am a member of is unworthy.	1	2	3	4	5
16. In general, belonging to my group is an important part of my self image.	1	2	3	4	5
	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree

APPENDIX F

Narcissistic Personality Inventory (Raskin & Hall, 1981)

Instructions:

For each of the following pairs of attitudes, choose the one that you **MOST AGREE** with.

Mark your answer by putting a circle around **EITHER A** or **B**.

Mark **ONLY ONE** answer for each attitude pair, and please **DO NOT** skip any items.

1. _____ A. I have a natural talent for influencing people.
B. I am not good at influencing people.
2. _____ A. Modesty doesn't suit me.
B. I am essentially a modest person.
3. _____ A. I would do almost anything on a dare.
B. I tend to be a fairly cautious person.
4. _____ A. When people compliment me I sometimes get embarrassed.
B. I know that I am good because everybody keeps telling me so.
5. _____ A. The thought of ruling the world frightens the hell out of me.
B. If I ruled the world it would be a better place.
6. _____ A. I can usually talk my way out of anything.
B. I try to accept the consequences of my behaviour.
7. _____ A. I prefer to blend in with the crowd.
B. I like to be the centre of attention.
8. _____ A. I will be a success.
B. I am not too concerned about success.
9. _____ A. I am no better or no worse than other people.
B. I think I am a special person.
10. _____ A. I am not sure if I would make a good leader.
B. I see myself as a good leader.
11. _____ A. I am confident.
B. I wish I were more confident.
12. _____ A. I like having authority over other people.
B. I don't mind following orders.
13. _____ A. I find it easy to control other people.
B. I don't like it when I find myself controlling people.

14. _____ A. I insist upon getting the respect that is due to me.
B. I usually get the respect that I deserve.
15. _____ A. I don't particularly like to show off my body.
B. I like to show off my body.
16. _____ A. I can read people like a book.
B. People are sometimes hard to understand.
17. _____ A. If I feel able, I am willing to take responsibility for making decisions.
B. I like to take responsibility for making decisions.
18. _____ A. I just want to be reasonably happy.
B. I want to amount to something in the eyes of the world.
19. _____ A. My body is nothing special.
B. I like to look at my body.
20. _____ A. I try not to be a show-off.
B. I will usually show off if I get the chance.
21. _____ A. I always know what I am doing.
B. Sometimes I am not sure of what I am doing.
22. _____ A. I sometimes depend on people to get things done.
B. I rarely depend on anyone else to get things done.
23. _____ A. Sometimes I tell good stories.
B. Everybody likes to hear my stories.
24. _____ A. I expect a great deal from other people.
B. I like to do things for other people.
25. _____ A. I will never be satisfied until I get all that I deserve.
B. I am content with my satisfactions as they come.
26. _____ A. Compliments embarrass me.
B. I like to be complimented.
27. _____ A. I have a strong desire to be in charge.
B. Being in charge doesn't interest me.

28. _____ A. I don't care about new fads and fashions.
B. I like to start new fads and fashions.
29. _____ A. I like to look at myself in the mirror.
B. I am not particularly interested in looking at myself in the mirror.
30. _____ A. I really like to be the centre of attention.
B. It makes me uncomfortable to be the centre of attention.
31. _____ A. I can live my life in any way I want to.
B. People can't always live their lives in terms of what they want.
32. _____ A. Being an authority doesn't mean that much to me.
B. People always seem to recognise my authority.
33. _____ A. I would prefer to be a leader.
B. It makes little difference to me whether I am a leader or not.
34. _____ A. I am going to be a great person.
B. I hope I am going to be successful.
35. _____ A. People sometimes believe what I tell them.
B. I can make anyone believe anything I want them to.
36. _____ A. I am a born leader.
B. Leadership is a quality that takes a long time to develop.
37. _____ A. I wish someone would some day write my biography.
B. I don't like people to pry into my life for any reason.
38. _____ A. I get upset when people don't notice how I look when I go out in public.
B. I don't mind blending into the crowd when I go out in public.
39. _____ A. I am more capable than other people.
B. There is a lot that I can learn from other people.
40. _____ A. I am much like everybody else.
B. I am an extraordinary person.

APPENDIX G

Impression Management Scale (Paulhus, 1991)

Your answers to these questions are confidential and you will remain anonymous. We are interested in how **YOU** feel about the following statements.

We would like you to read the statements below and answer the questions by circling the number which **BEST** describes how much you agree with each statement.

Remember, your identity will remain unknown.

	Not true			Somewhat true			Very true
1. I sometimes tell lies if I have to.	1	2	3	4	5	6	7
2. I never cover up my mistakes.	1	2	3	4	5	6	7
3. There have been occasions when I have taken advantage of someone.	1	2	3	4	5	6	7
4. I never swear.	1	2	3	4	5	6	7
5. I sometimes try to get even rather than forgive and forget.	1	2	3	4	5	6	7
6. I always obey laws, even if I'm unlikely to get caught.	1	2	3	4	5	6	7
7. I have said something bad about a friend behind his or her back.	1	2	3	4	5	6	7
8. When I hear people talking privately, I avoid listening.	1	2	3	4	5	6	7
9. I have received too much change from a salesperson without telling him or her.	1	2	3	4	5	6	7
10. When I was younger I sometimes stole things.	1	2	3	4	5	6	7
11. I have never dropped litter on the street.	1	2	3	4	5	6	7
12. I have done things that I don't tell other people about.	1	2	3	4	5	6	7
13. I never take things that don't belong to me.	1	2	3	4	5	6	7
	Not true			Somewhat true			Very true

	Not true			Somewhat true			Very true
14. I have taken sick-leave from school even though I wasn't really sick.	1	2	3	4	5	6	7
15. I have never damaged a library book or store goods without reporting it.	1	2	3	4	5	6	7
16. I have some pretty awful habits.	1	2	3	4	5	6	7
17. I don't gossip about other people's business.	1	2	3	4	5	6	7
	Not true			Somewhat true			Very true

APPENDIX H

Letter of Introduction



FLINDERS UNIVERSITY
ADELAIDE • AUSTRALIA

School of Education
Faculty Education, Humanities, Law and Theology

GPO Box 2100
Adelaide 5001 Australia

Laurence Owens
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Fax: (61 8) 8201 3184
E-mail: larry.owens@flinders.edu.au

LETTER OF INTRODUCTION

Dear Sir/Madam,

This letter is to introduce Anthony Daly who is a postgraduate student in the School of Education at Flinders University. He will produce his student card, which carries a photograph, as proof of identity.

He is undertaking research leading to the production of a thesis or other publications on the subject of individual factors (such as self-esteem) and social factors (such as friendship groups) relating to bullying in high schools and students' perceptions of these issues.

He would be most grateful if you and relevant teachers would volunteer to assist in this project, by allowing students to complete a questionnaire which touches upon certain aspects of this topic. No more than forty minutes on one occasion would be required.

Be assured that any information provided will be treated in the strictest confidence and none of the students or schools will be individually identifiable in the resulting thesis, report or other publications. Students are, of course, entirely free to discontinue their participation at any time or to decline to answer particular questions.

Any enquiries you may have concerning this project should be directed to me at the address given above or by telephone on 8201 3356, fax 8201 5387 or e-mail Larry.Owens@flinders.edu.au.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (contact: ph 8201 5466, fax 8201 2035, e-mail lesley.wyndram@flinders.edu.au) and the Department of Education and Children's Services (contact: ph 8226 2472, fax 8226 3448, e-mail sharrock.kylie@saugov.sa.gov.au).

Thank you for your attention and assistance.

Yours sincerely,

Dr Larry Owens

Senior Lecturer
Director, Bachelor of Education

APPENDIX I

Parent Information Sheet



FLINDERS UNIVERSITY
ADELAIDE • AUSTRALIA

School of Education
Faculty Education, Humanities, Law and Theology

GPO Box 2100
Adelaide 5001 Australia

Laurence Owens
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Fax: (61 8) 8201 3184
E-mail: larry.owens@flinders.edu.au

PARENT INFORMATION SHEET

Individual and social factors relating to bullying and self-esteem in South Australian high school students

Dear Parent/Guardian

Anthony Daly is a postgraduate research student currently undertaking a Doctor of Philosophy in the School of Education at Flinders University and is conducting research regarding students' perceptions of issues related to individual factors (such as self-esteem) and social factors (such as students' thoughts about their friendship groups) associated with bullying in South Australian high school students.

He would be most grateful if you would volunteer to assist in this project, by allowing your child to complete a series of questionnaires touching upon certain aspects of this topic. The research project involves students in years 7, 8, 9 and 10 completing questionnaires during normal school hours. No more than forty minutes on one occasion would be required. Results of the study may contribute to the development of more effective bullying prevention programmes.

