

# Materialism and Well-Being in Children

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## **Overview**

This thesis aimed to explore two applications of clinical psychology to childhood functioning: the management of aggression within schools and the impact of materialism on childhood adjustment.

Volume 1 comprises three parts. Part 1 is a review of the literature investigating the effectiveness of school-based treatments of aggression aimed at pre-adolescent children. An overview of the research and treatments for childhood aggression was presented and an argument offered as to why school-based treatments for aggression are relevant to the development of the field. The review identified and included only those studies that have applied the best standards of scientific rigour to their investigations, including randomised control protocols, blinding procedures, assessment of treatment fidelity and intention-to-treat analyses. Finally, the review discusses findings from these studies and considered prospects for future research.

Part 2 is an empirical investigation into the relationship between materialism and indicators of well-being and adjustment in children. The study takes into account indicators of positive and negative adjustment, such as self-esteem and aggression, and investigates both independent and interactive effects of materialism on these measures. The research paid particular attention to the interactive effects of narcissism and materialism on measures of adjustment. Finally, the research findings were discussed in relation to previous research in the field and suggestions for future research were offered.

Part 3 is a critical appraisal of the thesis. The appraisal addressed the particular challenges and dilemmas faced during the research process. In addition, an account of the decisions made to resolve these dilemmas were put forward. Finally, the appraisal included personal reflections regarding the research process.

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PART ONE:  
LITERATURE REVIEW

How effective are school-based interventions to reduce  
pre-adolescent childhood aggression?

## **Abstract**

This paper addresses the question of whether school-based interventions to reduce and prevent aggression in pre-adolescent children are effective as a first-line treatment approach. Empirical literature that reports on the effectiveness of social-cognitive problem-solving school-based aggression reduction interventions are reviewed, followed by a review of alternative approaches to aggression reduction. Findings across these studies are discussed within the context of multi-modal approaches for the reduction of childhood aggression, and considered within a developmental psychopathology framework. Methodological limitations of the reviewed literature are assessed, and recommendations for future research considered.

## **Background and Significance**

There is good evidence to suggest that childhood aggression is a significant risk factor for difficulties in later life including delinquency, multiple types of crime, and mental health difficulties (e.g. Lochman and Salekin, 2003; Ostrov, et al. 2009). Indeed, aggression and its correlates are the most frequent cause of referral to mental health services for children. Further, victims of peer aggression are themselves at increased risk of negative outcomes, including psychological and social adjustment difficulties, and early school dropout (e.g. Yoon, Hughes, Cavell, Thompson, 2000).

## **Aggression**

Constructs of childhood aggression have been developed in a number of ways. Two conceptualisations that have facilitated research in this area differentiate between forms and functions of aggression. In terms of *function*, Dodge and Coie (1987) emphasise the distinction between reactive and proactive aggression.



Reactive aggression (RA) refers to aggressive behaviour which is elicited by the perception of frustration, threat or provocation, and is often accompanied by feelings of anger (Barker, Vitaro, Lacourse et al., 2010). Proactive aggression (PA), in contrast, refers to aggression which is enacted in response to the anticipation of reward, and is associated with Social-Learning Theory (Bandura, 1973). PA is therefore seen as a set of acquired behaviours and cognitions resulting from external contingencies. In contrast, two *forms* of aggression have been identified: overt or physical, and relational aggression (e.g. Crick and Grotpeter, 1996). Examples of physical aggression including hitting, name-calling and verbal threats, whereas relational aggression refers to behaviour with the aim to harm peer relationships such as spreading hurtful rumours or excluding another from a peer group. Research has demonstrated that physical aggression is more common in boys and relational aggression more common in girls (Crick and Grotpeter, 1996) and that by accounting for these different forms of aggression, a more nuanced understanding of aggression and its consequences can be obtained. Although the PA/RA and physical/relational aggression constructs have been widely examined, other constructs of aggression are common, and include considerations of correlates of aggressive behaviour such as peer victimisation and rejection (Coie, Dodge and Kupersmidt, 1990). Taken together, these definitions demonstrate that childhood aggression is multifaceted, involving emotional, cognitive, behavioural and social components in complex ways.

### **Risk Factors**

It is acknowledged that aggression is a symptom of numerous diagnostic categories, for example, attention deficit disorder, conduct disorders, post-traumatic stress disorder, mood disorders and others (e.g. Schur, Sikich, Findling et al., 2003). As such, numerous risk factors for the development of aggression have been identified,

associated with various developmental trajectories (e.g. Sroufe, 1997) and the various expressions of aggression (e.g. Ostrov, Massetti, Stauffacher et al., 2009). Biological risk factors have looked at differences in infant temperament as a moderator of a child's capacity to regulate affect and behavioural repertoires (e.g. Blake and Hamrin, 2007). Further, childhood deficits in social-cognition have been associated with the development of aggression, as a consequence of a tendency to perceive neutral stimuli as threatening and hostile, provoking aggressive responses (Lochman and Dodge, 1994).

Environmental influences have also been evidenced as causal agents in the development of childhood aggression. These include authoritarian (i.e. harsh and punitive) parental style, poor parental monitoring of children's behaviour, and reduced time spent with the child (e.g. Thompson, Hollis and Richards, 2003). Other contextual variables correlated with increased risk of the development of childhood aggression include low socio-economic status, poor parental health, and parental criminality (Blake and Hamrin, 2007). Indeed, evidence has implicated the development of a reactive aggression style with harsh parenting and an unpredictable threatening environment, whereas the development of proactive aggression related to an environment that models and supports the use of aggression as a means of achieving a desired end, and as such is more common in criminogenic families and gangs (Barker et al., 2010).

### **Pre-Adolescent Interventions**

Considering the potential harm of unmanaged pre-adolescent aggression on future outcomes, many researchers, stakeholders and policymakers have shown an interest in developing and implementing programmes aimed at intervening at this younger age. As a result, a considerable amount of research literature has been generated as a means of both testing the effectiveness of interventions but also as a

means of delineating and testing models of aggression. In general, interventions are of two types, those that target children based on specific criteria, for example those with a mental health diagnosis or clinically significant levels of aggression (e.g. Carr, 2006), and those that target a larger cross-section of the population, for example, a particular community or school. In this sense, interventions can be categorised as treatment-oriented or prevention-oriented.

There is currently a strong evidence base for particular treatment interventions for clinically significant cases of aggression, for example those associated with diagnoses of Conduct Disorder (CD) (DSM IV-R), usually involving multi-modal interventions. Among the variety of multimodal interventions currently developed, one type recognised nationally as effective are parent-training programmes (National Institute of Health and Clinical Excellence, 2006). These approaches usually involve parents in a group setting, but may also involve teachers and children, in both one-to-one and group-based interventions (e.g. Webster-Stratton, Hollinsworth, Kolpacoff, 1989). These have demonstrated clinically significant effectiveness across a range of empirically validated measures. As such, interventions such as the Webster-Stratton parent training programme are recommended by NICE for treatment of conduct disordered children (NICE, 2006). However, reviews of these programmes have demonstrated roughly equivalent effectiveness for a variety of multi-modal interventions (e.g. Taylor, Hyde, Raftery, et al., 2004). Indeed, the very heterogeneity of these interventions makes it difficult to distinguish which factors, or combinations of factors, are primarily responsible for the beneficial outcomes.

Conversely, preventative interventions have a different profile, usually using singular (but highly varied) approaches, and usually focused on schools in order to access the greatest number of children. As well as being used as a means of testing various models of aggression, these approaches offer an additional strategy

to multimodal interventions targeted specifically at identified children: to reduce risk generally among a broad population of children and maintain student well-being (Barker et al., 2010). However, some preventive interventions identify and target groups of children who share characteristics that put them at risk of developing mental health difficulties (e.g. Daunic, et al., 2006). Therefore, by accessing a mixed population, preventative interventions may offer support to non-clinical children, sub-clinical or prodromal children and also undiagnosed children. As these interventions require input from fewer groups than multi-modal targeted treatment interventions and require fewer resources to implement, they are frequently taken up as adjuncts to normal teaching practice in schools in which they are tested. It is therefore important to assess the effectiveness of these interventions as “first line” approaches for the reduction of aggression in pre-adolescent children.

Hundreds of studies have been conducted in order to establish a solid research base in the investigation of the features, causes and treatments for childhood aggression. However, many studies specifically assessing the effect of preventative interventions on aggression have been of a modest sample size and without the use of “gold standard” methodological procedures, such as randomised controls. In order to rigorously assess the impact of these interventions on aggression, it is therefore necessary to identify and review those studies which have applied the highest methodological standards.

As might be expected of a considerable evidence base such as this, several reviews and meta-analyses have been published over the years (e.g. Blake & Hamrin, 2007; Buitelaar, 2003; Durlak & Wells, 1997; Wilson, Gottfredson & Najaka, 2001; Wilson, Lipsey & Durzon, 2003). These studies have contributed significantly to the assimilation and integration of research findings across the evidence base, but vary considerably in their focus and breadth. For example, reviews have taken into consideration multiple constructs combined, such as aggression and anger

(Blake & Hamrin, 2007), have included pharmacological interventions as well as psychological interventions (Buitelaar, 2003), included other outcomes such as drug use and truancy (Wilson, Gottfredson & Najaka, 2001) and taking into account both adolescent and pre-adolescent interventions together (e.g. Wilson, Lipsey & Durzon, 2003). Furthermore, many of these studies have included research using quasi-experimental and non-controlled designs. As such, this review aimed to focus on gold standard studies for single mode, school-based interventions to reduce aggression in preadolescents in order to clarify the utility and impact of these interventions. However, this review does share similarities to other papers, especially Wilson, Lipsey and Durzon's (2003) review, and Wilson, Gottfredson and Najaka's (2001) meta-analysis. In particular, these reviews isolated and assessed studies that used comparison group and control trial designs. Nevertheless, the fundamental points of difference between these studies and the present review is that the present review a) focused specifically on proximal measures of aggression and did not include studies that assessed distal measures (such as drug use, truancy, etc.), and b) drew together literature on preadolescents only.

## **Method**

A search of the literature was conducted using the following search engines: Annual Reviews, APPI Journals, SCIRUS, HighWire Press, Nature Journals, PsychEXTRA, Wiley Online Library, EMBASE, Cochrane, Ingenta Connect, Journals@Ovid, PsychINFO, Science Direct, and Web of Science. Database searches were restricted to English-language papers published in peer reviewed journals. Search terms included *aggression*, *aggressive*, *child*, *childhood*, *children*, *intervention*, *treatment*, *proactive*, *reactive*, *relational*, and *physical*. In addition, reference lists from identified research articles were examined for relevant articles. All articles included in the literature review met the following criteria for inclusion: 1) applied to

children aged 1-10 at the start of the research, 2) involved non-pharmacological interventions, 3) were uniquely or primarily school-based studies, 4) included a randomised control arm in the experimental design, 5) used aggression as an independent variable in the study design. In all, the search resulted in 16 articles that met the stated criteria for inclusion.

Table 1. *Studies investigating school-based aggression interventions for pre-adolescent children*

<b>Study</b>	<b>Sample Size</b>	<b>Age Range</b>	<b>Control Group</b>	<b>Measure of Aggression</b>	<b>Intervention</b>
<b>Cognitive / Social Problem Solving</b>					
Forman (1980)	18	8-11	Reading Group	Teacher Rated, Observations	1) Cognitive (Restructuring) 2) Behavioural (reinforcement schedule)
Vaughn, Ridley & Bullock (1984)	24	Preschool	Interaction and play	Hahnemann Pre-School Behaviour Rating Scale	Interpersonal problem-solving (Cognitive Behavioural)
Hudley & Graham (1993)	66	10-12 (m=10.5)	Non-Aggressive Peers	Teacher Rated & Peer Rated	Cognitive (Attribution training)
Lochman, Coie, Underwood, Terry (1993)	52	8-9	TAU	Peer Rated, Teacher Behaviour Checklist	Social Relations Training Programme (1) social problem solving, 2) positive play, 3) group-entry skill training, 4) managing negative affect)
Muris, Meesters, Vincken, Eijkelenboom (2005)	42	9-12 (M=10.3)	Wait List	CBCL, Teacher Rated, Youth Self-Report, Strength and Difficulties Questionnaire	Social-Cognitive Intervention

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Daunic, Smith, Brank & Penfield (2006)	165	7-10	Wait List	Paediatric Personality Scale, Anger Expression Scale, Reactive–proactive aggression scale	Tools for Getting Along (1) Problem Solving, 2)Cognitive–Behavioural)
Metropolitan Area Child Study Research Group (MACS) (2007)	1,365	2-3 (at start over a 7 yr period)	No treatment	Child's intent to use aggression, Children's Fantasy Inventory, Normative Beliefs About Aggression Scale	MACS cognitive-ecological intervention. Two-level comparison, Level A: classroom enhancement teacher training and social- cognitive curriculum; Level B: Level A plus a small-group social-cognitive program
Boyle & Hasset- Walker (2008)	226	3-4	TAU	Preschool Social Behaviour Scale, Haneman Behaviour Rating Scale	Interpersonal problem-solving (Cognitive Behavioural)
Barker, Vitaro, Lacourse, Fontaine, et al. (2010)	198	7-9	TAU plus low risk comparison group	Social Behaviour Questionnaire, Self-reported PA and RA	Social Learning (modelling), Social Skills Training, Parental Behavioural Reinforcement

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Study	Sample Size	Age Range	Control Group	Measure of Aggression	Intervention
<b>Alternative Approaches</b>					
Fonagy, Twemlow, Vernberg et al. (2009)	2,712	5-7 (at start over 3 years)	TAU	Peer Rated, The Peer Experiences Questionnaire, Classroom Observations	Comparison of School Psychiatric Consultation and Mentalization interventions
Hawkins, von Cleve & Catalano (1991)	520	4-6	Not specified	CBCL	Parent Training, Teacher Training
Dolan, Kellam, Brown (1993)	212	4-5	TAU	Teacher Rated, Peer Rated	Good Behaviour Game, Mastery Learning
Van Lier, Muthen, van der Sar, Crijnen (2004)	666	6-7 (M=6.9)	Not specified	Teacher Rated, Problem Behaviour at School Interview (ADH, ODD, Conduct Problems)	1) Behavioural Reinforcement, 2) Social Learning - Team working
Shechtman (2000)	70	10-15	Wait List	CBCL, Teacher Rated	Games, drawings, narrative
Shechtman & Ifargan (2009)	904	7-13	No intervention	Peer Rated, Illinois Aggression Scale, Class Environment Scale	Classroom "social dynamics" intervention, group counselling
Ostrov, Massetti, Stauffacher et al. (2009)	403	3-5 (m=4.2)	TAU, plus consultation	Early Childhood Observation System, Teacher Rated	Variation of "Incredible Years" (Webster-Stratton et al., 2008)

## **Results**

Table 1 provides a summary of the studies included in the review. In total 7,643 participants were studied between 1980 and 2010, primarily in American schools.

As Table 1 shows, many of the studies identified for this review involved cognitive-behavioural interventions, often with a social skill / social problem solving component. Indeed, in a review of social problem solving interventions for childhood aggression, Nangle, Erdley, Carpenter and Newman (2002) noted the growth in these approaches in primary preventive studies, often to the exclusion of other approaches and, on occasion, irrespective of knowledge of childhood developmental processes. However, within this sample of studies there can be seen considerable heterogeneity in the particular packages of social-cognitive problem solving interventions. Further, it can be seen from the table that other approaches, such as mentalization, social learning and environmental adaptations, have been tested using rigorous research paradigms, leading to a broader exploration of primary preventative interventions.

