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**Emergence of Normative Beliefs Legitimizing Antisocial Behaviour in Adolescents:
The Roles of Monitoring, Attachment, and Temperament**

by

Richard E. Kennedy

A thesis
submitted in partial fulfilment
of the requirements for the degree
Master of Arts

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Abstract

Beliefs about the rightness or wrongness of engaging in various antisocial acts, referred to here as normative beliefs legitimizing antisocial behaviour (nblab), have been shown to play a role in the emergence of later antisocial behaviour. The current study represented an attempt to understand whether parental monitoring and parent-child attachment have differential relationships with these antisocial normative beliefs in adolescents of different temperaments. The participants, 7135 adolescents in 25 high schools (ages 10 – 18 years, $M = 15.7$) completed a wide-ranging questionnaire as part of the broad Youth Lifestyle Choices – Community University Research Alliance project, whose goal is to identify and describe the major developmental pathways of risk behaviours and resilience in youth. Two aspects of monitoring (monitoring knowledge and surveillance/tracking), attachment security, and two measures of temperament (activity level and approach) were examined for main effects and in interactions as predictors of adolescent normative beliefs. All of these measures were based on adolescent self-ratings on either 3- or 4-point Likert-type scales.

Several important results emerged from the study. Males were higher than females in nblab; parental monitoring knowledge and adolescent attachment security were negatively related to nblab; and temperamental activity level was positively related. Monitoring knowledge, the strongest of the predictors, was much more strongly related to normative beliefs than was parental surveillance/tracking, supporting the contention that it is how much parents actually know, and not their surveillance efforts, that predict adolescent normative beliefs. A surprising finding that is of the utmost importance was

that, although several of the interactions tested were significant, none were considered to be of a meaningful magnitude (defined as $sr^2 > .01$).

The current study supported the suggestion that normative beliefs legitimizing antisocial behaviour are multiply determined, and the results were discussed with respect to the observed differential relations of parental monitoring, parent-child attachment, temperament, age, and gender to antisocial normative beliefs in adolescents. Also discussed were the need to test other parenting, temperament, and other variables that may be involved in the development of nblab; the need to directly test possible mechanisms explaining the links among the variables; and the usefulness of longitudinal research in determining possible directions of causality and developmental changes in the relationships.

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The results and views expressed in this document are those of the author and do not necessarily represent those of the Youth Lifestyle Choices-Community University Research Alliance. The author wishes to acknowledge the support from SSHRC for the collection of the YLC-CURA data.

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Introduction

Beliefs about the rightness or wrongness of engaging in various antisocial acts have been shown to play a role in the emergence of later antisocial behaviour (Erdley & Asher, 1998; Huesmann & Guerra, 1997). These beliefs appear to arise through a complex interplay of many factors, including age, gender, parental behaviours, parent-child attachment, child temperament, child-peer relations, and more distal environmental variables (for reviews see Collins, Gleason, & Sesma, 1997; Eisenberg & Valiente, 2002; Grusec, 2002). The present study represents an attempt to move beyond the study of antisocial behaviour itself and to understand the manner in which adverse parental experiences increase the likelihood of the development of antisocial normative beliefs in adolescents of different temperaments. The first section of the *Introduction* provides an overview of the normative beliefs legitimizing antisocial behaviour construct. Subsequent sections deal with possible influences on the development of normative beliefs. In the second section, two aspects of parenting – parental monitoring and parent-child attachment – are examined. In the third section, two dimensions of temperament – activity level and approach – are investigated. The fourth section includes a review of previous research that examined interactions between parenting and temperament in the prediction of antisocial beliefs and behaviour, and a discussion of the conceptualization of temperament as a moderator of the relationship between parenting and adjustment. Three interactions then are hypothesized for the current study. Sections 5 and 6 deal with gender and age differences in the prediction of normative beliefs.

Normative Beliefs Legitimizing Antisocial Behaviour

One major socialization goal parents have for their children is the acquisition of cultural values and norms (Grusec, 2002), since what a person believes about the rightness or wrongness of certain behaviours may be directly related to the likelihood of the person engaging in those behaviours (Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995). This beliefs/behaviour association is the topic of the next subsection. This is followed by clarification of some of the confusing terminological issues surrounding both normative beliefs and antisocial behaviour, along with a clear delineation of precisely what is and what is not meant in this thesis by each of these terms. The section closes with a review of the limited previous research on the normative beliefs construct, and a brief overview of new directions taken in the current study.