Be assured that any information provided will be treated in the strictest confidence. Students and schools remain anonymous and will not be individually identifiable at any stage. Students are entirely free to withdraw at any time or to decline to answer particular questions without prejudice.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (contact: ph 8201-5466, fax 8201-2035, e-mail lesley.wyndram@flinders.edu.au.) and the Department of Education and Children's Services (contact: ph 8226-2472, fax 8226-3448, e-mail sharrock.kylie@saugov.sa.gov.au).

If you permit your child to take part in this survey, a Consent Form is attached for you to sign and return to school. Should you require additional information regarding this research, please contact Larry Owens on 8201-3356.

Thank you for considering this request.

Dr Larry Owens

Senior Lecturer
Director, Bachelor of Education

APPENDIX J

Participant Consent Form – Pilot Study



FLINDERS UNIVERSITY
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Faculty Education, Humanities, Law and Theology

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E-mail: larry.owens@flinders.edu.au

PARENT/GUARDIAN CONSENT FORM

I _____ (name)

hereby consent to my child's involvement in the research project entitled: *Individual and social factors relating to bullying and self-esteem in South Australian high school students.*

I have read and understood the Information Sheet on the above project and understand that my child is being asked to complete a questionnaire during class time.

I understand that my child may not directly benefit by taking part in this research.

I understand that while information gained in the study may be published, my child will not be identified and all individual information will remain confidential.

I understand that my child can withdraw from the study at any stage up until the end of the collection of data and that my child is free to decline to answer particular questions.

I understand that whether my child participates or not, or withdraws after participating, will have no effect on progress in his/her course of study or results.

I understand that there will be no payment for my child taking part in this study.

I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.

I consent to my child being involved in this project.

Signed _____ Date ____/____/____

Relationship to child _____

Child's signature _____

Name of child _____

APPENDIX K

Pilot Study Calculations and Regression Tables

K.1 Formulae for Comparing two Correlated Correlations

As stated in Chapters 2 and 4 (sections 2.2.4.6 and 4.1.5.6), the following equations were taken from Meng et al. (1992) to compare, for example, the bullying/personal self-esteem and bullying/collective self-esteem correlations, with relevant p values derived from the table of the normal distribution (e.g., Tabachnick & Fidell, 2001). To determine Z , the number of participants $N = 104$, the bullying/personal self-esteem correlation $r_1 = .042$, the bullying/collective self-esteem correlation $r_2 = .189$ (with their respective corresponding Fisher z values $z_{r_1} = .042$ and $z_{r_2} = .191$), and the personal self-esteem/collective self-esteem correlation $r_x = -.425$ were entered into the equations below. Following the equations are lists of the values inserted into equations for Hypotheses 13 and 14 of the pilot study and of the main study (by gender).

$$\begin{aligned}
 Z &= (z_{r_1} - z_{r_2}) \sqrt{\frac{N-3}{2(1-r_x)h}} \\
 &= (.042 - .191) \sqrt{\frac{104-3}{2(1-(-.425))1.005}} \\
 &= -.149 \sqrt{35.249} \\
 &= -.149 * 5.937 \\
 Z &= -0.885
 \end{aligned}$$

$$\begin{aligned}
 h &= \frac{1 - f\bar{r}^2}{1 - \bar{r}^2} \\
 &= \frac{1 - .726 * .019}{1 - .019} \\
 &= \frac{.986}{.931} \\
 h &= 1.005
 \end{aligned}$$

$$\begin{aligned}
 f &= \frac{1 - r_x}{2(1 - \bar{r}^2)} \\
 &= \frac{1 - -.425}{2(1 - .019)} \\
 &= \frac{1.425}{1.962} \\
 f &= .726
 \end{aligned}$$

$$\begin{aligned}
 \bar{r}^2 &= \frac{r_1^2 + r_2^2}{2} \\
 &= \frac{.042^2 + .189^2}{2} \\
 &= \frac{.002 + .036}{2} \\
 \bar{r}^2 &= .019
 \end{aligned}$$

$$95\% \text{ confidence intervals} = z_{r1} - z_{r2} \pm 1.96 \sqrt{\frac{2(1 - r_x)h}{N - 3}}$$

Pilot study:

	Hypothesis 13	Hypothesis 14
r_1 =	.042	.270
r_2 =	.189	.281
r_x =	-.425	.523
z_{r1} =	.042	.277
z_{r2} =	.191	.289
N =	104	107
h =	1.005	1.061
Z =	-0.885	-0.121
f =	.726	.258
$\overline{r^2}$ =	.019	.076
$z_{r1} - z_{r2}$ =	-.149	-.011
95% + =	.181	.181
95% - =	-.479	-.205
p =	.188	.452

Main study:

	Hypothesis 13			Hypothesis 14		
	total	girls	boys	total	girls	boys
$r_1 =$	-.076	-.133	-.106	.126	.154	.120
$r_2 =$	.139	.163	.112	.119	.156	.074
$r_x =$	-.408	-.425	-.441	.588	.636	.692
$z_{r1} =$	-.076	-.134	-.106	.126	.155	.120
$z_{r2} =$	.140	.165	.113	.120	.158	.074
$N =$	1607	652	952	1611	656	952
$h =$	1.004	1.006	1.003	1.012	1.020	1.008
$Z =$	-5.147	-4.492	-3.965	0.276	-0.076	1.816
$f =$	.713	.728	.729	.209	.186	.155
$\overline{r^2} =$	.013	.022	.012	.015	.024	.010
$z_{r1} - z_{r2} =$	-.216	-.299	-.219	.006	-.003	.046
95% + =	-.134	-.168	-.111	.051	.063	.097
95% - =	-.298	-.429	-.327	-.038	-.069	-.004
$p =$	.000	.000	.000	.609	.470	.965

Table K.1

Pilot Study two-way Interaction Between Personal Self-Esteem and Narcissism on Physical Bullying, for Males (n = 50)

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.51	.51 ^{***}
Age	-1.14	0.52	-.23		
Impression Management	-0.20	0.04	-.63		
Collective SE	0.12	0.08	.17		
Step 2				.51	.00
Personal SE	0.14	0.10	.02		
Step 3				.52	.01
Narcissism	-0.09	0.10	-.10		
Step 4				.52	.00
Personal SE X Narcissism	0.01	0.02	.06		

Note. SE = Self-Esteem.

^{***} $p < .001$.

Table K.2

Pilot Study two-way Interaction Between Personal Self-Esteem and Narcissism on Verbal Bullying, for Females (n = 57)

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.19	.19 [*]
Age	-0.40	0.52	-.10		
Impression Management	-0.12	0.04	-.45		
Collective SE	0.04	0.06	.08		
Step 2				.21	.02
Personal SE	0.09	0.08	.18		
Step 3				.22	.01
Narcissism	0.06	0.07	.11		
Step 4				.24	.02
Personal SE X Narcissism	-0.01	0.01	-.17		

Note. SE = Self-Esteem.

^{*} $p < .05$.

Table K.3

Pilot Study two-way Interaction Between Personal Self-Esteem and Narcissism on Verbal Bullying, for Males (n = 50)

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.48	.48 ^{***}
Age	-1.08	0.44	-.27		
Impression Management	-0.16	0.03	-.60		
Collective SE	0.10	0.07	.17		
Step 2				.48	.00
Personal SE	0.04	0.08	.07		
Step 3				.49	.00
Narcissism	-0.06	0.09	-.08		
Step 4				.49	.00
Personal SE X Narcissism	0.00	0.01	.02		

Note. SE = Self-Esteem.

^{***} $p < .001$.

Table K.4

Pilot Study two-way Interaction Between Personal Self-Esteem and Narcissism on Indirect Bullying, for Females (n = 57)

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.24	.24 ^{**}
Age	0.33	0.77	.05		
Impression Management	-0.20	0.05	-.46		
Collective SE	0.05	0.09	.06		
Step 2				.25	.01
Personal SE	-0.06	0.12	-.08		
Step 3				.29	.04
Narcissism	0.18	0.11	.22		
Step 4				.29	.00
Personal SE X Narcissism	-0.06	0.01	-.06		

Note. SE = Self-Esteem.

^{**} $p < .01$.

Table K.5

Pilot Study two-way Interaction Between Personal Self-Esteem and Narcissism on Indirect Bullying, for Males (n = 50)

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.57	.57***
Age	-2.57	0.65	-.40		
Impression Management	-0.23	0.05	-.55		
Collective SE	0.29	0.10	.30		
Step 2				.59	.02
Personal SE	-0.18	0.12	-.17		
Step 3				.59	.00
Narcissism	0.02	0.13	.01		
Step 4				.60	.00
Personal SE X Narcissism	-0.01	0.02	-.07		

Note. SE = Self-Esteem.

*** $p < .001$.

Table K.6

Pilot Study two-way Interaction Between Collective Self-Esteem and Narcissism on Physical Bullying, for Males (n = 50)

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.49	.49***
Age	-1.04	0.53	-.21		
Impression Management	-0.22	0.04	-.68		
Personal SE	0.04	0.09	-.05		
Step 2				.51	.02
Collective SE	0.13	0.09	.18		
Step 3				.52	.01
Narcissism	-0.09	0.10	-.10		
Step 4				.52	.00
Collective SE X Narcissism	0.01	0.02	.07		

Note. SE = Self-Esteem.