In addition, it can be seen that these studies vary greatly in size and scope, from as few as 18 participants to as many as 2,712. Further, identified studies can be roughly divided between those that target younger children (three to five years old) and older children (seven and up). It is notable that, despite the criticisms of previous preventative interventions (e.g. Nangle, et al., 2002), it can be seen that interventions for these different age categories in this sample tend to differ considerably in delivery style and presentation, demonstrating that age-appropriate and developmental considerations have been integrated into the intervention. Finally, it can be seen that research included in this search spanned three decades, representing considerable scope for the presence of developments in theory and intervention across these studies.

## **Social-Cognitive Interventions**

Social-cognitive interventions were developed out of social-cognitive models of aggression. A leading social-cognitive model developed by Lochman and Dodge (1994) proposed that behavioural differences in aggression were highly influenced by differences between aggressive and non-aggressive children's perceptions, cognitions and attributions of the behaviours of others.

This review found twelve studies that employed cognitive interventions as the primary intervention. Forman (1980) undertook group interventions for 20 students identified as aggressive via school psychologist referral. The 20 were separated three ways using a cognitive restructuring intervention (n=7), a behavioural reinforcement intervention (n=7) and a reading group control (n=6) that lasted six weeks. The cognitive restructuring intervention involved the development and rehearsal of non-aggressive scripts in situations that the children identified as ones in which they would get angry. The behavioural intervention involved "fining" children time off allocated playtime with enjoyable games and activities for each aggressive indiscretion. Results after six weeks of intervention indicated that the cognitive approach performed better than control in reducing aggression as measured by numbers of inappropriate classroom interactions. However, the response-cost behavioural intervention also led to reduced aggression, both in terms of teacher ratings and observed behaviour. The two intervention types did not differ significantly from one another in terms of magnitude of outcome.

This study benefitted from the separation of the two intervention approaches in order to compare the effectiveness of each to identify the active components of the interventions. However, this approach did not take into account what the additive benefit of a combination of approaches approach might have been. In addition, no longer term follow up assessment was conducted in order to examine the longevity of change. Finally, with such a small sample – indeed the control arm

population was reduced to just four individuals due to drop out from the study – it is difficult to draw firm conclusions from this research.

Vaughn, Ridley & Bullock (1984) identified 24 aggressive children from a population of 165 children enrolled in two community preschools, using the Hahnemann Pre-School Behaviour Rating Scale (HPSB) (Shure & Spivack, 1974) by the children's teachers. These children were either entered into a 50 session (20 minutes, 5 days per week for 10 weeks) programme involving the teaching of cognitive problem-solving strategies, or an interactive story-telling control. The problem-solving approach employed training of sensitivity to non-verbal cues and environmental cues of potential aggressive encounters and strategies for generating and evaluating solutions to social problems. Vaughn et al. (1984) used a lab-task to assess the efficacy of the intervention approach, requiring participants to generate alternative solutions to an actual interpersonal problem enacted with a peer.

Results across both post test measures and the unspecified follow-up period revealed that the cognitive intervention was significantly better than control in facilitating the generation of alternative solutions to social problems, and that these solutions had higher relevancy. However, as Vaughn et al. (1984) acknowledge, these results do not necessarily mean that aggressive children can translate the cognitive teaching away from analogue tasks and into naturalistic settings. Again, this study used small sample sizes which compromised the reliability of the results. However, it did demonstrate that the goal of the cognitive training task, namely an increase in a child's capacity to generate alternative solutions to interpersonal problems, was being achieved.

In a variation of the cognitive problem-solving task, Hudley and Graham (1993) introduced an attribution training intervention aimed specifically at reducing the tendency for aggressive children to infer negative and hostile attributions to the actions of others. This intervention is in concert with Lochman and Dodge's (1994)

social-cognitive model of aggression, in which anger is thought to be generated in the aggressor as a consequence of a hostile attribution of the actions of others, leading to an increased probability of retributive aggression. In this study, African American children judged aggressive by teachers and peers were given 12 group-based bi-weekly 40-60 minute sessions designed to improve the child's capacity to detect intentionality, make sense of unintended outcomes, and facilitate the making of non-hostile attributions to ambiguous social encounters. These sessions used combinations of play activities, group discussion and role play to achieve these ends. In contrast, two controls were put in place. In the first, participants attended an attention training programme not related to attribution training but following a similar format, to account for extraneous programme variables. In the second, control participants attended classes as usual.

Similarly to Vaughn et al. (1984), Hudley and Graham (1993) employed a laboratory analogue task to assess the impact of the intervention on the aggressive children. Participants were asked to solve a map game with a peer under laboratory conditions. However, the task was designed so the participant would fail the first trial. At this point, the participants' assessment of the peer was recorded and their levels of anger and aggression measured. In addition, pre and post intervention assessment of hostile intentionality was taken for each participant, as well as post intervention teacher ratings of participant's aggression and prosocial behaviour, and records of formal school disciplinary action. Results demonstrated that on nearly all measures improvements were seen. Participants in the experimental condition were less likely to make hostile attributions in the laboratory task and the questionnaire task than either control groups, and were reported by teachers as being less aggressive and more prosocial than pre-intervention. However, no difference was found in pre and post scores on formal disciplinary referrals, possibly indicating a

mismatch between formal assessments of aggressive behaviour and behaviour in natural settings.

Lochman, Coie, Underwood, Terry (1993) employed a multi-component social-cognitive problem solving approach. First, participants were encouraged to generate multiple solutions to social problems, assess the likely consequences of those solutions, and to inhibit impulsive responses to social problems. Second, participants were taught skills in maintaining relationships, focusing on the use of non-verbal cues and techniques of negotiation and cooperation. Third, ways of joining groups and participating with activities with others were addressed. Finally, participants were taught methods of monitoring and managing negative emotional reactions and self-statements during interpersonal situations. This intervention was delivered using 26, 30-minute, bi-weekly individual sessions and eight group sessions, over six months. Measures were taken pre-intervention, post-intervention and one-year follow up. Teachers were blind to the group status of each participant.

Results indicated that the intervention provided reduced levels of aggression (and peer rejection) post-intervention measured by both teacher and peer ratings, compared to control. Further, one-year follow up teacher assessments demonstrated significant effects on reduction of aggression and increases in pro-social behaviour. However, the intervention did not affect peer ratings of aggression or pro-social behaviour after one year.

One of the primary advantages of the Lochman et al.'s (1993) study was the addition of a one year follow up in order to monitor the longevity of the intervention. In addition, by addressing issues around peer rejection and difficulties faced by aggressive children in entering social groups and making peer friendships, Lochman et al. provided an additional avenue for preventative interventions. However, the effectiveness of the relationship and group inclusion components of the intervention was lower than the other components. This may call into question the added benefit

of including these aspects into an intervention to effect change in aggressive children. In addition, Lochman et al. (1993) focused on effecting change in children of African-American descent, possibly reducing the ecological validity of their intervention for other ethnicities.

Muris et al.'s (2005) design differed in two significant ways from the previous studies. First, this intervention identified children who displayed clear behavioural problems at school using teacher selection, thus tailoring the intervention to an undiagnosed and potentially prodromal at-risk sample. Second, this study used a cross-over design (Treatment-Waiting period, Waiting period-Treatment), ensuring that all children received the intervention. Each phase lasted three months, with no further follow up. In total, 42 participants were assessed pre-intervention, after the first stage of intervention and at the end of the six months using a common aggression measure, the Child Behaviour Checklist (CBCL) (Achenbach, 1991), the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1994) and the Social Cognition Skills Test (SCST; Van Manen, Prins, & Emmelkamp, 2001), which assesses their capacity to problem-solve using skills such as emotion recognition and perspective taking.

Muris et al. (2005) employed Van Manen's (2001) "Self-Control" intervention programme. This programme consists of 11 weekly 70-90 minute sessions, plus homework, targeting the social-cognitive procedure of aggression outlined by Crick and Dodge (1994). In this model, it is proposed that an aggressive response is a function of a number of discreet processes, involving scrutiny of the social encounter for indications of threat, (mis)interpretation of one's own and of others feelings in the situation, empathy (or lack thereof) for another's intentions, a search for solutions, assessment of the utility of identified solutions, and enactment of behaviour. The Self-Control intervention used a combination of didactic teaching, role-play, games and group discussion to address each of these stages. For example, participants

were asked to use role-play to broaden their repertoire of possible solutions when confronted with difficult social encounters.

Muris et al. (2005) summarised their results thus:

“To determine whether the intervention had resulted in clinically significant improvement of behavior problems, clinical cut-off scores of the Achenbach questionnaires (Youth Self Report, CBCL, and Teacher Report Form) were employed to study percentages of children scoring in the subclinical and clinical range. Results showed that prior to the intervention 22.50% (YSR), 41.46% (CBCL), and 70.73% (TRF) of the children had a score higher than the (sub) clinical cut-off point. After the intervention, the percentages had decreased to 10.00% (YSR), 21.95% (CBCL), and 60.98% (TRF), with the only significant change observed for the CBCL [McNemar test:  $p < 0.01$ ].”

Further, the study also revealed that the effects of the intervention were retained three months later for the treatment-wait group. However, only half of the teachers and parents rated any change in their observations of the children's behaviour. Also, results indicated only a small (but significant) correlation between increased social problem solving skills and problem behaviour. Again, a small sample size in this study reduces confidence in the reliability of the findings. Furthermore, Muris et al. (2005) highlight the fact that in prodromal or subclinical populations it may be harder to find consistently high levels of aggressive behaviour with which to judge outcomes of interventions, a consideration relevant to each of the reviewed studies, and further underscoring the need for large scale studies to improve the “signal-to-noise” ratio.

One such study that used a much larger sample was the Metropolitan Area Child Study Research Group (MACS; 2007). Using cluster-randomised sampling of



16 Chicago-based schools, 1,365 children were included in the final analysis of the research, based on above-median values on the CBCL and peer ratings of aggression. Children were recruited at Kindergarten and followed up over a two year period. Participants were entered into one of two levels of intervention, or a no-treatment control. In the first level, participants were placed on a two year social-cognitive curriculum consisting of 40, 1-hour, teacher-led sessions (20 each year) in which children were taught how to generate alternative solutions to social problems, and had prosocial problem solving strategies endorsed. In addition, teachers were encouraged to model prosocial solutions to social difficulties and to provide contingent reward and praise for prosocial rather than aggressive behaviour. In the second level, participants were given the same two year input as level one, but with an additional concurrent programme of two years of small group training. This small group training consisted of 28 sessions across the two years and involved further exposure to social-cognitive approaches and involved additional writing, video-taping and rehearsal of prosocial solutions. Aggression was assessed using indirect measures.

The first striking result from this study is that the intervention, rather than reducing measures of aggression, instead appeared in general to slow the overall increase in aggressiveness that occurred across conditions as the children aged. For example, in the control condition, the equivalent of 16% of the sample shifted from aggression being an unacceptable response to provocation to it being acceptable. However this trend was only at 3% in the treatment condition. In addition, results from this study demonstrated that the intervention appeared to produce greater changes on pre, mid and post-test measures in those children who were identified as more highly socially resourced (i.e. higher socioeconomic status; SES) than those with fewer resources. The authors suggested that “developmental constraints” and the potentially more adaptive utility of aggression in lower SES

communities were potential causes of this difference. In addition, the researchers noted that there was difficulty in maintaining intervention fidelity in classes with predominantly lower SES children, as a consequence of greater safety concerns in these classes.

These findings are important, especially given the scale and scope of the research, which enables greater confidence in the reliability of results. It is notable that not only were attempts to reduce aggression impaired by an apparently more-than-compensatory developmental increase in aggression, but that effects were significantly modified by social factors outside of the scope of the intervention. This, of course, is not the first time that this difficulty has been observed, but it is helpful that attempts have been made to quantify the extent of this effect in studies such as this. Indeed, this study most closely resembles the “gold standard” research paradigm for treatment interventions of all identified studies in this review and therefore may be more clearly indicative of the impact of classroom-based preventative interventions in general. However, there were also some drawbacks to the research. In particular, it may have been helpful to assess what impact a social-cognitive problem-solving intervention would have had on less at-risk groups, to investigate whether there were any secondary consequences, such as changes in scholastic performance, and to have a direct, observational measure of aggression pre and post-intervention.

Daunic et al. (2006) undertook a social-cognitive problem-solving intervention across two schools, delivering the intervention to all the children in the classes, but only taking measures of aggression from 165 teacher-nominated target children. Measures included a problem-solving questionnaire, similar to other measures considered in previous studies, the Paediatric Personality and Anger Expression Scales (Jacobs, Phelps, & Rohrs, 1989), which assessed anger

expression and control, Dodge and Coie's (1987) Reactive-proactive aggression scale, and two behavioural assessments of self-control and externalising behaviour.

The intervention consisted of three levels: children were either assigned to receive 20 intervention classes of 30 minutes each (twice per week), 20 lessons plus six booster sessions, or no-treatment control. Similar to Muris et al. (2005), Daunic et al. (2006) targeted intervention sessions at the putative stages of decision making. Booster sessions reviewed the original programme plus gave room for children to develop their own role-plays and reflect on them. Measures were taken on three occasions: prior to intervention, following the core 20-session intervention, and following the end of the academic year subsequent to the six booster sessions. The study was explicitly aligned to the developmental stage of the participating children.

Significant effects of the 20-session intervention on measures of knowledge, teacher rated reactive aggression and proactive aggression was found, with no benefit for extra booster sessions. No significant effects were found for self control, externalising behaviour, and self-reports of anger disposition and control on the paediatric personality scales. Measures of effect size were taken in this study which indicated that 17% of the variance in proactive aggression and 35% of the variance in reactive aggression could be accounted for by the impact of the intervention.

Usefully, this study employed follow-up assessment to identify the longevity of treatment, which in this instance was significant. In addition, by including a booster-session component, a ceiling effect for intervention dosage was noted, with diminishing returns for further input. Further, this paper addressed concerns raised by Nangle et al. (2002) that interventions such as this are not sufficiently sensitive to the developmental progression of the target children by selecting the age group based on the demands of the intervention, rather than attempting to shoe-horn the intervention into a pre-selected sample. Finally, the intervention was delivered to

the whole class by the usual classroom teacher and led by trained teacher consultants. This approach may help to increase intervention fidelity and raises confidence that these types of interventions may be more easily adopted by schools.

However, it may have been beneficial to have taken measures of all children who received the intervention, rather than just those identified as target children, in order to assess the effect of the intervention on a broader range of aggression. In addition, with the presence of a control, it could have been possible to track and compare rates of change in aggression. This may be particularly pertinent given the MACS (2007) finding that, at least in early years, childhood aggression appears to increase overall.

Boyle and Hassett-Walker (2008) targeted a social-cognitive problem solving intervention on Kindergarten children, "I Can Problem Solve" (ICPS) incorporated into usual teaching practice and given to all participating children. The ICPS consisted of 83 sessions over two years and focused on facilitating the children's ability to generate solutions, not necessarily to guide decision making in any particular direction, but rather to help elicit as many solutions to a problem as possible, and to think about the consequences of decisions.

The study followed a three level approach: ICPS for one year, ICPS for two years, and no-treatment control. Observational measures of physical and relation aggression, and prosocial behaviour were given, including the Preschool Social Behavior Scale (PSBS; Crick, Casas & Mosher, 1997), and the Hahnemann Behaviour Rating Scale (HBRS; Shure, 2002). Measures were taken pre-and post intervention.