Normative Beliefs Legitimizing Antisocial Behaviour: Why Study Them?

The consequences of crime and delinquency, for both the performer and the victim, are debilitating and the costs to society are enormous. Criminals and delinquent persons consume a disproportionate share of Canada's health and social spending dollars (Wade, Pevalin, & Brannigan, 1999). Cohen (1998) estimated that in the United States each life of crime costs society an average of \$1.3-1.5 million, including such expenses as victim losses, court costs, incarceration, medical treatment, rehabilitation efforts, lost productivity, and decreased earnings. In addition, criminals and delinquent persons are at greater risk relative to the rest of the population for a variety of negative outcomes, including social isolation, marital discord and divorce, poor parenting and neglect of their own children, poor employment history, debt problems, substance abuse, multiple arrests, incarceration, psychiatric hospitalization (Robins, 1966), involvement in high-risk

behaviour (Greene, 1995), unemployment, low income status, divorce, homelessness, impaired social skills development (Nagin, Farrington, & Moffitt, 1995), poor academic performance, physical injury (Wade et al., 1999), and even death (Black, Baumgard, Bell, & Kao, 1996; Robins, 1966), both from “natural” causes and, especially, from violence, suicide, accidents, homicide, and substance abuse (Repo-Tiihonen, Virkkunen, & Tiihonen, 2001). Criminality and delinquency also involve consequences for the victim. These are multifaceted and can be material, economic, psychological, social, emotional, and/or physical in nature (Carlson & Dutton, 2003; Davis, Lurigio, & Skogan, 1997; US Department of Justice, 1994).

Given the foregoing, it is important that researchers acquire a greater understanding of the emergence of antisocial behaviour in order to facilitate the establishment of effective interventions, which research has shown can both decrease the incidence of these problem behaviours (Conduct Problems Prevention Research Group, 1999; Patterson, DeBaryshe, & Ramsey, 1989) and enhance parenting skills that appear to be associated with the development of antisocial behaviour in children (LaCourse, Cote, Nagin, Vitaro, Brendgen, & Tremblay, 2002; van den Boom, 1994; Wendland-Carro, Piccinini, & Miller, 1999).

The current thesis is an investigation into the emergence of *beliefs* about the rightness or wrongness of engaging in antisocial behaviour. Vitaro and colleagues (Vitaro, Brendgen, & Tremblay, 2000), after verifying the independent contribution of one’s attitude toward delinquency (which is similar to the normative beliefs legitimizing antisocial behaviour construct) in predicting later delinquent acts, stated that, “In future research, it would be interesting to examine variables that are predictive of an

unfavourable attitude toward delinquency” (p. 322). These beliefs have been found to be predictive of the likelihood of engaging in such antisocial behaviours as delinquent acts (Hirschi, 1969; Jessor et al., 1995; Vitaro et al., 2000; Zelli, Dodge, Lochman, Laird, & Conduct Problems Prevention Research Group, 1999), aggression (Erdley & Asher, 1998; Guerra, Huesmann, & Hanish, 1995; Guerra & Slaby, 1990; Huesmann & Guerra, 1997; McMahon & Watts, 2002; Slaby & Guerra, 1988), adolescent problem behaviour (Jessor et al., 1995; Repinski & Shonk, 2002), problem drinking (Costa, Jessor, & Turbin, 1999; Loveland-Cherry, Leech, Laetz, & Dielman, 1996), and drug use (Mounts & Steinberg, 1995). The current thesis represents an attempt to more fully understand the normative beliefs construct and its emergence.

Normative Beliefs Legitimizing Antisocial Behaviour: Definitional Issues

Different, but for the most part equivalent, terms have been used by various researchers to describe both antisocial beliefs and behaviour. Some examples of labels used recently to describe normative beliefs legitimizing antisocial behaviour and related constructs appear in Table 1. Prior to this research, pioneering work on the construct of beliefs had been carried out by Allport (1961) and Rokeach (1973), but relatively little has been done subsequently to consolidate this area of inquiry. The internalization construct, which emphasizes the incorporation of beliefs as part of a person’s internal behavioural self-regulatory system (Collins et al., 1997), is one of the few early beliefs-related variables that continued to receive consideration among researchers (Collins et al., 1997; Grolnick, Deci, & Ryan, 1997; Grusec & Goodnow, 1994; Kochanska & Aksan, 1995). Although the participants in the current study were required only to evaluate how wrong they thought it was to perform various antisocial acts, there remains a strong