*** $p < .001$.

Table K.7

Pilot Study two-way Interaction Between Collective Self-Esteem and Narcissism on Verbal Bullying, for Males (n = 50)

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.46	.46 ^{***}
Age	-0.97	0.45	-.24		
Impression Management	-0.18	0.03	-.67		
Personal SE	0.00	0.08	.00		
Step 2				.48	.02
Collective SE	0.11	0.08	.19		
Step 3				.49	.01
Narcissism	-0.06	0.09	-.08		
Step 4				.49	.00
Collective SE X Narcissism	-0.00	0.01	-.01		

Note. SE = Self-Esteem.

^{***} $p < .001$.

Table K.8

Pilot Study two-way Interaction Between Collective Self-Esteem and Narcissism on Indirect Bullying, for Females (n = 57)

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.25	.25 ^{**}
Age	0.34	0.77	.06		
Impression Management	-0.18	0.06	-.44		
Personal SE	-0.07	0.10	-.09		
Step 2				.25	.00
Collective SE	0.02	0.11	.02		
Step 3				.29	.04
Narcissism	0.18	0.11	.22		
Step 4				.29	.00
Collective SE X Narcissism	0.01	0.02	.04		

Note. SE = Self-Esteem.

^{**} $p < .01$.

Table K.9

Pilot Study two-way Interaction Between Collective Self-Esteem and Narcissism on Indirect Bullying, for Males (n = 50)

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.55	.55 ^{***}
Age	-2.54	1.07	.66		
Impression Management	-0.24	0.08	.05		
Personal SE	-0.27	0.15	.12		
Step 2				.59	.04
Collective SE	0.23	0.11	.24		
Step 3				.59	.00
Narcissism	0.02	0.13	.01		
Step 4				.59	.00
Collective SE X Narcissism	0.01	0.02	.05		

Note. SE = Self-Esteem.

^{***} $p < .001$.

APPENDIX L

Main Study Results I & II

Table L.1

Welsh College Descriptive Statistics, by Age (Years), Gender, and Year Level

		<i>n</i>	<i>M</i>	<i>SD</i>	Range
Girls	Year 7	15	12.47	0.52	12-13
	Year 8	17	13.53	0.52	13-14
	Year 9	30	14.53	0.51	14-15
	Total	62	13.76	0.99	12-15
Boys	Year 7	11	12.46	0.52	12-13
	Year 8	8	13.63	0.74	13-15
	Year 9	31	14.58	0.62	13-16
	Total	50	13.96	1.07	12-16
Total	Year 7	26	12.46	0.51	12-13
	Year 8	25	13.56	0.58	13-15
	Year 9	61	14.56	0.56	13-16
	Total	112	13.85	1.02	12-16

Table L.2

Northern High School Descriptive Statistics, by Age (Years), Gender, and Year Level

		<i>n</i>	<i>M</i>	<i>SD</i>	Min
Girls	Year 8	11	12.82	0.41	12-13
	Year 9	4	14.25	0.50	14-15
	Year 10	5	15.00	0.00	15-15
	Total	20	13.65	1.04	12-15
Boys	Year 8	15	12.80	0.56	12-14
	Year 9	14	13.86	0.36	13-14
	Year 10	8	15.00	0.00	15-15
	Total	37	13.68	0.94	12-15
Total	Year 8	26	12.81	0.49	12-14
	Year 9	18	13.94	0.42	13-15
	Year 10	13	15.00	0.00	15-15
	Total	57	13.67	0.97	12-15

Table L.3

Wheatsheaf High School Descriptive Statistics, by Age (Years), Gender, and Year Level

		<i>n</i>	<i>M</i>	<i>SD</i>	Min
Girls	Year 8	67	13.06	0.24	13-14
	Year 9	86	13.89	0.50	13-15
	Year 10	68	15.10	0.52	14-16
	Total	221	14.01	0.92	13-16
Boys	Year 8	92	13.04	0.33	12-14
	Year 9	85	14.00	0.51	13-15
	Year 10	57	15.26	0.55	14-17
	Total	234	13.93	0.98	12-17
Total	Year 8	159	13.05	0.29	12-14
	Year 9	171	13.94	0.51	13-15
	Year 10	125	15.18	0.54	14-17
	Total	455	13.97	0.95	12-17

Table L.4

Forest Hill High School Descriptive Statistics, by Age (Years), Gender, and Year Level

		<i>n</i>	<i>M</i>	<i>SD</i>	Min
Girls	Year 8	68	12.94	0.42	12-14
	Year 9	69	13.87	0.42	13-15
	Year 10	72	14.96	0.39	14-16
	Total	209	13.93	0.93	12-16
Boys	Year 8	75	13.00	0.29	12-14
	Year 9	74	13.84	0.44	13-15
	Year 10	67	15.03	0.46	14-16
	Total	216	13.92	0.92	12-16
Total	Year 8	143	12.97	0.36	12-14
	Year 9	143	13.83	0.43	13-15
	Year 10	139	14.99	0.43	14-16
	Total	425	13.92	0.92	12-16

Table L.5

Malden High School and Spencer College Descriptive Statistics, by Age (Years), Gender, and Year Level

		<i>n</i>	<i>M</i>	<i>SD</i>	Min
Malden (Girls)	Year 8	56	12.98	0.30	12-14
	Year 9	52	13.81	0.40	13-14
	Year 10	45	14.87	0.51	14-16
	Total	153	13.82	0.86	12-16
Spencer (Boys)	Year 8	176	13.13	0.38	12-15
	Year 9	128	14.16	0.37	14-15
	Year 10	122	15.21	0.43	14-16
	Total	426	14.03	0.95	12-16

Table L.6

Main Language Spoken at Home (N = 1628)

Language	<i>n</i>	Percent
English	1532	94.1
Thai	4	0.2
Cantonese	16	1.0
Japanese	3	0.2
Serbian	15	0.9
Persian	4	0.2
Greek	6	0.4
Portugese	2	0.1
Indonesian	3	0.2
Spanish	2	0.1
Korean	1	0.1
German	2	0.1
Yugoslavian	2	0.1
Vietnamese	3	0.2
Arabic	8	0.5
Urdu	1	0.1
Russian	3	0.2
Croatian	2	0.1
Dutch	1	0.1
Somali	3	0.2
Bosnian	1	0.1
Marathi	1	0.1
Polish	2	0.1
Khmer	1	0.1
Italian	8	0.5
Romanian	1	0.1
Non-response	1	0.1

Table L.7a

Bullying Principal Components Analysis Correlation Matrix (n = 1,543)

Item	1	2	3	4	5	6	7	8	9	10	11	12	13
1 hit	–	.28	.30	.53	.21	.68	.33	.53	.54	.32	.52	.32	.31
2 prank phone call (log10)		–	.25	.33	.25	.31	.25	.30	.41	.30	.28	.37	.28
3 shut out of the group (log10)			–	.44	.35	.34	.54	.48	.38	.45	.39	.31	.38
4 yell				–	.26	.48	.47	.60	.48	.38	.46	.32	.36
5 friends with other as revenge (inverse)					–	.27	.34	.26	.31	.37	.29	.35	.32
6 kick (log10)						–	.38	.52	.60	.36	.50	.35	.37
7 ignore							–	.53	.38	.37	.34	.30	.38
8 insult								–	.53	.46	.51	.37	.40
9 trip (log10)									–	.42	.52	.39	.38
10 bad stories (inverse)										–	.46	.37	.40
11 threaten to hurt (inverse)											–	.41	.40
12 nasty electronic messages (inverse)												–	.34
13 plan secretly to bother (inverse)													–

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Table L.7b

Bullying Principal Components Analysis Correlation Matrix (n = 1,543) (cont.)

Item	1	2	3	4	5	6	7	8	9	10	11	12	13
14 shove	.62	.31	.41	.54	.21	.59	.40	.60	.60	.39	.57	.37	.42
15 talk behind back	.25	.25	.46	.36	.33	.26	.47	.45	.30	.46	.33	.30	.40
16 call names	.51	.30	.43	.54	.24	.46	.44	.68	.50	.42	.51	.39	.41
17 say "let's not be with..." (log10)	.29	.30	.49	.35	.44	.33	.44	.38	.39	.46	.36	.38	.45
18 take things (log10)	.45	.30	.34	.40	.23	.43	.29	.45	.45	.39	.44	.33	.37
19 tell secrets (log10)	.23	.27	.38	.30	.33	.26	.35	.30	.27	.40	.29	.32	.33
20 tease	.51	.28	.46	.49	.22	.50	.41	.65	.50	.44	.51	.38	.43
21 write criticising notes (inverse)	.26	.32	.35	.34	.36	.29	.38	.37	.38	.39	.34	.41	.38
22 push (inverse)	.48	.30	.34	.43	.22	.53	.29	.45	.55	.38	.54	.38	.32
23 criticise clothes, hair (log10)	.29	.29	.40	.34	.26	.28	.36	.42	.34	.40	.37	.34	.38
24 grab (log10)	.52	.30	.36	.44	.27	.54	.31	.49	.53	.40	.56	.43	.41
25 dirty looks, daggers	.29	.28	.34	.39	.29	.31	.43	.37	.33	.33	.39	.36	.36
26 get others to dislike (inverse)	.26	.23	.41	.28	.43	.28	.41	.35	.33	.44	.38	.37	.44

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Table L.7c

Bullying Principal Components Analysis Correlation Matrix (n = 1,543) (cont.)