The study identified differences between control and instruction groups on measures of prosocial behaviour with a modest extra impact of two years intervention. Depending on the measure, effect sizes on prosociality varied between 7% and 12% of the variance. In addition, small changes in relational and overt

aggression were found, with effect sizes of 3% and 4%, respectively. On the whole, this suggests that the ICPS intervention was successful in producing changes in aggression and prosocial behaviour, but that two-year interventions added little to one-year interventions.

This study contributed to the evidence base in several important ways. First, it provided a good example of a preventive intervention that was successfully integrated into normal teaching practice, at the earliest stage of childhood education. Second, assessing the full range of children in the classes, rather than targeting aggressive children in particular, demonstrated that this approach could provide general improvements in rates of aggression. However, it may have been informative to make a distinction between levels of aggression to investigate possible differences in the impact of the intervention. It is possible that group differences may have been occluded by aggregating the scores of all participants.

The most recent study identified for this review was Barker et al.'s (2010) longitudinal investigation of the impact of a social-cognitive problem solving intervention. This research formed part of a larger investigation of the developmental trajectories of children, following a Canadian cohort from kindergarten to age 17. This was one of the few studies included that had a parent-training component, and was conducted over two years between the ages of seven and nine. From the sample of 895 children, 250 were targeted for the intervention based on scores above the 70<sup>th</sup> percentile on the Social Behaviour Questionnaire (a teacher-rated measure of aggression, SBQ; Tremblay, Loeber, Gagnon, et al., 1991), and although there was attrition from the intervention of 78 children, they were included in an intent-to-treat analysis. Children were assigned to a no-treatment control, involving only follow-up measures, an observation group, that examined parent-child observations as well as questionnaire measures, and the intervention treatment group.

The school-based intervention consisted of 19, 45-minute sessions (ten in the first year, nine in the second year) delivered in the school, but outside of the classroom, in small groups. One major component of the intervention was to allow target children to observe and work alongside prosocial children who could function as role models and reinforcement agents for appropriate behaviour. In addition, mixed groups served the function of removing stigmatisation of the target children. Thus, the groups consisted of one or two target children and four to six prosocial children. Sessions were fortnightly and emphasised prosocial skill-building, consisting of teaching, reinforcement, modelling and rehearsal of behavioural strategies.

The parent component of the intervention involved parent training delivered by the same professionals, and emphasised functional analysis of disruptive behaviour, the setting of appropriate behavioural goals and the implementation of contingent behavioural reinforcement (e.g. token reinforcement) and punishment (i.e. "time-out") strategies.

Children were assessed using the PA and RA measure between the ages of 13 and 17. In addition, in order to test for putative mediators, measures of delinquent attitudes, peer-rated popularity, affiliation with deviant peers and coercive parenting and levels of parental supervision were also taken.

Results indicated that there were no significant differences between the observation and control groups and they were therefore analysed together in comparison with the intervention group. Comparing the two groups revealed that the intervention reduced the risk of target children engaging in reactive aggression, with an effect size of 0.12 at age 13, making the target children virtually indistinguishable from low risk children in this regard. However, effects were not found for proactive aggression, though some downward trending was noted. An examination of the possible mediator variables revealed that deviant affiliation, low

parental supervision and delinquent attitudes were all highly correlated with the various measures of aggression, implicating them as mediating the relationship between time and aggression for this sample.

Of particular relevance to the present review, Barker et al. (2010) was among only a handful of identified studies that offered a substantial follow-up period for examining the long-term outcome of preventive intervention for childhood aggression. In addition, this study made efforts to examine possible mediators, an important factor that is addressed later in this review. The evidence from this study appeared to point to a much larger impact on reactive versus proactive aggression reduction. Unfortunately, no efforts were made to distinguish between the effects of each component (school-based and parent-based) on the overall outcomes. In addition, Barker et al. (2010) acknowledged that small sample sizes may have compromised power and that they targeted low-SES populations and so may have affected the generalisability of the study. Nevertheless, it is noteworthy that treatment effects may last several years. In addition, it introduced a unique variation on the social-cognitive intervention type, accounting for effects of stigmatisation by including non-target children in the intervention group and by using clinical teams, rather than teachers.

### **Alternative Approaches**

Nine studies were identified for this review that used alternative interventions to the more common social-cognitive problem solving approach, or integrated social-cognitive approaches with other methods. These studies ranged considerably in focus and size, employing a variety approaches.

### *Behavioural*

Hawkins, von Cleve and Catalano (1991) undertook a study of 458 1<sup>st</sup> Grade children (approximately five years old) from Seattle-based elementary schools. All children were randomly assigned to either control or experimental classes. The intervention involved both teacher and parent training components. The parents were taught ways of using behavioural reinforcement for good behaviour, providing age appropriate family roles and duties for their child, using consistent disciplinary approaches for inappropriate behaviour and developing effective communication strategies. This aspect of the intervention was delivered over seven consecutive weeks using a combination of didactic teaching, modelling, role play, homework and feedback. The intervention was offered twice to parents, at the beginning of their child's 1<sup>st</sup> Grade and the beginning of the 2<sup>nd</sup> Grade.

Teacher training consisted of several parts. The first was "proactive classroom management" involving the use of clear instructions and classroom rules, the frequent use of praise and other reinforcement for appropriate child behaviour and the use of minimally disruptive classroom interventions to maintain order. The second approach was to facilitate children's own social problem solving using equivalent techniques to those described earlier. The final component involved "interactive teaching" focusing on the need for children to demonstrate their mastery of a task before moving on to more advanced tasks, and the use of reinforcement for task achievements. It was proposed that this method would encourage children to maintain interest in the tasks.

The researchers split the sample by gender, and found that boys in the intervention condition scored lower than control on the CBCL subscales of Aggression and Externalising Antisocial Behaviour, and girls in the intervention condition were rated as significantly less self-destructive than control girls.



The researchers noted teachers' awareness of participant allocation may have produced expectation effects and biased responses. In addition, analyses did not differentiate independent effects of intervention components. Further, unlike some other studies in this review, the paper did not describe how the researchers managed the fidelity of the intervention, i.e. to what extent the teachers adhered to the intervention programme. However, this study, by using primarily behavioural methods, demonstrated significant effects of this approach on reducing aggression. In addition, Hawkins et al. (1991) offered another example of how interventions can be tailored to complement usual teaching practices – at least, for the school component – rather than requiring significant input from outside professionals.

Dolan, Kellam and Brown (1993) devised a study investigating a behaviourally-informed intervention on aggression with unselected 1<sup>st</sup> Grade children: the Good Behaviour Game (GBG). The GBG is a variation of a token reward system, which emphasises peer management of behaviour by placing children in groups of mixed levels of aggression and requiring them to earn rewards by having as few incidents of aggressive or disruptive behaviour as possible. The GBG is delivered incrementally, starting with three 10 minute sessions a week and progressing up to three hours a session. Later, the game took place without announcement, sometimes outside of the classroom, and with deferred, rather than immediate, reward. Teachers received 40 hours of training on the intervention and delivered it themselves within the usual classroom setting. 212 children (156 control) were included in the intervention. Control comprised two levels, external control with children at equivalent schools who were not involved in the intervention; and an internal control, children who belonged to the intervention schools but were not in intervention classes. This enabled researchers to account for the impact of “leakage” of intervention strategies from intervention classes to non-intervention classes.

Analyses demonstrated sex differences: boys demonstrated significantly lower teacher ratings of aggression than external controls, and significantly lower aggression than internal controls, as measured by peers. In contrast, girls performed significantly better than internal controls on teacher ratings but did not achieve significant differences in peer ratings compared with either internal or external control groups. It was noted that there was a tendency for a larger effect of intervention on those children who were rated higher on aggression by teachers, at the beginning of the school term, than on less aggressive children.

This study was helpful in outlining the benefit of a teacher-led behavioural programme for reduction of aggression. Behavioural approaches privilege observable behaviours and contingent responses, techniques familiar to teachers. It may therefore be possible that training in this method is easier and fidelity higher than in other approaches. Further, this approach succeeded in significantly reducing levels of aggression compared with control. Interestingly, treatment effects were inconsistent among the two levels of control, indicating “leakage” of treatment from intervention groups to internal control groups. In addition, effects were more consistently positive for teacher ratings than for peer ratings. This raises questions about the validity of the peer rating tool, or peer perceptions of aggression among boys and girls, or both. In addition, effects were generally greater for more aggressive children at the start of treatment. The authors thus point to the possible utility of the GBG for targeted aggressive children. However, as the intervention required children with a range of aggression in each group, this conclusion may not take into account the possible impact of modelling or other social processes that may take place during the intervention; an issue highlighted by the earlier reviewed study by Barker et al. (2010).

Van Lier et al. (2004) also applied a modified GBG intervention in a study of 666 2<sup>nd</sup> grade children (363 intervention, 303 control) recruited from schools in

Rotterdam, Netherlands. In this study, Van Lier et al. (2004) measured pre and post treatment levels of aggression using the Teacher Report Form of the CBCL, and the Problem Behaviour at School Interview (PBSI; Erasmus Medical Center, 2000), a 32-item teacher interview that assesses disruptive behaviour and shy-withdrawn behaviour in children. Researchers grouped children along three categories of disorder by PBSI: attention deficit hyperactivity (ADH), oppositional defiant disorder (ODD) and conduct disorder (CD), and three levels of diagnostic category, those at high risk of developing further difficulties, those at moderate risk and those at non-clinical levels. It is important to note that these were research categories based on scores on the above measures rather than diagnostic categories based on full clinical assessment. Measures were taken at the end of 1<sup>st</sup> Grade pre intervention and then several times post intervention up to 24 month follow-up.

Results indicated that for ADH, those in the intervention group with a moderate risk of developing further difficulties deviated significantly from control on post-intervention scores, indicating an improvement in ADH symptoms (effect size = 0.71). Similar results were found for ODD problems (effect size = 0.41) and for those with CD difficulties the intervention improved symptoms significantly in both the high risk and moderate risk groups (effect size = 0.55 and 0.42, respectively). It was noted by the researchers that significant comorbidity was found for those with higher ODD and CD scores. In addition, results suggested that in general, children tended to show greater scores on all measures of aggression over time (with the exception of those in the highest risk category who appeared to decline in symptoms over time irrespective of the intervention) and that the GBG intervention worked to halt the upward growth of symptoms rather than reduce symptoms from baseline levels. Statistical modelling of future trajectories supported the conclusions. In this way, this study suggested an important preventative role for the intervention.

This study is helpful in understanding the role of preventive interventions in a number of ways. First, by separating scores into levels of difficulty Van Lier et al. (2004) were able to demonstrate differential effects of the intervention. In particular, it was observed that aggression appeared to increase without intervention in the majority of the population but decrease in the worst affected group irrespective of intervention (although intervention tended to facilitate this decline). Second, it was possible to observe that the intervention worked to halt or slow this progression toward greater aggression. Third, by measuring aggression through symptoms of clinical disorder it was possible to identify the potential implications for prevention of this development for a given intervention.

However, this study made significant modifications to the GBG, not least by removing competitive elements, which makes comparisons across similar studies, such as Dolan et al. (1993) more difficult. Further, with teachers both assessing children and implementing the intervention, there is a risk of introducing bias into the results. Finally, there was no clear description of the control condition and unlike Dolan et al. (1993), no description of how fidelity or intervention “leakage” was accounted for.

### *Mentalization*

Fonagy et al. (2009) conducted a large scale longitudinal randomised control study of mentalization-based intervention for childhood aggression. Over 2,700 children aged 7-9 were recruited into a three year study aimed at improving all school members’ capacity to think about the mental states (i.e. beliefs, wishes and feelings) of oneself and of others, under the theoretical assumption that this increased awareness would reduce the temptation to bully others. Participants in the mentalization arm of the study (“Creating a Peaceful School Environment”, CAPSLE) were compared with a School Psychiatric Consultation (SPC) intervention

and a treatment as usual control. The mentalization intervention included 1) posters and class discussions, 2) Martial Arts-based role play, 3) token reinforcement of participation in activities of the intervention 4) peer nomination of class role-models. The SPC consisted of consultation and liaison with school psychiatrists as needed by teachers, with access to other services as required (such as medication review, psychotherapy referrals etc.). The intervention took place over two years and involved a one-year follow-up. Assessment of aggression was taken using indirect measures, peer nomination and behavioural observation.

Results indicated that in all groups, levels of aggression increased, and empathic mentalizing declined. However, peer-reported aggression in the mentalization group was significantly lower than the other two groups. In addition, the mentalization intervention showed significant improvement compared to control on peer-reported victimization, aggressive bystanding and empathic mentalizing. Compared to SPC mentalization showed a shallower drop in empathy, and a lower rate of victimization. However, one-year follow-up analyses demonstrated significantly less helpful bystanding (of acts of bullying or aggression) in SPC than in mentalization treatment, and maintenance of effects in comparison with TAU.

Clearly, this intervention was helpful reducing peer aggression and victimization through activities designed to increase empathy and other-awareness. Indeed, that empathy declined the least in the mentalization approach is suggestive of empathy working as mediator for aggression, as the model predicts. Further, this intervention was effective over a one-year follow-up indicating longevity of effects. However, SPC also performed well, suggesting that other interventions may also warrant attention.

Furthermore, it is notable that, in order to achieve the aims of increasing mentalization among children, the mentalization treatment employed numerous strategies similar to other interventions. These included role-plays, reinforcement

contingencies, classroom discussion and peer modelling. Given that the target of the intervention was similar to targets identified in the social-cognitive model, it is plausible that this approach produces effects through similar pathways as the social-cognitive interventions. Nonetheless, this intervention offers an alternative explanation and proven effectiveness of intervention using gold-standard methodologies, and considerable follow-up.

### *Therapy-Oriented Interventions*

Shechtman (2000) introduced a narrative variation of a social-cognitive intervention for children aged between 10 and 15 years old. Children were selected for treatment or waiting list control on the basis of teacher nominations of aggression. The 34 of the 70 participants in the experimental condition were presented with various short stories, poems and films relating to the dynamics involved in aggression, such as anger, hatred, jealousy, frustration, unfairness, boredom, lack of meaning, and the need for power. Activities around these media were then provided and “clarifying processes”, in the form of games and drawings, were introduced with the intention of facilitating self-reflection on children’s own aggressive behaviour. The intervention took place over ten 45 minute sessions taking place at school but outside of the usual classroom in small groups or one-to-one individual treatments. Treatments were conducted by therapists trained in this intervention. In order to assess the outcome of the intervention the CBCL self-report and teacher report were employed pre-intervention and two weeks post-intervention. In addition, qualitative accounts of factors that led to change were gathered during the final session through discussion with children. These were grouped along three dimensions: non-aggressive skills, therapeutic factors, and most meaningful activities.

Results indicated that the in the control group, the tendency was for aggression to increase over time. However, the experimental group demonstrated significant decline in levels of aggressive behaviour, in both teacher and self-report measures. In addition, the self-report measure indicated changes in levels of withdrawal, anxiety / depression and social problems, and in the teacher-report, anxiety / depression, thought and attention levels improved. In terms of process variables, children identified “insight” was the most frequently cited non-aggressive skill, catharsis as the most cited therapeutic factor, and watching films as the most meaningful activity.

In contrast to other reports, Shechtman’s (2000) study indicates that the narrative intervention had an aggression-reducing impact over and above preventing a general upward trend of aggression in children. However, some caution should be used in assessing these results. In particular, the study included a broad age but with a small sample size, with no attempt to account for age differences in outcomes. In this sense, developmental factors may have acted as a potentially significant confound (Nangle, et al., 2002). In addition, Shechtman (2000) identified other difficulties, such as the short-term follow up period, the variation in the delivery of the intervention to either groups or individuals, and the reliance on trained therapists to deliver the intervention, rather than being integrated into usual classroom practice. Indeed, Shechtman (2000) noted that this intervention resembled group therapy in significant ways. However, this study was helpful in identifying that alternatives to the dominant cognitive approach are also effective in reducing aggression, across a range of ages. Further, by including a qualitative element to the design it was possible to identify which aspects were perceived as most powerful for the children themselves. This highlighted the relevance of film and self-reflection in this intervention and suggests avenues for interventions more easily integrated into school curricula.

In a much larger scale study, Shechtman and Ifargan (2009) directly compared a counselling intervention to an integrated classroom intervention. Nine hundred children between the ages of nine and 13 from schools in Israel were included in the study, of which 166 were identified as highly aggressive using peer nomination. Both interventions included 12 sessions over four months, and were delivered by school counsellors who were provided with 56 hours of intervention training. The counselling intervention consisted of elements of humanistic, psychodynamic and cognitive behavioural therapies directed at building alliance within the group, developing awareness and understanding of anger and aggression, and skill building in social information processing and behaviour, respectively. Bibliotherapy was used as an adjunct to group sessions.

In contrast, the classroom intervention “aimed at changing the social dynamics of the class, improving relationships, establishing anti-aggression norms, and increasing caring among students.” (Shechtman & Ifargan, 2009, p. 345). Children were encouraged to identify and develop ways of altering negative aspects of the class social climate. Prosocial rules were put in place, and children were encouraged to practice social skills. Participants in the control arm of the study received no intervention.

Several measures of aggression were employed including the teacher report form of the CBCL and several self-report measures. Further, a measure of class relations was taken using the Classroom Environment Scale (Moos & Trickett, 1987). Measures were taken pre and post intervention, although the study was unclear as to specifically when these measures were taken.

Results indicated that for this study no change was found in pre and post intervention measures for aggressive control children. In contrast, for both intervention groups, each measure found a significant decrease in aggression. Comparing the change between groups revealed no significant differences,



suggesting that each intervention had similar effects on levels of aggression. Similar positive results were found for classmates classified as non-aggressive, with the exception of a non-significant result for class relations component of the classroom intervention.

This study appears to demonstrate that different interventions can have comparable positive results on childhood aggression among this age group. Unfortunately, with no follow-up analysis, it was not possible to identify the durability of the interventions, or differentiate interventions based on longevity. In terms of implementation, this study implied the need for considerable expertise and training for these interventions to succeed, which limits its generalisability. In addition, Shechtman and Ifargan (2009) note that this study focused on relatively mild levels of aggression, rather than delinquency or conduct disorder, and so may limit the scope of this intervention to applications with these children. However, perhaps more importantly, there appeared to be considerable similarity between interventions, with both focusing on group cohesion, and both using social skill training to improve communication among peers. In addition, no control of “leakage” between the two interventions was discussed, which suggests the possibility that further cross-pollination of interventions may have occurred. In comparison with other social-cognitive interventions described above, it less clear how these interventions map onto particular theories of aggression, and therefore harder to hypothesise about which aspects may have been particularly effective.

Nevertheless, both interventions were successful in reducing aggression by both teacher and self-report. Helpfully, this work also suggests that a variety of programmes may be effective in reducing childhood aggression, and that further comparative research of this kind is warranted.

### *Mixed Intervention*

In an example of a multi-faceted school-based intervention for aggression, Ostrov et al. (2009) aimed to incorporate key elements of the Incredible Years classroom programme (Webster-Stratton et al., 2008) into an intervention that spanned whole-class activities, skills-building, didactic teaching and reinforcement systems to promote prosocial behaviour and reduce physical and relational aggression. The “Early Childhood Friendship Project” was delivered to 202 Canadian children (with n=201 control children) aged 3-5 years from four schools, without prior selection of aggressive children. The intervention spanned six weeks, with each week representing a different theme such as prosocial behaviour, social exclusion and physical aggression. An additional three separate hours of reinforcement sessions were included each week, relating to the theme of the week. Sessions were delivered by graduate clinicians following 10 hours of training. Classroom teachers were informed of the intervention and asked to verbally reinforce children for following the intervention steps during class and in the playgrounds.

The intervention was assessed two weeks pre and post implementation using both a behavioural observation method of aggression and victimisation, and the prosocial scale of the CBCL teacher report form. Fidelity assessment and teacher and clinician ratings of the intervention were conducted. Unfortunately, the study was underpowered for the analysis used, reducing confidence in the results. However, results indicated that relational and physical aggression was significantly improved by the intervention (effect size [Cohen’s d] of 0.88 and 0.54 respectively). In addition, levels of victimisation were also significantly reduced. Further, prosociality increased significantly relative to control (effect size of 0.54).

This study indicated that a combined intervention of skills training and rehearsal, narrative content and regular reinforcement had a widespread impact on aggression in young children. Although the results should be treated cautiously due

to lack of statistical power, the effect sizes were medium to large indicating a robust effect. In addition, fidelity was closely monitored and controlled, helping to ensure clinicians were delivering the intervention as specified. Furthermore, to prevent intervention “leakage” control classes were in different schools from intervention classes. However, both statistical power and design constraints prevented assessment at the individual child level, preventing an assessment of treatment efficacy across different levels of pre-intervention aggression. Further, similarly to multi-modal interventions, the multi-faceted intervention approach employed in this study makes it hard to specify which aspects of the intervention are particularly effective, and no attempt to assess the various components of the intervention was made in this study. Also, the intervention was delivered by trained clinicians reducing its capacity to be easily integrated into usual teaching practice. However, as a comprehensive aggression reduction strategy for young children, this intervention demonstrated considerable promise.

## **Discussion**

In the present review of randomised control trials of school-based aggression-reduction interventions the most widely applied intervention was the social-cognitive approach. This is not surprising given that cognitive behavioural treatments are the most studied and best empirically validated clinical interventions for anger and aggression in children and adolescents (Blake & Hamrin, 2007). However, it is noteworthy that, among the considerable number of reports of social-cognitive interventions, this review could find only 12 studies that used a randomised control protocol and targeted schools in particular. Further, an inspection of these studies identifies considerable variation in the content and delivery of the interventions. including who was selected for intervention (i.e. a varied sample or a targeted aggressive sample); the number and length of sessions; whether they were

delivered by experts or trained teachers; whether they were integrated into usual classroom activities or were extra-curricular; if they included homework assignments or not; the activities of intervention; and the presence or absence of extra “top-up” sessions. Therapeutic techniques ranged from identification of emotions and strategies to manage these (such as relaxation techniques), to cognitive skills building (such as attributional style modification), and behavioural control.

This review also found a number of studies that took a different approach to reducing aggression. These included behavioural interventions focusing on contingent reinforcement strategies, therapy-oriented interventions using narrative, multimedia and exploratory tools to develop greater understanding within children of their aggression, a mentalization approach promoting the development of skills in thinking about the minds of others, and a mixed approach combining features of cognitive, behavioural and narrative interventions. The interventions presented here exceed the usual range of multi-modal interventions, where cognitive-behavioural methods predominate. For example, in the Webster-Stratton programme (e.g. Webster-Stratton, 1989), parents of identified children are asked to attend a number of group sessions delivered by a trained facilitator involving a combination of teaching and discussion around effective parenting strategies, ways of improving relationships between parent and child, and tasks for between sessions. In addition, facilitators may also meet with individual families in order to train parenting skills *in situ*. Teachers of identified children may be involved in maintaining agreed structures of training during school time, such as reinforcement schedules and verbal cues. Additionally, for some programmes, time is given for one-to-one sessions with the identified children in order to enhance social problem solving skills and develop cognitive strategies for managing situations in which aggressive behaviour may occur. Although these approaches are empirically validated, they

are not as diverse as the often successful alternative approaches identified for this review

The main observation from this review is that, despite the apparent heterogeneity of interventions, all studies achieved positive outcomes against many or all of the assessment tools used to measure aggression. In addition, this effect was observed at both short and long-term follow-up, a result consistent with the larger body of work in this area not using randomised control designs (Lochman & Salekin, 2003) This is an important result suggesting that there is considerable value in the use of school-based aggression reduction interventions.

However, broad success of the interventions makes it difficult to differentiate between them. One differentiating feature might be the longevity of intervention effects. Lochman et al.'s (1993) social-cognitive intervention showed continued improvement in teacher ratings after one year, but not in peer ratings; the MACS (2007) social-cognitive intervention showed a continued reduction in aggression after two years; Daunic et al.'s (2006) study demonstrated significant effects over the course of the academic year for their social-cognitive intervention; Barker et al. (2010) noticed significant effects of social-cognitive intervention over several years' follow-up; Van Lier et al. (2004) found continued improvement from behavioural intervention after two years; and Fonagy et al.'s (2009) mentalization study also found improvement after two years. In all, this suggests that different intervention strategies are demonstrably beneficial in the long-term as well as the short-term, making it hard to establish which may be more effective than others.

However, an issue that bears on this conclusion is whether there are common factors among the interventions. If interventions share common therapeutic features it may be those that are responsible for the largely undifferentiated positive effect observed in this review. Indeed, a comparison between the social-cognitive interventions and the other interventions reveals some

considerable similarities. For example, Fonagy et al.'s (2009) mentalization intervention aims to enhance children's capacity for considering the mental world of others before making a decision as to what to do in an ambiguous or threatening social encounter. This appears to closely resemble the initial stages of the cognitive account of aggression, namely, a failure to make accurate attributions and interpretations of the other and the situation in the social encounter (e.g. Lochman & Lenhart, 1993). Further, Fonagy et al.'s (2009) intervention comprised developing skills in noticing and changing this process in ways similar (although not in every way) to social-cognitive interventions.

Other examples of common factors include the use of behavioural elements in all interventions, either informally, such as facilitator encouragement of appropriate behaviour (e.g. MACS, 2007), or more formally, such as group activities where targeted children are placed with non-aggressive children with which they must cooperate for success (e.g. Barker et al., 2010). Indeed, it appears there is scope for investigating how intervention designs contribute in ways not specified or remarked upon by researchers. For example, the GBG behavioural interventions required groups of children to cooperate. As well as introducing peer modelling opportunities within the behavioural framework, this is also likely to have required significant cognitive demands such as hypothesising about the intentions and goals of group members, and social skill elements, such as negotiation, assertiveness and compromise. In this way, many of the interventions appear to look more similar than distinct.

One factor that certainly varies across the studies is the length of the intervention. With little follow-up data it is difficult to establish optimal intervention lengths. However, in those studies that did employ follow-up analyses, it can be seen that interventions were between 13 and 40 hours over the course of several months. This data therefore gives some indication as to the approximate length of

intervention needed in order to produce significant improvements over several years.

### **Moderators and Mediators**

Lochman and Salekin (2003) note the importance of paying attention to moderators and mediators of outcome effects in research of aggression interventions for children. It is interesting to note that, among these studies, interventions had differential impact on children depending on factors such as sex (e.g. Hawkins et al., 1991), socioeconomic status (e.g. MACS, 2007) and peer ratings (e.g. Lochman et al., 1993). However, in other cases, interventions appeared to show more general benefits (e.g. Fonagy et al., 2009). These findings point toward the potential benefits of particular interventions for particular groups, and suggest avenues for further research.

As discussed above, it is important to understand the active components of interventions both in terms of the refinement of models of aggression and identifying targets for intervention techniques (Lochman & Salekin, 2003). Therefore, exploring the mediators of interventions is a crucial component of research. Examples of present studies examining mediation effects include Shechtman (2000) who used qualitative research to identify children's perceptions of the most important components of the intervention; and Barker et al. (2010) who reported that deviant affiliation, low parental supervision and delinquent attitudes were all highly correlated with aggression in their sample.

### **Generalisation and Ecological Validity**

An issue that bears on the ecological validity of these studies is the choice of measures. Researchers tended toward peer, teacher or self-ratings of aggression, rather than direct observations of behaviour or indicators of behavioural outcomes

such as disciplinary referrals. Indeed, when behavioural measures were included, these tended to be the ones in which the least effect was observed (e.g. Hudley & Graham, 1993). This finding points toward the incompleteness of theoretical models of aggression (which proxy measures attempt to capture) and the actual occurrence of aggression, and sounds a note of caution when using these measures to make predictions about intervention effectiveness.

Further, report measures may be subject to reporter bias, especially as blinding reporters to conditions was usually not possible and therefore very rare in the reviewed studies. However, many of the studies in this review took care to ensure the fidelity of interventions, using methods such as allocating control conditions to different schools (e.g. Fonagy et al., 2009), monitoring intervention facilitators for adherence to intervention procedures (Ostrov et al., 2009), and using researcher, child and teacher outcome measures, preventing shared method variance (e.g. Shechtman, 2000).

### **Developmental Factors**

A second finding from these studies is the observation that, among the younger children in particular, aggression tended to increase among both target and control participants. Further, interventions, instead of reducing aggression, more often tended to slow or halt this upward progression (e.g. Barker et al. 2010). If this trend is representative of childhood development, these results can be seen as a legitimate success of interventions. Indeed, most studies observing this effect take the view that prevention along these lines may have the consequence of reducing the escalation of, and harm from, aggression. However, clearly more research is warranted in establishing to what extent the observed trend is typical of childhood development, an issue beyond the scope of this review.



## **Conclusion**

All of the reviewed studies acknowledge that many factors influence the onset and progression of aggression in children. Researchers point toward socioeconomic status, culture, sex, parenting practices and quality of education as examples of these factors. As discussed with regard to multi-modal interventions, these studies do not claim to ignore these factors, rather, attempt to reduce risk and contribute to the resilience of children to these influences by using a variety of methods to facilitate change in children's affect, cognitions and behaviours relevant to aggression. That these single mode (i.e. school-based) interventions can demonstrate improvement in aggression indicates that these are valid approaches in preventing and reducing aggression in pre-adolescent children. These interventions cite several advantages over multi-modal interventions, including application to large groups of children, reduced cost and resource implications, and in several cases, delivery conducive with usual classroom activities, with the capacity for them to be delivered by teachers or other school employees. These findings thus have significant resource implications and offer opportunities for broadening the scope of efforts to reduce aggression across a much wider spectrum of the community than multi-modal interventions can offer.

Further, these studies contribute to the broader aim of the development and refinement of developmental models of aggression and pathways to change, offering numerous avenues for future research.

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PART TWO:  
EMPIRICAL PAPER

Materialism and Well-Being in Children

## **Abstract**

Past research on materialism has focussed on adults and adolescents, with very little attention paid to younger children. In older populations, materialism has been linked to low self-esteem, increased aggression and delinquency, low prosocial behaviour and increased narcissism. This study aimed to identify whether these results could be replicated in pre-teen children, with particular attention paid to the impact of materialism-narcissism interactions on behavioural outcomes. Seventy-five children aged between 8 and 11 were assessed using child self-report measures of materialism and self-esteem, and teacher reported measures of relational and physical aggression, and narcissism. Results found that, unlike in previous studies of adults, materialism had no independent effects on adjustment variables. However, significant interactions with narcissism were identified indicating that children high in narcissism and high in materialism were particularly likely to be relationally aggressive. In contrast, high materialistic high narcissistic children were also far less likely to be physically aggressive. Results were discussed with reference to models of narcissism and materialism, and particular characteristics of the study sample. Suggestions for future research were considered.