Item	14	15	16	17	18	19	20	21	22	23	24	25	26
1 hit	.62	.25	.51	.29	.45	.23	.51	.26	.48	.29	.52	.29	.26
2 prank phone call (log10)	.31	.25	.30	.30	.30	.27	.28	.32	.30	.29	.30	.28	.23
3 shut out of the group (log10)	.41	.46	.43	.49	.34	.38	.46	.35	.34	.40	.36	.34	.41
4 yell	.54	.36	.54	.35	.40	.30	.49	.34	.43	.34	.44	.39	.28
5 friends with other as revenge (inverse)	.21	.33	.24	.44	.23	.33	.22	.36	.22	.26	.27	.29	.43
6 kick (log10)	.59	.26	.46	.33	.43	.26	.50	.29	.53	.28	.54	.31	.28
7 ignore	.40	.47	.44	.44	.29	.35	.41	.38	.29	.36	.31	.43	.41
8 insult	.60	.45	.68	.38	.45	.30	.65	.37	.45	.42	.49	.37	.35
9 trip (log10)	.60	.30	.50	.39	.45	.27	.50	.38	.55	.34	.53	.33	.33
10 bad stories (inverse)	.39	.46	.42	.46	.39	.40	.44	.39	.38	.40	.40	.33	.44
11 threaten to hurt (inverse)	.57	.33	.51	.36	.44	.29	.51	.34	.54	.37	.56	.39	.38
12 nasty electronic messages (inverse)	.37	.30	.39	.38	.33	.32	.38	.41	.38	.34	.43	.36	.37
13 plan secretly to bother (inverse)	.42	.40	.41	.45	.37	.33	.43	.38	.32	.38	.41	.36	.44

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Table L.7d

Bullying Principal Components Analysis Correlation Matrix (n = 1,543) (cont.)

Item	14	15	16	17	18	19	20	21	22	23	24	25	26
14 shove	–	.34	.61	.37	.47	.28	.62	.33	.60	.39	.61	.37	.34
15 talk behind back		–	.50	.50	.34	.47	.43	.42	.22	.42	.28	.45	.46
16 call names			–	.42	.48	.32	.68	.37	.44	.46	.49	.41	.36
17 say “let’s not be with...” (log10)				–	.37	.46	.41	.47	.35	.40	.36	.36	.58
18 take things (log10)					–	.36	.49	.35	.46	.34	.50	.29	.33
19 tell secrets (log10)						–	.33	.42	.26	.38	.29	.36	.42
20 tease							–	.37	.48	.47	.54	.39	.38
21 write criticising notes (inverse)								–	.33	-.42	.38	.41	.44
22 push (inverse)									–	-.34	.63	.26	.34
23 criticise clothes, hair (log10)										–	.41	.42	.40
24 grab (log10)											–	.37	.37
25 dirty looks, daggers												–	.42
26 get others to dislike (inverse)													–

Table L.8

Bullying Principal Components Analysis Results and DIAS Subscales

Item	Component			DIAS subscale
	1	2	3	
22 push (inverse)	.82			P
1 hit	.80			P
6 kick (log10)	.80			P
24 grab (log10)	.76			P
14 shove	.76			P
9 trip (log10)	.73			P
11 threaten to hurt (inverse)	.63			V
18 take things (log10)	.52			P
5 friends with other as revenge (inverse)		.71		I
26 get others to dislike (inverse)		.65		I
21 write criticising notes (inverse)		.62		I
17 say "let's not be with..." (log10)		.61		I
19 tell secrets (log10)		.57		I
12 nasty electronic messages (inverse)	.38	.55		I
2 prank phone call (log10)	.37	.44		I
10 bad stories (inverse)		.41		I
13 plan secretly to bother (inverse)		.36		I
15 talk behind back		.31	.73	I
7 ignore			.73	I
8 insult	.40		.63	V
3 shut out of the group (log10)			.62	I
16 call names	.37		.61	V
20 tease	.45		.50	V
4 yell	.41		.48	V
25 dirty looks, daggers		.31	.41	I
23 criticise clothes, hair (log10)		.31	.38	I

Note. Loadings less than .30 suppressed. DIAS = Direct and Indirect Aggression Scales, P = Physical, V = Verbal, I = Indirect.

Table L.9a

Victimisation Principal Components Analysis Correlation Matrix (n = 1,542)

Item	1	2	3	4	5	6	7	8	9	10	11	12	13
1 hit	–	.20	.32	.48	.24	.62	.32	.50	.49	.35	.51	.29	.35
2 prank phone call (log10)		–	.23	.27	.30	.24	.26	.21	.27	.30	.25	.36	.29
3 shut out of the group (log10)			–	.44	.47	.34	.59	.46	.33	.46	.34	.31	.46
4 yell				–	.39	.50	.51	.53	.44	.46	.49	.31	.44
5 friends with other as revenge (log10)					–	.32	.49	.36	.30	.46	.33	.41	.49
6 kick (log10)						–	.42	.49	.59	.39	.55	.35	.40
7 ignore							–	.59	.40	.53	.39	.34	.49
8 insult								–	.47	.51	.49	.32	.49
9 trip (log10)									–	.43	.53	.37	.39
10 bad stories										–	.52	.39	.53
11 threaten to hurt (log10)											–	.41	.49
12 nasty electronic messages (inverse)												–	.44
13 plan secretly to bother (log10)													–

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Table L.9b

Victimisation Principal Components Analysis Correlation Matrix (n = 1,542) (cont.)

Item	1	2	3	4	5	6	7	8	9	10	11	12	13
14 shove	.58	.23	.36	.52	.32	.57	.44	.58	.55	.48	.59	.35	.48
15 talk behind back	.32	.27	.50	.47	.50	.38	.61	.56	.36	.66	.45	.36	.55
16 call names	.48	.23	.43	.53	.35	.46	.53	.68	.44	.53	.53	.31	.51
17 say "let's not be with..." (log10)	.31	.24	.56	.40	.53	.38	.55	.48	.38	.51	.43	.41	.57
18 take things	.47	.25	.35	.41	.31	.46	.42	.43	.45	.43	.47	.31	.42
19 tell secrets (log10)	.27	.27	.35	.36	.41	.30	.45	.38	.34	.48	.35	.37	.42
20 tease	.45	.19	.44	.48	.35	.46	.51	.67	.44	.48	.49	.30	.49
21 write criticising notes (inverse)	.31	.29	.43	.37	.46	.35	.46	.40	.39	.46	.38	.45	.49
22 push (inverse)	.48	.21	.28	.38	.28	.54	.34	.39	.55	.38	.50	.35	.36
23 criticise clothes, hair (log10)	.35	.20	.36	.36	.33	.39	.45	.48	.37	.43	.42	.29	.42
24 grab (log10)	.53	.23	.32	.43	.33	.56	.35	.46	.56	.42	.56	.36	.41
25 dirty looks, daggers	.25	.30	.36	.40	.45	.30	.51	.43	.27	.52	.38	.38	.48
26 get others to dislike (log10)	.25	.25	.48	.40	.49	.34	.53	.47	.32	.53	.42	.35	.55

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Table L.9c

Victimisation Principal Components Analysis Correlation Matrix (n = 1,542) (cont.)

Item	14	15	16	17	18	19	20	21	22	23	24	25	26
1 hit	.58	.32	.48	.31	.47	.27	.45	.31	-.48	.35	.53	.25	.25
2 prank phone call (log10)	.23	.27	.23	.24	.25	.27	.19	.29	-.21	.20	.23	.30	.25
3 shut out of the group (log10)	.36	.50	.43	.56	.35	.35	.44	.43	-.28	.36	.32	.36	.48
4 yell	.52	.47	.53	.40	.41	.36	.48	.37	-.38	.36	.43	.40	.40
5 friends with other as revenge (log10)	.32	.50	.35	.53	.31	.41	.35	.46	-.28	.33	.33	.45	.49
6 kick (log10)	.57	.38	.46	.38	.46	.30	.46	.35	-.54	.39	.56	.30	.34
7 ignore	.44	.61	.53	.55	.42	.45	.51	.46	-.34	.45	.35	.51	.53
8 insult	.58	.56	.68	.48	.43	.38	.67	.40	-.39	.48	.46	.43	.47
9 trip (log10)	.55	.36	.44	.38	.45	.34	.44	.39	-.55	.37	.56	.27	.32
10 bad stories	.48	.66	.53	.51	.43	.48	.48	.46	-.38	.43	.42	.52	.53
11 threaten to hurt (log10)	.59	.45	.53	.43	.47	.35	.49	.38	-.50	.42	.56	.38	.42
12 nasty electronic messages (inverse)	.35	.36	.31	.41	.31	.37	.30	.45	.35	.29	.36	.38	.35
13 plan secretly to bother (log10)	.48	.55	.51	.57	.42	.42	.49	.49	-.36	.42	.41	.48	.55

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Table L.9d

Victimisation Principal Components Analysis Correlation Matrix (n = 1,542) (cont.)