## **Introduction**

Theories of motivation have implicated the importance of values as over-arching ideals that help to organise and prioritise personal goals (e.g. Grouzet, Kasser, Ahuvia et al., 2005). Values therefore direct behaviour and cognitions in the development and pursuit of value-congruent goals. Which values are internalised by an individual is significantly determined by the society and culture in which an individual is embedded. In the UK and other Western societies materialism is one

such culturally embedded value. Kasser et al. (2004) define materialism as representing a constellation of “aims, beliefs, goals and behaviours... [including] the belief that it is important to pursue the culturally sanctioned goals of attaining financial success, having nice possessions, having the right image, and having a high status” (in Kasser & Kanner, 2004, p. 13). It can be said that the extent to which an individual tends to define their self-concept and success in terms of extrinsic possessions, financial success and image is the extent to which they hold a materialistic value orientation.

Unfortunately, research shows that in adults, materialism has been associated with more negative emotions, less autonomy, less gratitude and less meaning in life (Kashdan & Breen, 2007). In Deci and Ryan’s (1985) Self-Determination Theory, (SDT) anxiety, especially of being rejected by others, acts as a driver of materialistic attitudes and behaviours as a means of coping with these aversive emotions. Indeed, Kasser (2002) posits that the materialism is an external-oriented substitute for internal and relational-oriented needs such as self-esteem and connectedness with others. In this model, it is suggested that orientation toward materialism decreases the capacity for orientation toward more internal and relational values, but does not in fact resolve the requirement for these basic needs to be met, thus providing an inadequate substitution. The SDT model contends that a vulnerability to adopt materialistic values as a substitute may arise in childhood should internal and relational needs not be met well enough.

Evidence in favour of materialism as an inadequate replacement to other needs includes findings that materialism is linked with reduced life satisfaction, uncertainty and as a way of coping with anxious affect (e.g. Chang & Arkin, 2002, Kasser and Sheldon, 2000). Further, materialism has been experimentally induced through increasing anxiety by asking participants to contemplate death (Arndt et al., 2004). Indeed, individuals who tend to associate success with material possessions

also tend to experience lower and less stable self-esteem (Chang & Arkin, 2002, Crocker and Wolfe, 2001).

It has been argued that a materialistic response to negative affect and the satisfaction of basic wants is maladaptive for a number of reasons. First, it reduces opportunities for internal need satisfaction, as efforts are diverted away from relatedness and connection as a means of acquiring basic needs. Second it is dependent on uncontrollable factors, such as fluctuations in others' opinions of what is desirable or evidence of success (Kashdan & Breen, 2007). Third, evidence indicates that there is a reliable gap between the expected hedonic pleasure of consumption and the actual experience (e.g. Wilson & Gilbert, 2005). Finally, research suggests that materialism is more strongly associated with a desire to avoid appearing inferior or inadequate to others, rather than to appear strong and socially attractive (Christopher, Morgan, Marek, Keller, & Drummond, 2005). Consistent with this notion, materialistic coping responses have been experimentally induced in situations that evoke anxiety (Kasser & Sheldon, 2000). Despite the difference between expected versus actual pleasure (or indeed, relief from anxiety) associated with the attainment of materialistic goals, this behaviour is still reinforcing in the short-term. Therefore, a desire to experientially avoid anxiety through materialistic means promotes the tendency to become trapped on the "hedonic-treadmill" of constant striving for more consumption to maintain perceptions of success and well-being (Kashdan & Breen, 2007) and avoid painful affect.

As might be expected from the above, there is good evidence to suggest that those high in materialism tend to be lower in subjective wellbeing than those high in internal-oriented values, and experience greater levels of distress (e.g. Brown, Kasser, Ryan, et al., 2009). In so much as the acquisition of material goals is contingent on factors beyond the control of the individual, this value orientation may

significantly increase an individual's vulnerability to reductions in state-based self-esteem (Crocker & Wolfe, 2001).

In support of the deleterious relationship between materialism and self-esteem, materialism has been found to correlate with narcissistic traits (Rose, 2007). Social-cognitive models of narcissism point toward features in common with high self-esteem individuals but emphasise a need to dominate and obtain the admiration of others in narcissists (e.g. Campbell, Rudich & Sedikes, 2002), i.e. a contingent self-esteem. Psychodynamic models describe narcissism as an unconscious defence against low self-esteem and anxiety borne from inadequate or inconsistent provision of self-needs in childhood, leaving the individual with a lingering urge to have these basic needs met in adulthood (Davison & Neale, 2001). Narcissistic individuals attempt to meet these needs through obtaining attention and admiration from others whilst simultaneously defending an internal feeling of lack of worth. Both social, cognitive and psychodynamic conceptualisations of narcissism posit that attention and admiration are sought by the narcissist through self-aggrandisement and attempts to dominate and achieve superiority over others. Further, social-cognitive models of narcissism also emphasise the dynamic interaction of the individual with their environment such that narcissistic adults shape their physical and social environments in ways which facilitate the presentation of themselves as grandiose, dominant and high status (Morf & Rhodewalt, 2001). Material objects are seen as cues of social status both to the self and to others and therefore as a potentially attractive target for narcissistic individuals (Rose, 2007). Indeed, work by Rose (2007) indicates that relatively more narcissistic individuals are at a greater risk of developing compulsive buying behaviours, a tendency that the research suggests is mediated by materialistic values and poor impulse control.

An additional deleterious outcome of a materialistic value orientation is an increased risk of antisocial, aggressive and criminal behaviour. With regard to

materialism, Messner and Rosenfield's (1994) institutional-anomie theory suggests that Western market-economies promote a utilitarian and commodified approach to social institutions and relationships. To the extent that these societies prioritise economic goals over other types of goals; that economic roles are honoured above noneconomic roles (e.g. a professional job versus parenthood) when conflict occurs; and that social standing is influenced more by economic roles than noneconomic roles; then individuals are at greater risk of turning toward materialistic values and an anomic, calculating, and utilitarian approach to relationships. When a society espouses market arrangements over institutions responsible for promoting social norms, then social norms may be more frequently disregarded for materialistic ends (Messner & Rosenfeld, 1997)

In concert with the findings in adult populations with respect to basic need substitution, materialism in adolescents has been linked to relatively emotionally impoverished upbringing. For example, Kasser et al. (1995) found that materialism is higher in teenagers of less nurturing mothers, and Williams et al. (2000) found that materialistic teenagers had parents who were relatively less likely to provide choices for them, acknowledge the teenagers' feelings or try to take the teenagers' perspective. In addition, materialism in adolescents has been related to reduced well-being and life satisfaction (e.g. Piko, 2006). Further, of a study of younger children and adolescents (between 9 and 14 years) by Goldberg, Gorn, Peracchio and Bamossy (2003), as well as finding a close link between parental levels of materialism and child levels of materialism, identified a modest negative correlation between materialism and school interest and performance. These studies suggest a possible developmental pathway for materialism, indicating that challenging family environments may function as a vulnerability factor for the development of materialistic values. This finding is in concert with the theory that materialistic



motivations act as substitutes to unavailable or unsatisfactory internal need satisfaction.

In addition to associations between materialism and emotional well-being, the emphasis on materialistic values in adolescence has been investigated with regard to antisocial behaviour. Tadrous and Butler (in press) found that adolescents with greater levels of materialism demonstrated an increased risk of delinquency and characteristics of callous and unemotional traits, tendencies predictive of various conduct disorders. Furthermore, Tadrous found that teacher ratings of peer aggression, both relational and physical, were positively associated with self-reported materialistic values. In accord with Messner and Rosenfield's (1994) Anomie theory this work suggests that when material pursuits are prevented (for example by a lack of wealth) frustration through blocked goals leads to aggression and attempts to meet material goals through delinquent behaviours.

Furthermore, considerable evidence supports a link between narcissism and aggression in adult and adolescent populations, especially pro-active aggression (i.e. purposeful aggression as a means of obtaining reward) (e.g. Barry, Frick & Killian, 2003; Washburn et al., 2002). Barry et al. (2003) reported an interaction between narcissism, self-esteem and aggression, such that those individuals high in narcissism and lowest in self-esteem were most likely to show aggression. Taken together, this research gives support to the possibility that young narcissistic individuals who adopt materialistic values and strategies may be at a particularly increased likelihood of aggression and antisocial behaviour.

Despite a growth in research focussing on the psychological and behavioural consequences of materialism, research interests have primarily focussed on the impact of materialistic values on adults, often of working age, and less so on other groups in society, notably children and young people. Growth in the research literature looking at the correlates of materialism and consumer culture on the

psychological well being of adolescents has grown but there is still little research on younger, pre-teen children. Indeed, most of the information on the development of materialism and its implications for young children has risen out of consumer psychology.

For example, early research by Goldberg and Gorn (1978) indicated that children as young as four and five years may be susceptible to materialistic messages and that once primed into materialistic goals tended to be more unsociable and instrumental in their relationships with peers. However, in order for children to use material possessions to cope with feelings of insecurity and low self-esteem, it is necessary that they acquire the capacity to understand the symbolic meanings associated with material possessions, reflecting such attributes as success and prestige, which can be used to communicate a more positive self image (Chaplin & John, 2007). Consistent with Goldberg et al.'s (2003) finding of materialism in 9 year olds, Chaplin and John (2007) point to theories of child development and research indicating that these capacities develop between middle and late childhood (8-11 years old). Indeed, Achenreiner and John (2003) propose that at 8 years old children from Westernised societies possess an abstract or symbolic understanding of brands, and are able to connect material goods to non-observable features such as prestige, quality and trendiness. By late childhood (10-11 years) it has been posited that children not only have an understanding of the symbolic value of material goods but are also able to recognise how they themselves may be perceived by others, and that this perception may be influenced by their material possessions (Chaplin & John, 2005). In addition, research by Chaplin and John (2007) found that self-esteem mediated the relationship between age and materialistic values, such that decreases in self-esteem between middle childhood and adolescence correlated with increases in materialism, and increases in self-esteem lead to lower levels of materialism.

In summary, the above research indicates a need for further investigation into the presence of materialism in pre-teenage children and the psychological and behavioural correlates of materialism in this age group. Materialistic values are thought to emerge in this group as awareness develops of the abstract or symbolic associations made of material goods, combined with an increased understanding of how possessions may be perceived by others. Some children may be at increased vulnerability to internalising materialistic values if their intrinsic and relational needs are not met in other ways. In this way materialism may be taken up as a strategy for obtaining the approval of others, maintaining self-esteem and reducing anxiety. Finally, Chaplin and John (2005) suggest that the age of onset of materialism is around 9 or 10 years old but may occur earlier than this and may also increase as self-esteem decreases.

Thus, materialism is associated with negative beliefs and cognitions, negative affect such as anxiety and low mood, and deleterious behaviours in adults and adolescents, such as pro-active aggression and antisocial behaviour, poor relationships and low self-esteem. Therefore, it would seem important to test to what extent these associations may also be present in materialistic pre-teen children. This should be evidenced both in terms of self-report and importantly in terms of observable behaviours, such as peer relationships and behaviour at school. Both materialism and narcissism have been strongly linked to feelings of self-doubt, low self-esteem and as a method of achieving unmet needs. Narcissism is also linked to materialism, as it satisfies the goal of demonstrating high status to others. Indeed, both materialism and narcissism function to distance individuals from close relationships with others and may result in the development of utilitarian relationships with others (e.g. Messner & Rosenfeld, 1997). Accordingly, it may be the case that pre-teen children high in materialism may also display narcissistic characteristics. Further, the link between narcissism and aggression suggests that

children with both narcissistic and materialistic characteristics may also be at a greater risk of antisocial behaviour. Narcissism has been implicated in problem behaviours in children (e.g. Frick & Hare, 2001). Ang and Yusof (2005) point to evidence of inflated self-reports of competence and peer-rated measures of narcissism as predictors of pre-adolescent aggression and relational difficulties. Barry, Frick, Adler, and Grafeman (2007) report that narcissism may be at least as predictive of childhood maladjustment than measures such as callous-unemotional traits and impulsivity, factors associated with a variety of behavioural and emotional difficulties. Therefore, in combination, materialism and narcissism may represent a noxious blend of traits and related processes that serve to interact in order to increase the probability of aggression in this population.

The current study aims to explore the associations and interactions between materialistic values and negative psychological and psychosocial phenomena among school children aged between 8 and 11 years. The following hypotheses will be tested:

1. Materialism will be associated with indicators of negative adjustment in children (such as aggression, low prosociality and low self-esteem)
2. Narcissism will be associated with indicators of negative adjustment in children (such as aggression, low prosociality and low self-esteem)
3. There will be an interaction between materialism and narcissism indicative of increased aggressive and antisocial behaviour than the independent associations related to narcissism and materialism alone.

## **Method**

### *Ethical Approval*

Ethical approval for this study was obtained from the University College London Research Ethics Committee.

### *Sample*

The sample of 75 children was recruited from a Southern England school system, and included children recruited from seven classrooms representing year groups 4, 5 and 6 (ages 8 to 11 years). Packs explaining the purpose of the research were distributed to children's parents via the children. Packs included a research brief and consent forms. Only participants whose parents returned signed consent forms were eligible for inclusion in the research. Children were given a brief, age appropriate, explanation of the research by their classroom teacher. A total of 75 parents gave consent representing a 30% return rate. All consenting parents' children participated in the research.

The final sample consisted of children between ages 8 and 11, with the majority of children (48%) being sampled from the lowest age (mean = 8.76; SD = 0.88). Participants were 100% white British, with a gender mix of 52% female and 48% male.

### *Sample Size*

A power calculation was carried out using the "G\*Power 3" computer programme (Faul, Erdfelder, Lang & Buchner, 2007). With multiple regression model (Omnibus:  $R^2$  deviation from zero) specifying a moderate effect size of 0.25, with an alpha of 0.05, a power of 0.8 and with 6 predictors (age, gender, self-esteem, narcissism and two measures of aggression, holding materialism as a fixed factor) a sample size of 69 was calculated. The effect size was estimated from studies of the effect sizes of each of the factors on materialism and on each other, where studies were available.

### *Procedure*

Data collection took place at the participating school during spring school term. Participating children completed self-report questionnaires during school time under the supervision of their usual classroom teacher. Children were reminded that the information they gave was confidential at the time of completion, encouraging honest responses and the importance of not discussing answers with other children. Teachers and pupils read the instructions of the questionnaires together to ensure children understood the instructions, and were encouraged to ask questions if they were not sure. In addition, each questionnaire included an example question to help facilitate understanding of the procedure.

Participating teachers were individually briefed on the nature of the research and how to administer the questionnaires to the children. In addition, they were given their own questionnaires to complete. Teachers were asked to complete one set of questionnaires for each participating child. Teachers were instructed not to consult the responses of children. Finally, at no stage was the researcher made aware of the names of individual children, or given any further information about the children beyond their questionnaire responses.

### **Measures**

#### *Measures Completed by Children*

Demographic data was gathered for participants. These included age, gender and ethnicity. In addition, an estimation of socio-economic status (SES) was obtained by differentiating those children who are eligible for free school meals from those who are not.

*Materialistic Values.* Materialistic values were measured using the Youth Materialism Scale (YMS; Goldberg et al., 2003). This is the only self-report measure

developed and validated for use with children between 9 and 14 years old. The measure contains 10 values and a 4-point Likert scale (1 = disagree a lot, 4 = agree a lot). Examples of items include “I'd rather spend time buying things, than doing almost anything else” and “When you grow up, the more money you have, the happier you are”.