Item	14	15	16	17	18	19	20	21	22	23	24	25	26
14 shove	–	.46	.58	.43	.48	.32	.58	.38	.53	.43	.60	.38	.38
15 talk behind back		–	.64	.59	.40	.53	.57	.48	.32	.48	.36	.58	.64
16 call names			–	.49	.45	.37	.70	.40	.40	.50	.45	.45	.50
17 say “let’s not be with...” (log10)				–	.42	.46	.50	.55	.40	.44	.42	.49	.62
18 take things					–	.40	.47	.40	.44	.40	.47	.35	.34
19 tell secrets (log10)						–	.37	.44	.29	.38	.34	.46	.47
20 tease							–	.43	.43	.50	.47	.40	.48
21 write criticising notes (inverse)								–	.42	.43	.41	.44	.49
22 push (inverse)									–	.39	.63	.26	.32
23 criticise clothes, hair (log10)										–	.43	.45	.46
24 grab (log10)											–	.34	.36
25 dirty looks, daggers												–	.61
26 get others to dislike (log10)													–

Table L.10

Victimisation Principal Components Analysis Results and DIAS Subscales (n = 1,542)

Item	Component			DIAS subscale
	1	2	3	
15 talk behind back	.90			I
26 get others to dislike (log10)	.82			I
7 ignore	.78			I
25 dirty looks, daggers	.71			I
16 call names	.69	.31		V
3 shut out of the group (log10)	.69			I
17 say "let's not be with..." (log10)	.66			I
8 insult	.64	.34		V
20 tease	.63	.34		V
10 bad stories	.61			I
13 plan secretly to bother (log10)	.56			I
5 friends with other as revenge (log10)	.53		.42	I
23 criticise clothes, hair (log10)	.51			I
19 tell secrets (log10)	.49		.33	I
1 hit		.84		P
6 kick (log10)		.81		P
22 push (inverse)		.79		P
24 grab (log10)		.79		P
9 trip (log10)		.77		P
14 shove		.71		P
11 threaten to hurt (log10)		.64		V
18 take things		.50		P
4 yell	.40	.34		V
12 nasty electronic messages (inverse)			.63	I
2 prank phone call (log10)			.61	I
21 write criticising notes (inverse)	.38		.43	I

Note. Loadings less than .30 suppressed. DIAS = Direct and Indirect Aggression Scales, P = Physical, V = Verbal, I = Indirect.

Table L.11

Personal Self-Esteem Principal Components Analysis Correlation Matrix (n = 1,596)

Item	1	2	3	4	5	6	7	8	9	10
1 am satisfied with self	–	.28	.53	.39	.37	.35	.46	.31	.39	.60
2 *think I am no good at all		–	.27	.17	.47	.61	.21	.43	.46	.36
3 have a number of good qualities (sqrroot)			–	.53	.40	.31	.50	.20	.35	.55
4 able to do as well as most others				–	.28	.23	.45	.13	.30	.46
5 *do not have much to be proud of					–	.54	.30	.39	.55	.43
6 *feel useless at times						–	.25	.49	.54	.42
7 a person of worth, equal with others							–	.18	.29	.50
8 *wish more respect for self								–	.43	.33
9 *inclined to feel a failure									–	.46
10 take a positive attitude towards self										–

Note. * = reverse-coded items. sqrroot = square root.

Table L.12

Collective Self-Esteem Principal Components Analysis Correlation Matrix (n = 1,566)

Item	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 worthy member of group (log10)	.34	.28	.02	.44	.43	.11	.31	.48	.31	.30	.15	.48	.47	.24	.20
2 *regret that I belong to group	–	.25	.10	.37	.51	.20	.27	.34	.56	.26	.22	.47	.49	.29	.19
3 group considered good by others		–	.01	.23	.39	.21	.26	.35	.28	.54	.16	.25	.41	.42	.23
4 *group membership has little to do with how feel about self			–	.15	.06	.11	.15	.03	.15	.01	.28	.07	.05	.09	.13
5 *don't have much to offer group				–	.35	.19	.21	.40	.41	.25	.19	.57	.39	.31	.13
6 glad to be a member of the group					–	.15	.40	.44	.50	.39	.21	.41	.64	.31	.29
7 *other people consider group ineffective						–	.04	.11	.23	.21	.16	.18	.12	.32	.08
8 group is important reflection of self							–	.38	.30	.25	.37	.23	.43	.15	.51
9 cooperative participant of group (log10)								–	.36	.37	.14	.43	.52	.29	.25
10 *feel group is not worthwhile									–	.28	.27	.44	.49	.37	.17
11 others respect group										–	.14	.27	.42	.46	.23
12 *group is unimportant to sense of kind of person											–	.17	.24	.19	.34
13 *feel useless member of group												–	.50	.33	.16
14 feel good about the group (log10)													–	.34	.29
15 *others think that the group is unworthy														–	.16
16 belonging to group is important to self image															–

Note. * = reverse-coded items.

Table L.13

Collective Self-Esteem Principal Components Analysis Results (n = 1,566)

Item	Component				CSES subscale
	1	2	3	4	
* 13 a useless member of group	.89				Me
* 5 don't have much to offer the group	.82				Me
* 2 often regret that belong to group	.73				Pr
1 a worthy member of the group (log10)	.69				Me
* 10 feel the group is not worthwhile	.66				Pr
14 feel good about the group (log10)	.60				Pr
9 a cooperative participant in group (log10)	.55				Me
6 glad to be a member of the group (log10)	.54				Pr
11 others respect the group		.78			Pu
3 group is considered good by others		.78			Pu
* 15 others think the group is unworthy		.74			Pu
* 7 others consider group to be ineffective		.60		.41	Pu
16 belonging to group is important to self image			.84		Id
8 group is important reflection of self			.82		Id
* 4 group membership little to do with feel about self				.76	Id
* 12 group is unimportant to sense of self			.57	.62	Id

Note. CSES = Collective Self-esteem Scale. * = reverse-coded items. Me = Membership, Pr = Private, Pu = Public, Id = Identity. Loadings less than .30 suppressed.

Table L.14a

Narcissism Principal Components Analysis Correlation Matrix (n = 1,353)

Item	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 I have a natural talent for influencing people	.00	.13	.12	.04	.13	.16	.08	.04	.29	.22	.14	.15	-.02	.15	.17	.05	.09	.14	.14
2 Modesty doesn't suit me	–	.10	.03	.02	.10	.07	-.02	.05	-.05	.01	.07	.00	.06	-.01	-.05	-.04	-.03	.00	.10
3 I would do almost anything on a dare		–	.09	.11	.17	.22	-.07	.01	.09	.18	.10	.09	.05	.26	.03	.03	.08	.14	.18
4 I know I am good because everybody keeps telling me			–	.14	.03	.06	.07	.08	.04	.16	.11	.10	.05	.13	.07	.02	.04	.12	.17
5 If I ruled the world it would be a better place				–	.12	.07	.09	.13	.16	.08	.17	.18	.08	.07	.06	.07	.11	.09	.11
6 I can usually talk my way out of anything					–	.19	.00	.07	.11	.08	.19	.24	.09	.13	.12	-.04	.11	.05	.15
7 I like to be the centre of attention						–	.04	.16	.23	.16	.17	.11	.03	.18	.12	.04	.20	.14	.25
8 I will be a success							–	.10	.14	.10	.07	.07	.01	.06	.06	.06	.15	.09	.02
9 I think I am a special person								–	.12	.07	.15	.11	.10	.08	.11	.03	.15	.21	.14
10 I see myself as a good leader									–	.29	.17	.18	.00	.09	.15	.16	.12	.11	.12
11 I am confident										–	.09	.13	-.03	.12	.10	.12	.06	.10	.13
12 I like having authority over other people											–	.26	.14	.15	.13	.03	.16	.12	.13
13 I find it easy to control other people												–	.04	.12	.13	.04	.09	.13	.18
14 I insist upon getting the respect that is due to me													–	.08	.06	-.03	.06	.07	.07
15 I like to show off my body														–	.10	.04	.12	.42	.23
16 I can read people like a book															–	.06	.14	.12	.12
17 I like to take responsibility for making decisions																–	.04	.05	.03
18 I want to amount to something in the eyes of the world																	–	.12	.12
19 I like to look at my body																		–	.18
20 I will usually show off if I get the chance																			–

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Table L.14b

Narcissism Principal Components Analysis Correlation Matrix (n = 1,353) (cont.)