*Self-esteem.* This study employed the Harter (1985) Self-Esteem Questionnaire for Children. This questionnaire is a 36 item self-report measure which assesses global self-esteem as well as five other subscales: scholastic performance, social acceptance, athletic competence, physical appearance and behaviour. Cronbach's alpha reliability values for the subscales range from 0.71 to 0.8. Factor analysis showed that the five specific subscales loaded independently and the sixth, global self worth, varied considerably between individuals so that there was no consistent association with the other factors (Hoare et al., 1993). In this study only the global self-worth measure will be used.

#### *Measures Completed by Teachers*

*Narcissism.* Although there are several measures of narcissism for pre-adolescent children the Narcissism sub-scale of the Anti-Social Process Screening Device (APSD, Frick & Hare, 2001) was selected on the basis of considerable psychometric data indicating its validity and reliability in assessing children. The APSD also includes subscales that measure traits of Callousness and Unemotionality, and Impulsivity. Taken together, the APSD has been found to be a good measure of antisocial personality traits in children. Further, the Narcissism subscale has been found to match closely onto other measures of antisocial behaviour (Dadds, Fraser, Frost, & Hawes, 2005). The subscale is constructed of seven items such as “becomes angry when corrected” and “brags excessively”.

*Aggression* Aggression was assessed using a composite measure derived from two scales including Children's Social Behaviour Scale-Teacher Form (Crick, 1996) and Dodge and Coie's (1987) Teacher Rated Instrument. In total, the composite scale consisted of 13 items with three subscales (relational aggression, physical aggression, and prosocial behaviours). Four items assessed relational aggression (e.g. 'This child tries to get other children to dislike or exclude a peer when a peer will not do what the child wants'), four items measured physical aggression (e.g. 'This child initiates or gets into physical fights with peers'), and four items measured prosocial behaviours ('This child tries to cheer up peers when they are sad or upset about something'). For all items, teachers are required to respond on a 5-point scale (1 = never true, 5 = almost always true). Internal consistency for each subscale was high (relational aggression Chronbach  $\alpha$  = 0.94, physical aggression Chronbach  $\alpha$  = 0.94, prosocial behaviour Chronbach  $\alpha$  = 0.93).

## **Results**

### *Analytic Strategy*

The results are presented in five sections. The first section describes how the data were prepared for analysis. The second section explores the reliability and internal consistency of the measures used in this study. In the third, demographic data are presented and associations between outcome variables and demographics analysed in order to test for the effect of extraneous or confounding relationships between these factors and outcomes. The fourth section tests the initial hypotheses of the study, that materialism and narcissism are associated with aggression and self-esteem. The final section employs statistical modelling of variables to assess the predictive utility of materialism and narcissism on aggression and self-esteem, and the effect of interactions between materialism and narcissism on outcomes.



### *Preparation of Data*

Scores on materialism were roughly normally distributed. However, scores on aggression, narcissism and prosociality demonstrated significant negative skew. In contrast, the spread of scores of self-esteem showed significant positive skew. Table 1 provides the means and standard deviations for the measures. Unfortunately, comparison of the distribution of scores between the present study and previous studies was not possible as these statistics were not reported in previous research. This made clarification of the extent of the skew somewhat harder to assess. Nevertheless, log transformations were conducted on skewed variables to resolve the unequal distribution of scores. However, the transformations did not adequately resolve the skewness of data. This result indicated the use of non-parametric statistical analyses. However, regression modelling was employed in order to test the hypotheses, using continuous variables, which supports the use of Pearson's product moment. In order to manage this obstacle, bootstrapping was chosen for all analyses, using the original raw data. Bootstrapping is a method of random re-sampling from the original dataset in order to obtain a clearer distribution of the data. In this study, the bootstrapping procedure performed 1000 re-samples of the data. This approach therefore makes no assumptions about the normal distribution of data and is an accepted method of improving the accuracy of the standard error and confidence intervals of skewed data (Preacher & Hayes, 2004).

Table 1. Means and standard deviations of raw scores

Variable	Mean (SD)
Materialism	22.9 (4.8)
Narcissism	1.68 (1.9)
Self Esteem	18.59 (3.4)
Relational Aggression	8.38 (3.2)
Physical Aggression	4.95 (2.2)
Prosocial	12.2 (4.4)

*Reliability of Measures*

In order to assess the reliability of the measures, Chronbach's Alphas were calculated for each. Table 2 summarises these findings.

Table 2. Chronbach's Alpha reliability coefficients

Measure	Chronbach $\alpha$	Inter-item correlation range
YMS (Materialism)	0.675	-0.088 to 0.399
HSE (Self-Esteem)	0.742	0.207 to 0.518
APSD (Narcissism)	0.723	-0.029 to 0.586
CSBQ (Relational)	0.91	0.499 to 0.822
CSBQ (Physical)	0.884	0.495 to 0.726
CSBQ (Prosocial)	0.967	0.864 to 0.922

Note: YMS = Youth Materialism Scale, HSE = Harter (Global) Self-Esteem, APSD = Narcissism subscale of the Child Anti-social Screening Device, CSBQ = Child Social Behaviour Questionnaire.

Table 2 indicates that measures of aggression demonstrated excellent internal consistency with Chronbach's alphas ranging from 0.89 to 0.97. Measures

of narcissism and self-esteem exceeded standards of acceptability with alphas above 0.7. However, the Youth Materialism Scale scored marginally lower than the commonly acceptable threshold for reliability at 0.68 (e.g. George & Mallery, 2003), suggesting poorer internal consistency than the other measures. This is in contrast to Goldberg et al. (2003) who found an alpha of 0.75, and a single eigenvalue of more than one, suggesting unidimensionality of the latent structure measured with the YMS. As the alpha in the present study approaches acceptability, but is beneath this threshold, its internal consistency should be treated conservatively.

### *Demographics*

In the present study 38 (52%) of the children were female. The mean age of the sample was 8.76 years, representing 36 (48%) at 8 years old, 25 (33%) at 9 years old, 10 (13%) at 10 years old and 4 (5%) aged 11 years. Six children (8%) were identified as receiving free school meals, an estimate of low socioeconomic status. All children sampled were from white British ethnicity.

Achenreiner and John (2003) indicate that children from age 10 and above would be more developmentally susceptible to the internalisation of materialistic values. In contrast with this hypothesis, age was correlated negatively with materialism ( $r=-0.254$ ,  $p=0.048$ ) in this sample (see Table 3), suggesting younger children were more materialistic. This result was confirmed using independent t-tests, where age data were separated into two groups: those below 10 years and those 10 years and above ( $t=-2.686$ ,  $p=0.009$ ). Given the small number of children in the older age range, this result should be treated with caution. No other age differences were found for the remaining variables

With regard to SES, in order to test for differences between those receiving free school meals and those not, independent samples t-tests were conducted. Those in the lower socio-economic status group scored on average significantly

higher on materialism ( $t=2.255$ ,  $p=0.028$ ), and significantly lower on prosociality ( $t=-3.260$ ,  $p=0.002$ ). However, only six participants (8%) of the sample qualified for free school meals, therefore this result should be treated conservatively.

Significant sex differences were found. Specifically, boys were more likely to score highly on measures of physical aggression ( $t=2.376$ ,  $p=0.022$ ), whilst scoring lower than girls on prosociality ( $t=-2.882$ ,  $p=0.005$ ), which is consistent with the developmental literature in these areas (e.g. Merrel, Buchanon & Tran, 2006). However, sex differences were not found for measures of relational aggression, self-esteem, narcissism or materialism.

In summary, demographic variables, particularly sex differences, appeared to exert extraneous effects on the dependent and outcome variables. Therefore, subsequent analyses took account of demographic variables to control for these effects.

#### *Associations Between Variables*

In order to test the presence and strength of associations between the measured variables in line with stated hypotheses, correlational analyses were conducted. Table 3 describes the relationship between measured variables.

As can be seen from Table 3, in contrast to the primary predictions of this study, materialism did not correlate significantly with self-esteem, narcissism or aggression.

In contrast, narcissism correlated significantly positively with relational aggression ( $r=0.367$ ,  $p=0.004$ ), physical aggression ( $r=0.434$ ,  $p<0.001$ ), and negatively with prosocial behaviour ( $r=-0.321$ ,  $p=0.012$ ), in line with predictions.

Additionally, physical and relational aggression were significantly positively correlated ( $r=0.362$ ,  $p=0.004$ ). Finally, in contrast, prosociality was significantly

negatively correlated with relational ( $r=-0.302$ ,  $p=0.018$ ), and physical aggression ( $r=-0.470$ ,  $p<0.001$ ), and narcissism, as mentioned.

Table 3. *Correlations of Independent Variables and Outcomes*

		Mat	SE	Narc	Rel	Phy	Pro	Age
Materialism	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	61						
Self-Esteem	Pearson Correlation	-.079	1					
	Sig. (2-tailed)	.544						
	N	61	61					
Narcissism	Pearson Correlation	.136	.049	1				
	Sig. (2-tailed)	.295	.710					
	N	61	61	61				
Relational Aggression	Pearson Correlation	.224	-.207	.367**	1			
	Sig. (2-tailed)	.082	.110	.004				
	N	61	61	61	61			
Physical Aggression	Pearson Correlation	.049	.001	.434**	.362**	1		
	Sig. (2-tailed)	.707	.991	.000	.004			
	N	61	61	61	61	61		
Prosocial Behaviour	Pearson Correlation	-.082	.031	-.321*	-.302*	-.470**	1	
	Sig. (2-tailed)	.531	.815	.012	.018	.000		
	N	61	61	61	61	61	61	
Age	Pearson Correlation	-.254*	-.003	.033	-.140	.232	-.146	1
	Sig. (2-tailed)	.048	.979	.798	.283	.071	.260	
	N	61	61	61	61	61	61	61

Bootstrap results are based on 1000 bootstrap samples

\*. Correlation is significant at the 0.05 level (2-tailed).

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

*Note:* Mat = Materialism; SE = Self-Esteem; Narc = Narcissism; Rel = Relational Aggression; Phy = Physical Aggression; Pro = Prosocial Behaviour

### *Exploring Aggression*

In order to explore the relationship between materialism, narcissism and measures of childhood adjustment, hierarchical multiple regression analyses were conducted. Two models were constructed, the first investigating the predictive utility of variables associated with relational aggression, and the second exploring variables associated with physical aggression. In both models demographic variables were

entered in the first step in order to control for the effects identified with them. In the second step, variables associated with outcomes from the correlation analyses were entered. In the final step, an interaction term of materialism x narcissism was entered, in order to test the hypothesis that the interaction between these variables will be associated with poorer outcomes. In this way, physical aggression was controlled for when exploring the interaction between materialism and narcissism on relational aggression. Similarly, relational aggression was controlled for when exploring the interaction between materialism and narcissism on physical aggression. In this way, it was possible to identify the unique variance attributable to the independent variables on each form of aggression. However, it should be acknowledged that this method precludes assessment of shared variance associated with relational and physical aggression and so is a more conservative assessment strategy. Tables 4 and 5 summarise the regression models.

Table 4. Summary of hierarchical aggression analyses for variables and interaction predicting relational aggression

Variable	B	SE B	$\beta$	R <sup>2</sup> Change	F Change	df 1 / 2	Sig. F Change
<b>Step 1</b>							
Age	-.398	.485	-.112				
Sex	-.494	.875	-.077				
SES	1.928	1.386	.180	.060	1.219	3 / 57	.311
<b>Step 2</b>							
Materialism	.054	.082	.081				
Narcissism	.418	.213	.252				
Self-Esteem	-.201	.109	-.207				
Prosocial Behaviour	-.099	.111	-.135				
Physical Aggression	.388	.193	.276*	.304	4.969	5 / 52	.001**
<b>Step 3</b>							
Materialism x Narcissism	.087	.033	.305**	.076	6.924	1 / 51	.011*

Note: Whole model  $\Delta R^2$  for Step 1 = 0.011, whole model  $\Delta R^2$  for Step 2 = 0.266, whole model  $\Delta R^2$  for Step 3 = 0.341. \*  $p \geq 0.05$ , \*\*  $p \geq 0.01$

*Relational Aggression* Age, sex, SES, materialism, narcissism, prosociality and physical aggression were entered as independent predictors of relational aggression. The combined model, excluding the interaction term, demonstrated significant predictive utility, accounting for 26.6% of the variance in relational aggression ( $F(5, 52)=4.969$ ,  $\Delta R^2=0.266$ ,  $p=0.001$ ); whilst control variables did not

contribute significantly to the variance accounted for in the model. Independent effects were found for physical aggression ( $t=2.01$ ,  $p=0.05$ ).

Table 5. Summary of hierarchical aggression analyses for variables and interaction predicting physical aggression

Variable	B	SE B	$\beta$	R <sup>2</sup> Change	F Change	df 1 / 2	Sig. F Change
Step 1							
Age	.406	.338	.160				
Sex	1.001	.611	.220				
SES	.413	.967	.054	.097	2.052	3 / 57	.117
Step 2							
Materialism	.014	.057	.031				
Narcissism	.236	.150	.200				
Self-Esteem	.043	.078	.063				
Prosocial Behaviour	-.169	.074	-.323**				
Relational Aggression	.186	.093	.261*	.300	5.190	5 / 52	.001**
Step 3							
Materialism x Narcissism	-.070	.022	-.344**	.103	10.513	1 / 51	.002**

Note: Whole  $\Delta R^2$  for Step 1 = 0.05, whole  $\Delta R^2$  for Step 2 = 0.305, whole  $\Delta R^2$  for Step 3 = 0.413. \*  $p \geq 0.05$ , \*\*  $p \geq 0.01$

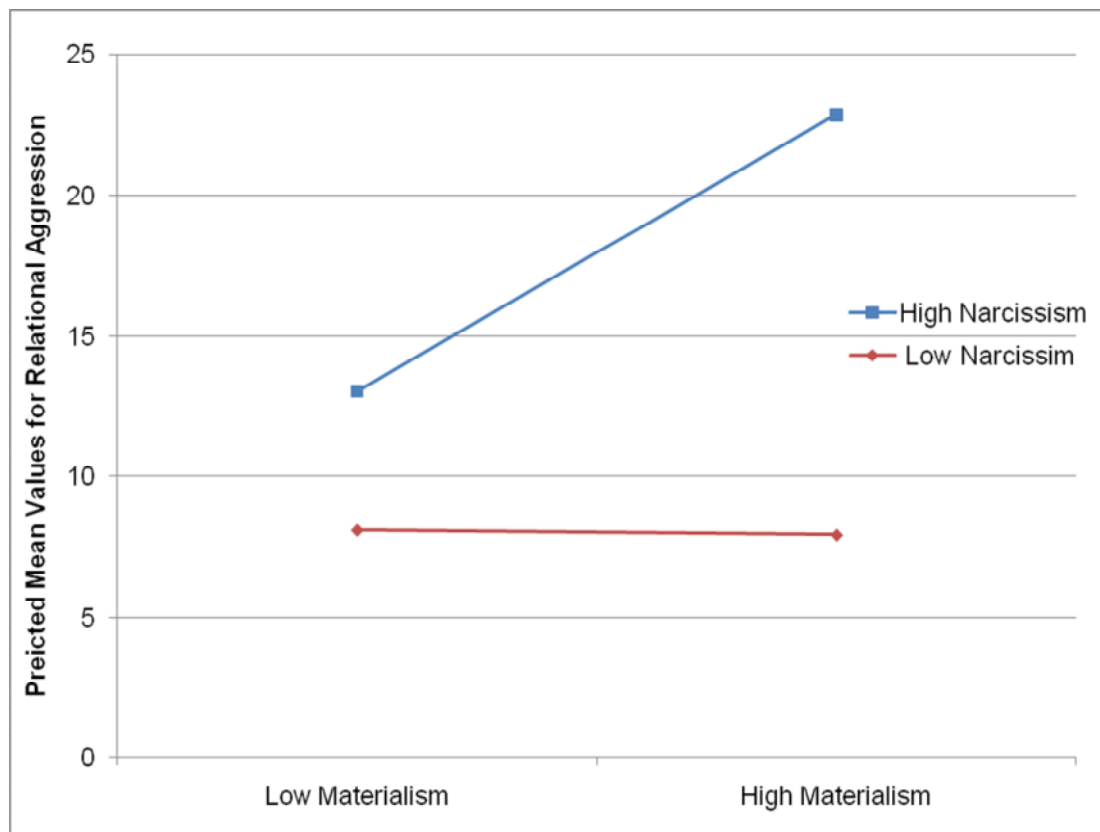
*Materialism – Narcissism Interaction* Predictors were centred in order to standardise them in the usual way for testing interaction models. The materialism x narcissism interaction term was then entered into the regression equation. The interaction term produced an independent effect ( $t=2.631$ ,  $p=0.011$ ) and contributed significant



additional predictive utility to the model, accounting for a further 7.6% of the variance ( $F(1, 51) = 6.924$ ,  $\Delta R^2 = 0.341$ ,  $p = 0.011$ ).