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21 I always know what I am doing	.04	-.01	-.08	.11	.05	-.01	.00	.14	.06	.08	.18	.06	.07	.03	.05	.16	.09	.06	.10	.03
22 I rarely depend on anyone else to get things done	.00	-.06	-.06	.00	.02	-.10	-.01	.09	-.03	.06	.07	-.08	-.04	-.06	-.04	.02	.09	.03	.00	-.10
23 Everybody likes to hear my stories	.17	.06	.14	.14	.11	.15	.20	.06	.12	.17	.12	.09	.07	.03	.16	.14	.09	.12	.14	.14
24 I expect a great deal from other people	.00	.09	.06	.11	.11	.10	.04	.02	.10	-.01	.03	.19	.14	.17	.08	.06	-.02	.05	.06	.14
25 I will never be satisfied until I get all that I deserve	.07	.08	.09	.10	.14	.17	.09	.02	.11	.08	.04	.21	.15	.23	.05	.09	-.02	.14	.05	.13
26 I like to be complimented	.10	-.01	.03	.24	.15	.01	.12	.08	.14	.17	.18	.11	.09	-.02	.13	.05	.04	.06	.15	.13
27 I have a strong desire to be in charge	.18	.06	.10	.04	.19	.16	.27	.14	.16	.36	.15	.37	.34	.12	.15	.13	.10	.21	.17	.19
28 I like to start new fads and fashions	.13	.01	.16	.03	.07	.09	.19	.04	.08	.13	.08	.13	.06	.04	.21	.06	.00	.07	.16	.14
29 I like to look at myself in the mirror	.14	.01	.09	.05	.07	.08	.18	.11	.18	.14	.08	.12	.05	.05	.31	.08	.03	.11	.43	.17
30 I really like to be the centre of attention	.21	.06	.22	.18	.16	.18	.55	.07	.16	.29	.24	.19	.20	.05	.19	.13	.04	.17	.17	.33
31 I can live my life in any way I want to	.08	-.04	.09	.13	.12	.13	.06	.12	.10	.10	.13	.09	.12	.06	.09	.14	.09	.08	.10	.12
32 People always seem to recognise my authority	.19	-.01	.09	.14	.18	.13	.21	.11	.16	.27	.19	.18	.25	.07	.11	.14	.11	.15	.14	.17
33 I would prefer to be a leader	.18	.02	.13	.08	.19	.13	.27	.11	.18	.47	.19	.34	.27	.07	.11	.12	.11	.20	.13	.17
34 I am going to be a great person	.07	-.04	.00	.12	.15	.04	.09	.24	.22	.21	.16	.07	.10	.03	.07	.11	.07	.15	.13	.07
35 I can make anyone believe anything I want them to	.17	.01	.09	.11	.07	.25	.17	.05	.13	.13	.08	.16	.19	.02	.15	.26	.06	.15	.15	.13
36 I am a born leader	.22	.02	.13	.13	.19	.16	.27	.13	.19	.39	.26	.24	.24	.06	.16	.15	.11	.20	.20	.20
37 I wish someone would some day write my biography	.08	-.01	.07	.07	.09	.01	.15	.09	.14	.09	.07	.07	.07	.03	.08	.05	-.06	.18	.14	.11
38 I get upset when people don't notice how I look	.06	.02	.14	.05	.05	.12	.24	.04	.15	.10	.05	.19	.09	.15	.18	.09	.03	.14	.23	.16
39 I am more capable than other people	.09	.00	.04	.11	.12	.06	.07	.12	.20	.16	.11	.15	.16	.12	.11	.14	.02	.10	.18	.11
40 I am an extraordinary person	.10	.08	.09	.14	.13	.09	.25	.11	.40	.20	.11	.17	.10	.09	.15	.16	.09	.23	.23	.18

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Table L.14c

Narcissism Principal Components Analysis Correlation Matrix (n = 1,353) (cont.)

Item	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1 I have a natural talent for influencing people	.04	.00	.17	.00	.07	.10	.18	.13	.14	.21	.08	.19	.18	.07	.17	.22	.08	.06	.09	.10
2 Modesty doesn't suit me	-.01	-.06	.06	.09	.08	-.01	.06	.01	.01	.06	-.04	-.01	.02	-.04	.01	.02	-.01	.02	.00	.08
3 I would do almost anything on a dare	-.08	-.06	.14	.06	.09	.03	.10	.16	.09	.22	.09	.09	.13	.00	.09	.13	.07	.14	.04	.09
4 I know I'm good because everybody keeps telling me	.11	.00	.14	.11	.10	.24	.04	.03	.05	.18	.13	.14	.08	.12	.11	.13	.07	.05	.11	.14
5 If I ruled the world it would be a better place	.05	.02	.11	.11	.14	.15	.19	.07	.07	.16	.12	.18	.19	.15	.07	.19	.09	.05	.12	.13
6 I can usually talk my way out of anything	-.01	-.10	.15	.10	.17	.01	.16	.09	.08	.18	.13	.13	.13	.04	.25	.16	.01	.12	.06	.09
7 I like to be the centre of attention	.00	-.01	.20	.04	.09	.12	.27	.19	.18	.55	.06	.21	.27	.09	.17	.27	.15	.24	.07	.25
8 I will be a success	.14	.09	.06	.02	.02	.08	.14	.04	.11	.07	.12	.11	.11	.24	.05	.13	.09	.04	.12	.11
9 I think I am a special person	.06	-.03	.12	.10	.11	.14	.16	.08	.18	.16	.10	.16	.18	.22	.13	.19	.14	.15	.20	.40
10 I see myself as a good leader	.08	.06	.17	-.01	.08	.17	.36	.13	.14	.29	.10	.27	.47	.21	.13	.39	.09	.10	.16	.20
11 I am confident	.18	.07	.12	.03	.04	.18	.15	.08	.08	.24	.13	.19	.19	.16	.08	.26	.07	.05	.11	.11
12 I like having authority over other people	.06	-.08	.09	.19	.21	.11	.37	.13	.12	.19	.09	.18	.34	.07	.16	.24	.07	.19	.15	.17
13 I find it easy to control other people	.07	-.04	.07	.14	.15	.09	.34	.06	.05	.20	.12	.25	.27	.10	.19	.24	.07	.09	.16	.10
14 I insist upon getting the respect that is due to me	.03	-.06	.03	.17	.23	-.02	.12	.04	.05	.05	.06	.07	.07	.03	.02	.06	.03	.15	.12	.09
15 I like to show off my body	.05	-.04	.16	.08	.05	.13	.15	.21	.31	.19	.09	.11	.11	.07	.15	.16	.08	.18	.11	.15
16 I can read people like a book	.16	.02	.14	.06	.09	.05	.13	.06	.08	.13	.14	.14	.12	.11	.26	.15	.05	.09	.14	.16
17 I like to take responsibility for making decisions	.09	.09	.09	-.02	-.02	.04	.10	.00	.03	.04	.09	.11	.11	.07	.06	.11	-.06	.03	.02	.09
18 I want to amount to something in eyes of the world	.06	.03	.12	.05	.14	.06	.21	.07	.11	.17	.08	.15	.20	.15	.15	.20	.18	.14	.10	.23
19 I like to look at my body	.10	.00	.14	.06	.05	.15	.17	.16	.43	.17	.10	.14	.13	.13	.15	.20	.14	.23	.18	.23
20 I will usually show off if I get the chance	.03	-.10	.14	.14	.13	.13	.19	.14	.17	.33	.12	.17	.17	.07	.13	.20	.11	.16	.11	.18

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Table L.14d

Narcissism Principal Components Analysis Correlation Matrix (n = 1,353) (cont.)