To characterise the interaction term, a plot of the predicted mean relational aggression was created using the regression equations, with both materialism and narcissism set at  $\pm 1$  standard deviation from the mean (Aiken and West, 1991). The plot is shown in Figure 1. Figure 1 demonstrates that high materialism and high narcissism was associated with greater relational aggression relative to high materialism and low narcissism or high narcissism and low materialism. Indeed, Figure 1 shows that low materialism and high narcissism, and low materialism and low narcissism, were considerably closer in predicted relational aggression than high materialism and low narcissism and high materialism and high narcissism.

Figure 1. *Interaction effect of materialism-narcissism on relational aggression*

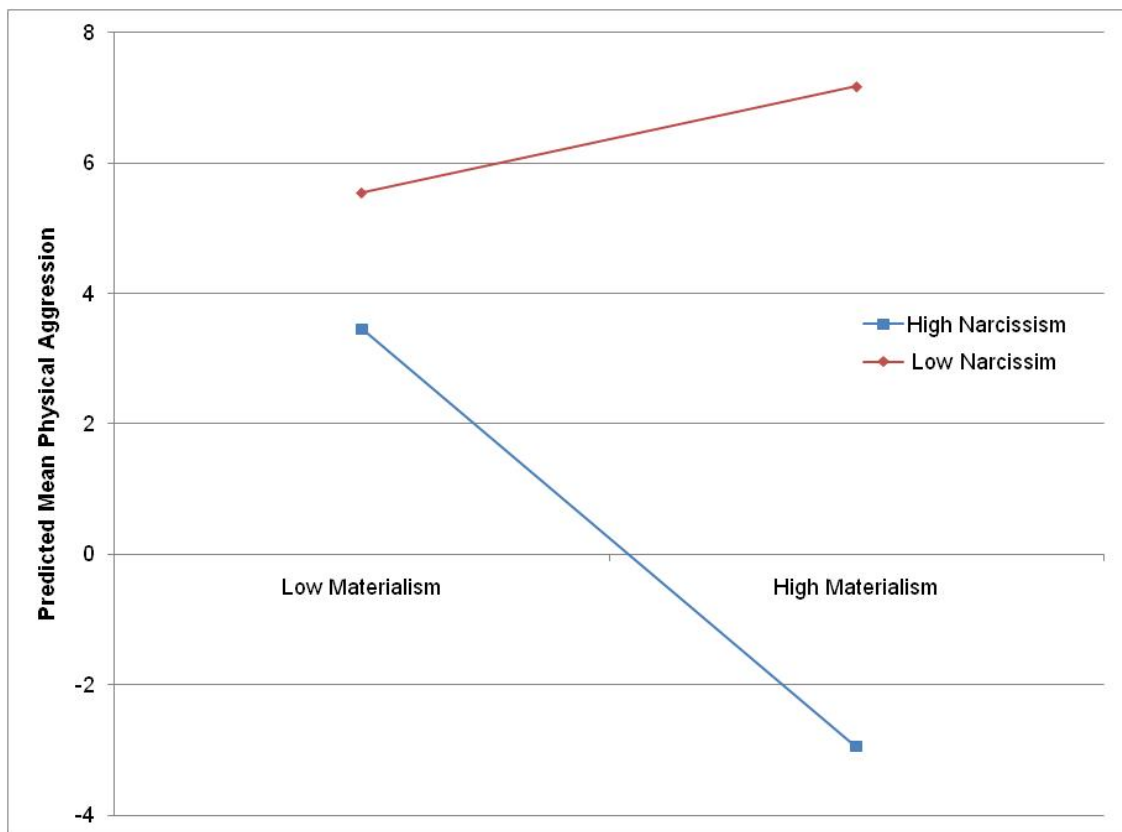


*Physical Aggression* Age, sex, SES, materialism, narcissism, relational aggression and prosociality were entered as independent predictors of physical aggression. The combined model, excluding the interaction term, was significantly better than chance at predicting physical aggression, accounting for 30.5% of the variance in physical aggression ( $F(5, 52)=5.190, \Delta R^2=0.305, p=0.001$ ); whilst control variables did not contribute significantly to the variance accounted for in the model.

*Materialism – Narcissism Interaction* Predictors were centred in order to standardise them in the usual way for testing interaction models. The materialism x narcissism interaction term was then entered into the regression equation. The interaction term contributed significant additional predictive utility to the model, accounting for a further 10.3% of the variance in physical aggression ( $F(1, 51)=10.513, \Delta R^2=0.103, p=0.002$ ). The independent effects of relational aggression ( $t=2.01, p=0.05$ ) and prosociality ( $t=-2.287, p=0.026$ ) were significant.

To characterise the interaction term, a plot of the predicted mean physical aggression was created using the regression equations, with both materialism and narcissism set at  $\pm 1$  standard deviation from the mean (Aiken & West, 1991). The plot is shown in Figure 2. Figure 2 demonstrates that, in contrast to predictions, high materialism and high narcissism were associated with lower physical aggression relative to high materialism and low narcissism or high narcissism and low materialism. Further, Figure 2 shows that low materialism and high narcissism and low materialism and low narcissism were considerably more similar in predicted physical aggression than high materialism and low narcissism and high materialism and high narcissism.

Figure 2. Interaction effect of materialism-narcissism on physical aggression



## Discussion

The present study aimed to explore the associations between materialism and childhood adjustment as measured by aggression and self-esteem. First, it sought to identify whether materialism and narcissism in children are associated with similar factors as in adolescents and adults, namely, aggression, low prosociality and low self-esteem. Second, it sought to identify whether materialism and narcissism could function as a predictor of these poor childhood outcomes. Finally, it tested whether materialism interacts with narcissism in such a way as to increase the probability of these poor childhood outcomes.

Independently, materialism was not found to correlate with or show predictive utility for aggression, narcissism or prosocial behaviour. However, materialism was found to be higher in those within the lowest socio-economic group.

This finding is consistent with previous work that has argued that materialistic goals might be more important for individuals who are relatively deprived of material goods. Research suggests that those below national poverty lines tend to value material goals above autonomy, relatedness or growth goals to fulfil needs for security as well as in order to impress others (e.g. Kasser, Koestner & Lekes, 2002). However, in the sample taken for this study, very few participants were categorised as belonging to low SES families and therefore this should not be considered a robust finding.

In line with predictions, narcissism was associated with both relational and physical aggression. This is consistent with a growing body of data implicating narcissism in the development of problem behaviour in children (e.g. Barry et al., 2007; Dadds, et al., 2005). Narcissism was not related to self-esteem, however, indicating that the measure was capturing unique features of narcissism that did not covary with features of self-esteem.

Regression analyses demonstrated that a significant proportion of the variance in relational aggression was predicted by a model that included materialism, narcissism, prosociality and physical aggression (26.6%), with physical aggression independently predicting relational aggression. Consistent with the hypothesis, the addition of an interaction term for materialism and narcissism added significantly more predictive utility to the model. Further, as predicted, interpretation of the interaction term demonstrated that an interaction between high materialism and high narcissism resulted in high levels of relational aggression. This is particularly noteworthy, given that materialism and narcissism did not correlate and materialism did not have independent effects on aggression. In this way, a potentially neglected contributor to childhood aggression has been identified in this study.

The interaction effect implies that children who are both materialistic and narcissistic are more likely to act in relationally aggressive ways. Indeed, studies of relational aggression have shown evidence that it may function, in part, as a means of obtaining and maintaining social status (e.g. Puckett, Aikins & Cillessen, 2008), but is often correlated with impoverished quality of relationships (e.g. Banny, Heilbron, Ames & Prinstein, 2011). One hypothesis that may explain these findings, then, is that both materialism and narcissism function defensively, as a means of maintaining a sense of social inclusion or social dominance in the face of low or threatened sense of worth and status (Barry et al., 2007; Kasser, 2002). Further, it may be that relational aggression is one strategy that is more likely to be used in order to achieve or maintain these desired ends. These are empirical questions that warrant further investigation.

Nevertheless, these findings are consistent with the notion that materialistic attitudes reduce the probability of behaving in ways that show concern for others. Although not directly tested in this study, the findings are broadly compatible with Messner and Rosenfeld's (1994) anomie theory which argues that materialistic attitudes promote calculating, utilitarian attitudes to relationships with others (e.g. Messner and Rosenfeld, 1997), and Deci and Ryan's (1985) Self-Determination Theory, that posits that materialistic attitudes are at odds with affiliative social relationships.

Further regression analyses demonstrated that a significant proportion of the variance in physical aggression was predicted by a model that included materialism, prosociality, self-esteem, relational aggression and narcissism (30.5%), with independent effects noted for relational aggression and prosociality. An interaction term including materialism and narcissism contributed significantly to the predictive utility of the model. However, in contrast to the primary predictions of this study, the interaction of high narcissism and high materialism actually decreased the likelihood

of physical aggression. It is difficult to reconcile the work of previous studies with this finding, and it may point toward unique effects of materialism and narcissism in this age-group. For example, taking the relational aggression findings and the physical aggression findings together may suggest that narcissistic children high in materialism are inclined to favour taking relationally aggressive means of demonstrating social dominance or defending against social exclusion. However, it is perhaps more likely that this finding represents “signal-to-noise” problems with the data from this present sample, which may indicate a type II error. Specifically, it was noted that the sample was highly skewed in favour of positive adjustment on all measures, none more so than physical aggression, making effects particularly liable to fluctuation according to minor changes in data at the high aggressive end of the distribution. That physical aggression is more skewed than relational aggression in this sample is likely due to physical aggression being both more easily observable and less tolerated in school settings than relational aggression. Indeed, unambiguous contingent responses to physical aggression are more easily and frequently enforced in schools than responses to relational aggression, making physical aggression in general less likely to be found in this study. Nevertheless, this finding necessitates replication and verification, as it may allude to a genuine and significant difference between adult and child behaviour in relation to a materialistic value orientation.

The present study had a number of strengths. In particular, the observed interactions involved both child self-report measures (i.e. materialism) and teacher-reported behavioural measures (i.e. relational / physical aggression), enabling greater objectivity, and therefore greater confidence, in the results. In addition, observational measures were reported by each individual’s school teacher mid-way through the academic year. By this time, the teachers knew individual pupils well and would have become familiar with their behaviour throughout the school year.

Further, testing was conducted in the usual classroom setting, usually with the whole class or a large proportion of it participating. This may have reduced the likelihood of extraneous variables, such as social desirability or expectancy effects. Further, this study drew on children from a range of ages, who were not selected on the basis of particular social or psychological characteristics. This general sampling has a number of implications. First, it increases the generalisability of the study to a broader cross-section of children in societies where materialistic values are common, such as Western capitalist democracies. Second, it may serve to significantly underestimate the impact of materialism for more at-risk children, such as those with concurrent risk factors for both narcissism (such as callous-unemotional and impulsive traits) and materialism (such as parental endorsement of materialistic attitudes and low SES). Finally, it is suggestive that materialistic value orientations are present in children as young as eight years old and are actively interacting with other psychosocial determinants of well-being and adjustment.

However, there were potential limitations to the study. As noted earlier, descriptive analyses of the data demonstrated that on measures of narcissism, relational aggression and physical aggression, the sample was highly negatively skewed. This made it more difficult to detect effects of the IVs on the outcome variables, and increased the probability of Type II error. However, this supports the conclusion that the findings from the present study are therefore conservative, and suggests that repetition of this study with a greater proportion of poorer adjusted children is warranted.

Further, although there were benefits to the separation of measures amongst children and their teachers, measures of aggression and narcissism were both taken by the same teacher-reporter. This may have led to reporting bias through shared method variance. Separate or additional reporters of these measures would have significantly reduced the possibility of this confound.

An additional issue regarding the measures administered in this study is the potential overlap between measures of narcissism and measures of aggression. In particular, the Narcissism sub-scale of the APSD includes the items “teases others”, an item that reflects a relationally aggressive behaviour, and “gets angry when corrected”, an item that is related to aggression. It is possible that this thematic similarity may have inflated the correlations between narcissism and aggression. However, it does not account for the interaction effect of materialism and narcissism on predictions of aggression. Nevertheless, the Narcissism subscale of the APSD remains the most empirically validated and reliable measure of this trait in children within the sample age range (Frick & Hare, 2001).

With regard to the sample, there was an imbalance in the number of children drawn from different ages, with many more young children than older children in the study. It is difficult to predict how this change affected the data, but it is likely to have reduced the reliability of any analysis by age. However, it also underscores the relevance of materialism in younger children and the potential for materialism-supporting environments to influence younger children’s adjustment.

The study may have benefitted from data from the parents of the children; for example, by comparing parental reports of child behaviour with teacher reports of child behaviour, or identifying relationships between parental materialism and child materialism. This would have enabled a richer account of influences on the development and maintenance of childhood materialism in this sample. However, the lack of parental data does not interfere with the central predictions of the study, that childhood adjustment would be influenced by materialism. Nonetheless, further work including these important variables is warranted to further explore their relationships with adjustment.

Furthermore, the children came from ethnically homogeneous backgrounds. It would be useful, therefore, to see if differences in culture and ethnicity affect the



development of materialism and the relationship between cultural factors and child well-being.

In terms of design, the cross-sectional methodology employed in this study has the restriction of being unable to detect the direction of causality in the relationship between materialism, narcissism and aggression. A longitudinal study would have demonstrated whether materialism is causally related to aggression or whether aggression increases the probability of materialistic attitudes being adopted. However, previous longitudinal work with adults strongly indicates that materialism is predictive of later thoughts, emotions and behaviour, and there is no specific reason why this should be different with children (e.g. Kasser, 2002). Nevertheless, this remains a relevant empirical question to be addressed.

Finally, the reliability coefficient for the Youth Materialism Scale was slightly lower than the accepted reliability norms for Likert-style questionnaires in this study, despite previous published uses of this measure exceeding the threshold (e.g. Goldberg et al., 2003). This may indicate the need for refinement of the YMS for future studies. However, as very few validated measures of materialism exist for children, the YMS remains a good choice for exploratory research in this area, such as the current study.