Item	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
21 I always know what I am doing	–	.18	.06	.01	.05	.10	.04	.03	.05	.01	.14	.07	.07	.17	.15	.12	.01	.04	.15	.12
22 I rarely depend on anyone else to get things done		–	.02	-.11	-.06	-.03	-.02	-.02	.00	-.03	-.02	-.01	.01	.04	.01	.02	-.02	-.08	.07	.01
23 Everybody likes to hear my stories			–	.05	.09	.11	.16	.13	.13	.22	.11	.16	.15	.15	.19	.15	.08	.13	.06	.16
24 I expect a great deal from other people				–	.21	.02	.11	-.01	.03	.08	.08	.09	.09	.05	.05	.05	.01	.12	.15	.08
25 I will never be satisfied until I get all that I deserve					–	.00	.28	.10	.06	.12	.14	.13	.19	.07	.11	.15	.09	.17	.14	.09
26 I like to be complimented						–	.08	.11	.15	.22	.05	.11	.10	.12	.05	.11	.07	.05	.07	.13
27 I have a strong desire to be in charge							–	.11	.18	.32	.06	.30	.52	.14	.12	.38	.14	.20	.14	.16
28 I like to start new fads and fashions								–	.27	.22	.05	.13	.15	.07	.08	.11	.10	.23	.03	.10
29 I like to look at myself in the mirror									–	.21	.03	.13	.13	.11	.06	.14	.13	.19	.12	.17
30 I really like to be the centre of attention										–	.10	.25	.30	.11	.12	.31	.19	.19	.09	.22
31 I can live my life in any way I want to											–	.11	.11	.16	.13	.13	.03	.07	.12	.12
32 People always seem to recognise my authority												–	.30	.14	.16	.30	.13	.17	.15	.15
33 I would prefer to be a leader													–	.18	.15	.39	.15	.13	.14	.22
34 I am going to be a great person														–	.14	.21	.10	.09	.14	.21
35 I can make anyone believe anything I want them to															–	.22	.02	.17	.10	.18
36 I am a born leader																–	.16	.15	.28	.23
37 I wish someone would some day write my biography																	–	.15	.08	.13
38 I get upset when people don't notice how I look																		–	.10	.20
39 I am more capable than other people																			–	.16
40 I am an extraordinary person																				–

Table L.15a

Narcissism Principal Components Analysis Results: 2 & 4 Components (n = 1,353)

Item	Two component		Four component			
	1	2	1	2	3	4
1 I have a natural talent for influencing people	.34		.40			
2 Modesty doesn't suit me	-.24	.34				.28
3 I would do almost anything on a dare		.51		.39	-.25	
4 I know I am good because everybody keeps telling me	.27				.26	
5 If I ruled the world it would be a better place	.29		.22		.22	
6 I can usually talk my way out of anything		.46	.21			.39
7 I like to be the centre of attention		.45	.39	.42	-.21	
8 I will be a success	.51	-.26			.43	
9 I think I am a special person	.34			.24	.43	
10 I see myself as a good leader	.64		.74			-.25
11 I am confident	.50		.45			-.27
12 I like having authority over other people	.20	.35	.34			.38
13 I find it easy to control other people	.28	.22	.40			.26
14 I insist upon getting the respect that is due to me		.37				.52
15 I like to show off my body		.43		.63		
16 I can read people like a book	.36				.30	
17 I like to take responsibility for making decisions	.36	-.23	.21			-.22
18 I want to amount to something in the eyes of the world	.29				.22	
19 I like to look at my body	.24	.28		.64	.29	
20 I will usually show off if I get the chance		.49				

Note. Loadings less than .20 suppressed.

(continued on next page)

Table L.15b

Narcissism Principal Components Analysis Results: 2 & 4 Components (n = 1,353)
(cont.)

Item	Two component		Four component			
	1	2	1	2	3	4
21 I always know what I am doing	.52	-.37			.54	
22 I rarely depend on anyone else to get things done	.39	-.49			.27	-.39
23 Everybody likes to hear my stories	.26	.21		.29		
24 I expect a great deal from other people		.37				.55
25 I will never be satisfied until I get all that I deserve		.39				.54
26 I like to be complimented	.32			.32		-.21
27 I have a strong desire to be in charge	.40	.30	.63			
28 I like to start new fads and fashions		.33		.48		
29 I like to look at myself in the mirror		.30		.66		
30 I really like to be the centre of attention	.25	.45	.49	.38		
31 I can live my life in any way I want to	.29				.35	
32 People always seem to recognise my authority	.45		.48			
33 I would prefer to be a leader	.49		.72			
34 I am going to be a great person	.58				.49	
35 I can make anyone believe anything I want them to	.29				.23	
36 I am a born leader	.56		.58			
37 I wish someone would some day write my biography				.25		
38 I get upset when people don't notice how I look		.50		.40		.27
39 I am more capable than other people	.39				.46	
40 I am an extraordinary person	.38			.33	.38	

Note. Loadings less than .20 suppressed.

Table L.16a

Narcissism Principal Components Analysis Results: 7 Components (n = 1,353)

Item	Component						
	1	2	3	5	5	6	7
1 I have a natural talent for influencing people	.32		-.22		.25		
2 Modesty doesn't suit me						.45	
3 I would do almost anything on a dare						.42	
4 I know I am good because everybody keeps telling me							.72
5 If I ruled the world it would be a better place	.24			.24			.27
6 I can usually talk my way out of anything				.20	.48	.30	
7 I like to be the centre of attention			.33	-.23		.42	
8 I will be a success	.21		.27			-.39	
9 I think I am a special person			.59				
10 I see myself as a good leader	.76						
11 I am confident	.31						.44
12 I like having authority over other people	.46			.40			
13 I find it easy to control other people	.47		-.20	.31			
14 I insist upon getting the respect that is due to me				.52			
15 I like to show off my body		.70					
16 I can read people like a book					.60	-.20	
17 I like to take responsibility for making decisions	.24					-.30	
18 I want to amount to something in the eyes of the world			.50				-.25
19 I like to look at my body		.76					
20 I will usually show off if I get the chance						.39	.25

Note. Loadings less than .20 suppressed.

(continued on next page)

Table L.16b

Narcissism Principal Components Analysis Results: 7 Components (n = 1,353) (cont.)

Item	Component						
	1	2	3	4	5	6	7
21 I always know what I am doing					.40	-.44	
22 I rarely depend on anyone else to get things done				-.30	.23	-.50	
23 Everybody likes to hear my stories					.33		
24 I expect a great deal from other people				.60			
25 I will never be satisfied until I get all that I deserve				.50			
26 I like to be complimented					-.26		.61
27 I have a strong desire to be in charge	.79			.23			
28 I like to start new fads and fashions		.47					
29 I like to look at myself in the mirror		.75					
30 I really like to be the centre of attention	.33					.43	.21
31 I can live my life in any way I want to					.38		.20
32 People always seem to recognise my authority	.52						
33 I would prefer to be a leader	.81						
34 I am going to be a great person			.46			-.22	.22
35 I can make anyone believe anything I want them to					.75		
36 I am a born leader	.60						
37 I wish someone would some day write my biography			.41				
38 I get upset when people don't notice how I look		.33	.25				-.23
39 I am more capable than other people				.32		-.26	
40 I am an extraordinary person			.63				

Note. Loadings less than .20 suppressed.

Table L.17

Impression Management Principal Components Analysis Correlation Matrix (n = 1,619)

Item	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 *sometimes tell lies	.14	.32	.21	.29	.13	.27	.19	.24	.25	.11	.28	.15	.27	.06	.22	.12
2 never cover up mistakes	–	.05	.10	.09	.19	.00	.19	.06	.03	.04	.06	.12	.11	.11	.01	.14
3 *have been occasions when taken advantage of someone		–	.15	.30	.10	.26	.17	.19	.24	.09	.25	.16	.16	.09	.25	.09
4 never swear			–	.11	.24	.10	.20	.15	.10	.30	.16	.18	.18	.13	.12	.17
5 *sometimes try to get even rather than forgive and forget				–	.10	.18	.16	.24	.21	.10	.22	.13	.20	.04	.18	.10
6 always obey laws, even if unlikely to get caught					–	.03	.18	.14	.18	.20	.08	.30	.22	.23	.10	.17
7 *said something bad about a friend behind his or her back						–	.15	.23	.18	.09	.25	.06	.18	.03	.25	.23
8 when hear people talking privately, avoid listening							–	.12	.06	.16	.07	.23	.14	.17	.05	.27
9 *have received too much change from a salesperson								–	.19	.14	.19	.11	.23	.09	.16	.14
10 *when younger sometimes stole things									–	.13	.22	.23	.18	.07	.18	.08
11 have never dropped litter on the street										–	.08	.26	.12	.23	.08	.15
12 *have done things that don't tell other people about											–	-.01	.22	-.03	.31	.01
13 never take things that don't belong												–	.11	.30	.10	.26
14 *have taken sick-leave from school even though not sick													–	.10	.23	.14
15 have never damaged a library book without reporting it														–	.00	.26
16 *have some pretty awful habits															–	.09
17 don't gossip about other people's business																–

Note. * = reverse-coded items.

Table L.18

Main Study two-way Interaction Between Personal Self-Esteem and Narcissism on Total Bullying (Log10), for Females

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.47	.47 ^{***}
Victimisation	0.36	0.03	.40		
Age	0.00	0.00	.02		
Impression Management	-0.01	0.00	-.39		
Step 2				.35	.01
Personal SE	0.00	0.00	-.03		
Step 3				.36	.01 ^{**}
Narcissism	0.00	0.00	.10		
Step 4				.36	.00
Personal SE X Narcissism	0.00	0.00	-.04		

Note. SE = Self-Esteem.

^{**} $p < .01$, ^{***} $p < .001$.

Table L.19

Main Study two-way Interaction Between Personal Self-Esteem and Narcissism on Total Bullying (Log10), for Males

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.41	.41 ^{***}
Victimisation	0.34	0.03	.35		
Age	0.00	0.00	.03		
Impression Management	0.00	0.00	-.40		
Step 2				.41	.00
Personal SE	0.00	0.00	-.02		
Step 3				.43	.03 ^{***}
Narcissism	0.00	0.00	.19		
Step 4				.44	.00
Personal SE X Narcissism	0.00	0.00	-.06		

Note. SE = Self-Esteem.

^{***} $p < .001$.

Table L.20

Main Study two-way Interaction Between Personal Self-Esteem and Narcissism on Direct Bullying (Log10), for Females

Variable entered	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1				.40	.40 ^{***}
Victimisation	0.43	0.03	.43		
Age	0.00	0.00	-.01		
Impression Management	0.00	0.00	-.31		
Step 2				.40	.00
Personal SE	0.00	0.00	-.02		
Step 3				.40	.00 [*]
Narcissism	0.00	0.00	.07		
Step 4				.41	.00 [*]
Personal SE X Narcissism	0.00	0.00	-.07		

Note. SE = Self-Esteem.

* $p < .05$, *** $p < .001$.

Table L.21

Main Study two-way Interaction Between Personal Self-Esteem and Narcissism on Direct Bullying (Log10), for Males

Variable entered	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1				.38	.38 ^{***}
Victimisation	0.36	0.03	.34		
Age	0.01	0.00	.06		
Impression Management	0.00	0.00	-.40		
Step 2				.38	.00
Personal SE	0.00	0.00	.01		
Step 3				.40	.02 ^{***}
Narcissism	0.00	0.00	.15		
Step 4				.40	.00
Personal SE X Narcissism	0.00	0.00	-.05		

Note. SE = Self-Esteem.

*** $p < .001$.

Table L.22

Main Study two-way Interaction Between Personal Self-Esteem and Narcissism on Indirect Bullying (Log10), for Females

Variable entered	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1				.42	.42 ^{***}
Victimisation	0.30	0.03	.33		
Age	0.01	0.00	.05		
Impression Management	0.01	0.00	-.41		
Step 2				.42	.00
Personal SE	0.00	0.00	-.04		
Step 3				.43	.01 ^{***}
Narcissism	0.00	0.00	.11		
Step 4				.43	.00
Personal SE X Narcissism	0.00	0.00	-.01		

Note. SE = Self-Esteem.

^{***} $p < .001$.

Table L.23

Main Study two-way Interaction Between Personal Self-Esteem and Narcissism on Indirect Bullying (Log10), for Males

Variable entered	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1				.33	.33 ^{***}
Victimisation	0.00	0.00	.01		
Age	0.00	0.00	.01		
Impression Management	-0.01	0.00	-.56		
Step 2				.33	.00
Personal SE	0.00	0.00	-.07		
Step 3				.36	.03 ^{***}
Narcissism	0.00	0.00	.13		
Step 4				.37	.01 [*]
Personal SE X Narcissism	0.00	0.00	-.04		

Note. SE = Self-Esteem.

^{*} $p < .05$, ^{***} $p < .001$.

Table L.24

Main Study two-way Interaction Between Collective Self-Esteem and Narcissism on Total Bullying (Log10), for Females

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.47	.47 ^{***}
Victimisation	0.37	0.03	.41		
Age	0.00	0.00	.03		
Impression Management	0.00	0.00	-.40		
Step 2				.47	.00
Collective SE	0.00	0.00	.00		
Step 3				.48	.01 ^{**}
Narcissism	0.00	0.00	.10		
Step 4				.48	.00
Collective SE X Narcissism	0.00	0.00	.04		

Note. SE = Self-Esteem.

^{**} $p < .01$, ^{***} $p < .001$.

Table L.25

Main Study two-way Interaction Between Collective Self-Esteem and Narcissism on Total Bullying (Log10), for Males

Variable entered	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.41	.41 ^{***}
Victimisation	0.01	0.00	.04		
Age	0.01	0.00	.04		
Impression Management	-0.01	0.00	-.52		
Step 2				.41	.00
Collective SE	0.00	0.00	.07		
Step 3				.43	.03 ^{***}
Narcissism	0.00	0.00	.18		
Step 4				.43	.00
Collective SE X Narcissism	0.00	0.00	.04		

Note. SE = Self-Esteem.

^{***} $p < .001$.

Table L.26

Main Study two-way Interaction Between Collective Self-Esteem and Narcissism on Direct Bullying (Log10), for Females

Variable entered	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1				.40	.40 ^{***}
Victimisation	0.44	0.04	.44		
Age	0.00	0.00	.00		
Impression Management	0.00	0.00	-.32		
Step 2				.40	.00
Collective SE	0.00	0.00	-.01		
Step 3				.40	.01*
Narcissism	0.00	0.00	.08		
Step 4				.41	.00
Collective SE X Narcissism	0.00	0.00	.05		

Note. SE = Self-Esteem.

* $p < .05$, *** $p < .001$.

Table L.27

Main Study two-way Interaction Between Collective Self-Esteem and Narcissism on Direct Bullying (Log10), for Males

Variable entered	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1				.38	.38 ^{***}
Victimisation	0.36	0.03	.34		
Age	0.01	0.00	.06		
Impression Management	0.00	0.00	-.41		
Step 2				.38	.00
Collective SE	0.00	0.00	-.02		
Step 3				.40	.02 ^{***}
Narcissism	0.00	0.00	.14		
Step 4				.40	.00
Collective SE X Narcissism	0.00	0.00	.03		

Note. SE = Self-Esteem.

*** $p < .001$.

Table L.28

Main Study two-way Interaction Between Collective Self-Esteem and Narcissism on Indirect Bullying (Log10), for Females

Variable entered	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1				.42	.42 ^{***}
Victimisation	0.30	0.03	.33		
Age	0.01	0.00	.05		
Impression Management	0.00	0.00	-.42		
Step 2				.42	.00
Collective SE	0.00	0.00	.02		
Step 3				.43	.01 ^{**}
Narcissism	0.00	0.00	.11		
Step 4				.43	.00
Collective SE X Narcissism	0.00	0.00	.03		

Note. SE = Self-Esteem.

^{**} $p < .01$, ^{***} $p < .001$.

Table L.29

Main Study two-way Interaction Between Collective Self-Esteem and Narcissism on Indirect Bullying (Log10), for Males

Variable entered	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	ΔR^2
Step 1				.33	.33 ^{***}
Victimisation	0.32	0.03	.33		
Age	0.00	0.00	-.01		
Impression Management	0.00	0.00	-.35		
Step 2				.33	.00
Collective SE	0.00	0.00	.04		
Step 3				.36	.03 ^{***}
Narcissism	0.00	0.00	.18		
Step 4				.36	.00
Collective SE X Narcissism	0.00	0.00	.03		

Note. SE = Self-Esteem.

^{***} $p < .001$.

APPENDIX M

Participant Consent Form – Main Study



FLINDERS UNIVERSITY
ADELAIDE • AUSTRALIA

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PARENT/GUARDIAN CONSENT FORM

*Individual and social factors relating to bullying and self-esteem
in South Australian high school students.*

I have read and understood the Information Sheet on the above project and understand that my child is being asked to complete a questionnaire during class time.

I understand that my child may not directly benefit by taking part in this research.

I understand that while information gained in the study may be published, my child will not be identified and all individual information will remain confidential.

I understand that my child can withdraw from the study at any stage up until the end of the collection of data and that my child is free to decline to answer particular questions.

I understand that whether my child participates or not, or withdraws after participating, will have no effect on progress in his/her course of study or results.

I understand that there will be no payment for my child taking part in this study.

I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.

✂-----

I _____ (name) hereby consent to my child's involvement in the research project entitled: *Individual and social factors relating to bullying and self-esteem in South Australian high school students.*

Signed _____ Date ____/____/____

Relationship to child _____

Child's signature _____

Name of child _____

Please return signed consent form to the school by _____

APPENDIX N

Teacher Instruction Sheet



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*Individual and social factors relating to bullying and self-esteem
in South Australian high school students*

TEACHER INSTRUCTIONS

- **June xx consent forms to students**
 - **June xx consent forms collated**
 - **June xx survey administered**
-
- Hand surveys to participating students
 - Arrange a quiet activity for those not participating
 - Instruct students that they
 - will require a pen or pencil
 - will be required to work alone
 - will have the lesson/class to complete the survey
 - should ask the teacher if something is not understood
 - Emphasise that
 - student responses will be totally confidential and anonymous
 - students should not put their name anywhere on the form
 - the school, teachers or other students will not see their responses
 - honest answers are important
 - the research is looking at how students really feel
 - their answers will be very helpful in designing bullying programmes
 - Read through first page with the practice question “*I enjoy playing sport*”
 - Emphasise that
 - students need to read information and each question carefully
 - all students have the same questions, but in differing order
 - some questions may be worded similarly, but they are different
 - most answers require circling the number that best matches how they feel
 - however, one set of questions require an “A” or “B” response
 - students need to choose which of the two is closest to how they feel
 - Collect surveys upon completion and place in envelope provided

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