There is currently a dearth of studies looking at both how materialism develops in children and the consequences of childhood materialism for child well-being. Therefore future research in this area is warranted. Replication of this study with an ethnically diverse population, a more equal balance of ages, and a broader range of behavioural and emotional adjustment is indicated in order to explore with more reliability the impact of these variables on materialism and child well-being. Chaplin and John (2005) posit that children develop greater and more nuanced awareness of consumerist messages as they reach various developmental milestones. It would therefore be relevant to investigate how the adoption of

different components of materialistic values at different ages relates to the adoption of beliefs about the self and others, and what behaviours they predict. In terms of psychopathological processes and materialism, it would be especially relevant to investigate whether materialism has predictive utility for childhood psychological disorder, such as conduct disorder and delinquency, and whether it contributes to the development and maintenance of psychological disorder in this age group.

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Part Three:

Critical Appraisal

## **Introduction**

This appraisal sets out some of the challenges and reflections encountered throughout the process of conducting this research. However, as well as considering some of the broader decision making processes involved in the Empirical Paper, I was particularly interested reflecting personally on how materialism relates to my role as a clinical psychologist.

In order to study materialism in children a number of challenges had to be considered. These challenges were described in the Empirical Paper and are expanded upon in this appraisal. In particular, it was necessary to take into account issues of the measurement of materialism in children of different ages, issues of recruitment and sampling, and the integration of research from clinical psychology and other disciplines. With regard to materialism and psychology I conclude the appraisal with my views on how the practice of psychology can be informed and challenged by the study of materialism.

## **Empirical Paper - Reflections on the Research Process**

### **Measurement of Materialism**

The assessment of materialism in children required some consideration. Not only were childhood measures of materialism few, but developmental psychology points to changes in the way in which materialism is understood and internalised as children age.

The only empirically evaluated measure available for the measurement of materialism was the Youth Materialism Scale (YMS), developed by Goldberg, Gorn, Peracchio and Bamossy, (2003). This scale was developed from two validated adult materialism scales (Belk, 1985; Richins & Dawson, 1992) and one empirically untested children's materialism scale (Moschis & Churchill, 1978). It was designed for use on children between nine and fourteen years, based on theoretical models of

the development of values in childhood, which posited that children under nine would be unlikely to have the cognitive capacity to obtain these values (e.g. Kilby, 1993). It was not certain, therefore, how well it would perform with eight-year olds. However, as Chaplin and John (2005) suggested, eight-year olds may be capable of developing materialistic values as their conceptual awareness of brands develop, and self-brand associations are created. Therefore it was felt that measuring children as young as eight was acceptable.

Nevertheless, as the YMS was applied to children above eight when it was developed, it was apparent that scrutiny of its statistical properties was particularly important. Indeed, assessment of the internal consistency of the items in the YMS indicated that it was less reliable in this study than in Goldberg et al.'s (2003) evaluation. This may have been a result of applying this measure to the younger age group. It is likely that, as research into materialism in children continues to grow, the YMS will be subjected to further scrutiny, evaluation and change. However, due to the dearth of alternatives, the YMS remained the best validated measure available at the time of research.

However, the research of Chaplin and John (2005; 2007) also pointed to social-cognitive developmental changes between eight and eleven years that would alter the relationship with, and expression of, materialism. They specifically highlighted how children may develop an increased awareness of others and sensitivity toward group identification and membership as they grow older. This would imply that consumerist behaviour might function to serve more social than intrapsychic goals as children develop. This posed a potential challenge for the present study: to the extent that this model of development is accurate, would these developmental changes result in differentiated behaviour in materialistic children at different ages? As well as a potential confound to the study, it was also identified as an empirical question. In order to account for this extraneous variable, and to

ensure that it was explored as much as possible within the confines of the main objectives of the study, younger and older children were compared along all measured variables. Although similar to the more usual control for age effects found in many studies of children, the comparison was planned to be more specific. Indeed, the original strategy was to compare mean scores of participants split by year of age with each of the others, however, due to sampling difficulties (see below) it made more sense to compare older and younger children split into eight and nine-year olds in the younger group and ten and eleven-year olds in the older group. However, it was also considered that the present study was exploratory in the sense that no previous work known to the researchers had been conducted that looked at measures of adjustment in relation to materialism in children as young as this. Therefore, even if fine-grained analysis of behaviour-by age could not be conducted, a broad assessment of the impact of materialism in this age group would be an important addition to the literature.

### **Recruitment and Sampling**

A number of expected and unexpected challenges came from the recruitment of children and school teachers for this study. One of the primary challenges was obtaining permission from head teachers of primary schools to participate in the research project. Some head teachers who were approached expressed interest in the study but felt that the potential time cost to their teachers was too great to permit participation. Interestingly, this was the case even when individual class teachers from the same schools expressed a willingness to take part. Striking a balance between the description of the study as simply a “student’s research project” and a more rigorous empirical and scientific undertaking was not always easy to achieve. Both descriptions gave account of the different aspects of the work to be undertaken – and needed to be explained as part of the recruitment information – however, they

may have had different consequences for the how the head teachers evaluated the project. One aspect that proved helpful in obtaining consent and interest from schools was the offer to present the findings of the research to the teachers and apply the results to the development of health and social education lessons offered to school pupils.

Securing recruitment of class teachers proved considerably easier than recruitment of head teachers. However, greater interest was expressed by teachers from the younger age groups than the older, and this was reflected in the overall balance of sampled children across the age range. This had a significant impact on the age distribution, as children aged eight and nine comprised 81% of the sample. Given the concerns raised earlier regarding the developmental processes that may influence the acquisition and expression of materialism, this may have affected the data in unpredictable ways. Therefore, a reproduction of the study would benefit considerably from a more balanced sampling of age groups.

Recruitment of participating teachers' pupils was achieved through communication with their parents. Recruitment information letters and consent forms were given to children at the end of class to be taken to their parents. This was the usual format for communication between parents and the recruited school, and was generally regarded as a reliable form of communication. However, it was noted that the information sent to parents was somewhat sizeable, at two pages of written information, and a one page consent form. Teachers anticipated that the size of the document might be prohibitively long for some parents to attend to and may affect return rates. In fact, return rates ranged considerably, from as little as 14% to as much as 40% from class to class. It was interesting to note that teachers applied different methods to encourage children to ensure they bring the documents to their parents, to encourage their parents to consider them and to ensure children returned the consent forms to their teacher in a timely fashion. These strategies

ranged from frequent reminders, to token reinforcement (a “smiley face” token reward system), to an introduction to the researcher with an emphasis on how helpful the children would be were they to return the forms. The token reward system appeared to coincide with a greater return rate, though this was not empirically tested. Overall, recruitment was lower than initially anticipated. Therefore, it may have been helpful to have considered strategies for returning consent forms in greater detail at the recruitment stage.

Notwithstanding the above difficulty in recruiting, another recruitment confound was identified, that of homogeneity of adjustment in participating children. As described in the Empirical Paper, although levels of materialism were roughly normally distributed in the sample, measures of adjustment (including physical and relational aggression, narcissism, prosociality and self-esteem) were all highly skewed toward in the direction of positive adjustment; and socioeconomic status (as measured through the provision of free school meals) was in the majority of cases above the cut off for an indication of deprivation. In other words, the sample data generally described a picture of healthy well-adjusted children from parents of adequate means, who tended to show high self-esteem, high prosociality, low aggression (especially low physical aggression) and low narcissism. This sample bias may have come about for a number of reasons, of which two in particular were identified. In the first instance, it was hypothesised that consenting parents may have had characteristics that increased the probability of positive adjustment in their children. Putative characteristics included sufficient interest and quality of relationship with the school to read and consider the recruitment pack delivered to them by their child, sufficient education and curiosity to understand and agree to their child participating in the research, and, frequently, sufficient interest and curiosity about their own children and / or the broader scope of the research to request a summary of the findings (as the vast majority of consenting parents did).

Although these possible characteristics of the parents are by no means necessary or sufficient for good parenting or healthy child adjustment, they may indicate more general features compatible with good parenting, such as being aware of the youth's activities and interactions, being interested in behaviour that promotes effective adaptation, and an interest in their child achieving normative developmental milestones (e.g. Sandler, Schoenfelder, Wolchik & MacKinnon, 2011).

Moreover, school policies regarding acceptable and unacceptable behaviour were well established at the school. These policies particularly related to anti-bullying procedures affecting both physical and relational aggression. These policies indicated the use of explicit contingent punishment of aggressive or bullying behaviour and sought to actively promote prosocial behaviour through the use of token reward systems. Given the more easily observable nature of physical aggression, and the greater cultural unacceptability of this behaviour, it is perhaps not surprising that this sample was particularly low in this trait in the setting in which behavioural shaping was so consistently enforced. Although this is, of course, a positive attribute of the school and likely beneficial to the development of the children, it weakened the power of the study and gave considerably greater room for type II errors to occur, as may have been observed in the interaction between narcissism and materialism on physical aggression. Indeed, although some degree of skew was expected in the sample, the degree of homogeneity in positive adjustment of the sample was unexpected. This was a significant challenge to the study, as transformation of the data could not compensate for the skew, and it therefore necessitated re-examination of the analysis strategy. Ideally, sampling could have been conducted over a longer period of time, with more stringent efforts to obtain consent from a broader range of the population. Despite the size of the school enrolled into the study (the largest junior school in Europe), and the consequent breadth of population it served, it may have been interesting to compare



schools from across a range of catchment areas, representing greater heterogeneity in socioeconomic status. Further, a comparison between standard primary schools and schools for children with identified psychological needs may have yielded a sample with a more even distribution of measures of adjustment, leading to greater confidence in the results of the study.

### **Integration of Clinical Psychology with Other Disciplines**

The study of materialism has taken place within a number of related disciplines, including sociology (e.g. Messner & Rosenfeld, 1997), social psychology (e.g. Kasser & Ryan, 1993), consumer psychology (e.g. Chaplin & John, 2005), and clinical psychology (e.g. Kashdan & Breen, 2007). The breadth of utilisation of the materialism construct has led to the development of multiple conceptualisations. For example, Kasser and Ryan (1993) refer to an individual's "materialistic value orientation", whereas Messner and Rosenfeld (1997) speak more broadly of consumerist cultural forces. Therefore, care had to be taken to ensure that these different perspectives were accounted for in the study. One perspective espoused in the current research is that these different conceptualisations reflected multiple manifestations of materialism that were amenable to integration rather than mutual exclusivity. Researchers have already considered this possibility in some detail. For example, Kasser (2002) discusses how sociological factors, such as cultural pressures for consumption and economic growth, can find their way into the value systems of a society, and that it is the internalisation and expression of these values at an individual level that is of most interest to his research. Messner and Rosenfeld (1997) consider materialism and its consequent "institutional-anomie" with an emphasis on how these cultural pressures exert maladaptive behavioural changes across a broad spectrum of the population. In this sense, these theories can be seen as compatible explorations of the different levels of materialism. The present

study focused on analysis of materialism at the individual level. However, attempts were made to consider the findings of the research in the light of broader perspectives on materialism.

Another area in which the integration of social and clinical psychological models was required was with regard to the construct of narcissism. Clinical psychology has traditionally tended to portray narcissism in terms of a maladaptive defence against threatened or fragile self-esteem, in which the individual presents as the opposite of their core self; in other words, grandiose, dominant and self-loving (e.g. Davison & Neale, 2001). However, social psychologists have tended to formulate narcissism as an expression of extremely high self-esteem – albeit specific sub-types of self esteem – but often not unrealistic or defensive (e.g. Campbell, Rudich & Sedikes, 2002). Further, social psychological conceptions of narcissism indicate it is a dimensional construct, in much the same way as other personality traits, including self-esteem, have been constructed (e.g. Foster & Campbell, 2007); whereas clinical psychology has traditionally taken a categorical perspective. This is a significant difference in standpoint regarding the underlying cognitive architecture of the narcissism construct. However, where there is agreement is in the behavioural consequences of narcissism. Both social and clinical psychologists claim that narcissism is associated with criminal, aggressive and dominating behaviour in adults, adolescents and children (e.g. Barry, Frick, Christopher & Amber, 2003; Campbell, Rudich & Sedikes, 2002). Furthermore, the assessment of narcissism in children is dominated by behavioural measures of the construct, such as the narcissism subscale of the Antisocial Process Screening Device (APSD, Frick & Hare, 2001). Therefore, taking a behavioural measure of narcissism in the present research helped to manage this tension. However, as the present study also measured self-esteem, it was relevant to pay attention to the relationship between this variable and narcissism, as it is relevant to the ongoing

debate. Interestingly, in the present study, no relationship was found between narcissism and self-esteem. This finding is perhaps made stronger by the fact that self-esteem was assessed by child self-report whereas narcissism was assessed through teacher report. This lends weight to the argument that the behavioural construct of narcissism is distinct from global measures of self-esteem.

### **Personal Reflections on the Research Process**

Clinical psychology as both a branch of science and as an approach to treating people in distress has on numerous occasions been accused of not adequately taking account of environmental and societal influences on the psychological outcomes of the individual (e.g. Smail, 2005). This is particularly true of psychodynamic traditions that arguably focus on intrapsychic processes above other potential causes of mental suffering (e.g. Malan, 1979). However, there is no doubt that modern research has sought to bridge this gap, paying attention to a great many more environmental variables and life events that influence the development and maintenance of psychological ill-health, such as major societal changes, income and employment, social exclusion and others (e.g. Bronfenbrenner, 2004). Further, the practice of psychological treatment has also shifted to acknowledge that changes in these areas can have a significant impact on mental health outcomes.

Perhaps the most striking example of this shift in practice is in the development of community psychology. An explicit aim of this approach is to expose and challenge inequalities in societal arrangements of power, and to use psychological knowledge and methods to empower groups and individuals to intervene in reducing these difficulties and mitigating their impact. In this way community psychology offers an additional method through which psychological insight can work to reduce and prevent mental ill-health (e.g. Prillettensky, 1989)

From a personal perspective, it is helpful to me to view materialism as one such mechanism within which societal arrangements of power and inequality can be maintained. This is because the inculcation of materialism into a society, as a consequence of modern capitalist arrangements of governments and societies, functions to benefit some individuals disproportionately more than others. However, in addition to the society-level inequality and consequent problems materialism promotes, it has been posited that it also functions at the individual level as a means of substituting unmet needs for more relational and affiliative experiences (e.g. Kasser, 2002). Further, the relationships described in the Empirical Paper between materialism and aggression, narcissism, low self-esteem and impaired relationships, paints a discouraging picture of the usefulness of materialism to societies. Therefore, given the ubiquity of materialism in Western democracies, it has the potential to have a major impact on the well-being of populations within them.

It was with this perspective in mind that I was drawn to the present research. Exploring materialism in children opened up opportunities to further elaborate on the potential deleterious effects that materialism may be exerting in our society, and whether this can be observed from an early age. As well as helping to elucidate an additional putative risk factor for negative childhood adjustment, the developing evidence base regarding materialism – in a similar way to other social injustices that have been demonstrated to contribute to the psychological ill-health of vulnerable individuals – poses a challenge to the practice of clinical psychology: how should our knowledge of these factors impact on the work we do? Is it sufficient that clinical psychologists work with individuals who have been affected by toxic environmental forces after the event? Or do we have a responsibility to work to reduce the presence of these forces in our society in the first instance? The British Psychological Society draws attention the importance of improving and extending the contribution that psychologists as a profession make in forming and debating

policies (British Psychological Society, 2011). Similarly, the community psychology movement espouses preventative work and grass-roots societal change that can reduce and ameliorate the toxic effects of environmental influences (e.g. Orford, 2008). In this regard, I consider research into these factors important in highlighting the opportunity that clinical psychologists have to use empirical data to inform political debate and find alternative ways of promoting mental well-being.

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