Table 1

Some of the terms used in recent research that are similar in meaning to the term "normative beliefs legitimizing antisocial behaviour"

Term	Researchers/Theorists
attitude toward delinquency	Vitaro et al. (2000), Landsheer & Hart (2000), Silverberg et al. (1998)
beliefs supporting aggression	McMahon & Watts (2002), Slaby & Guerra (1988)
internalization of parental norms	Mounts & Steinberg (1995)
intolerance of deviance	Jessor et al. (1995)
legitimacy of aggression	Erdley & Asher (1998)
normative beliefs	Huesmann & Guerra (1997)
perceived norms	Colder (2004)
tolerance of deviance	Loveland-Cherry et al. (1996)

possibility that the adolescents have incorporated these moral judgements into their self-regulatory systems (Jessor et al, 1995; Vitaro et al., 2000). Nonetheless, the normative beliefs variable as it was measured in the current thesis makes no explicit assumption of internalization. Other researchers have used this approach (Guerra et al., 1995). Huesmann and Guerra (1997) referred to this aspect of the beliefs variable as an individual's own judgment about the acceptability or unacceptability of a behaviour, and this is the sense in which the beliefs variable was used in the current thesis, with high scores indicating high approval of antisocial behaviour.

Finally, normative beliefs about various *prosocial* acts were not addressed in the current thesis, since the relationship between prosocial and antisocial behaviour is not clear (Carlo, Roesch, & Melby, 1998; Monnier, Cameron, Hobfall, & Gribble, 2000; Wyatt & Carlo, 2002).

With respect to the expression “antisocial behaviour”, Table 2 contains a list of some of the terminology used in research that has been considered to be more or less synonymous with the term. By most definitions antisocial behaviour includes delinquency and criminal behaviour (Coie & Dodge, 1998), and there is some evidence that early, milder forms of antisocial behaviour may lead to later crime and delinquency (Broidy et al., 2003). Antisocial behaviour as it is understood in the present thesis includes the following behaviours: (a) legal violations by a child or adolescent; (b) activities which, if engaged in by adults, would be legal violations, such as fighting; and (c) certain violations of social norms not considered obviously criminal, such as truancy or sneaking out of the house at night. This conceptualization is based on the work of Coie & Dodge (1998), who described the associated term *delinquency* in this way.

Previous Research on the Emergence of Normative Beliefs

Although some research supports the existence of a relationship between beliefs and behaviour, surprisingly little research attention has been paid to how normative beliefs develop. The beliefs construct is rarely measured directly, and even when it is measured directly it is more often than not used as a predictor variable (e.g. Guerra et al., 1995; Jessor et al., 1995; Landsheer & Hart, 2000) rather than an outcome. In the first set of studies discussed below, the normative beliefs variable was used as an outcome, which may shed some light on the question of how normative beliefs develop. In the second set of studies, the normative beliefs variable was used as a predictor (Vitaro et al., 2000). In the final segment of this subsection, a number of papers are reviewed that are somewhat more theoretical in nature, involving concepts and behaviours that are thought to be closely related to normative beliefs.

Table 2

Some of the terms used in recent research that are similar in meaning to the term "antisocial behaviour"

Term	Researchers/Theorists
antisocial behaviour	Bartusch, Lynam, Moffitt, & Silva (1997); Carlo et al. (1998); Moffitt (1993); Robins (1966); Tolan (1988); Wade et al. (1999); Walker, Shinn, O'Neill, & Ramsey (1987)
in-/externalizing behaviour	Barber et al. (1994); Bates, Pettit, Dodge, & Ridge (1998); Rothbaum & Weisz (1994)
behaviour problems	Bates, Maslin, & Frankel (1985); Caspi et al. (1995); Easterbrooks et al. (1993); McGuire, Dunn, & Plomin (1995)
problem behaviour	Dishion & McMahon (1998); Jessor et al. (1995)
disruptive behaviour	Broidy et al. (2003); Loeber et al. (1993)
aversive behaviour	Calkins (2002)
child symptomatology	Colder et al. (1997)
conduct problems	Conduct Problems Prevention Research Group (1999); Dodge & Pettit (2003); Shaw et al. (2003)
deviant behaviour	Forehand et al. (1997)
bullying	Kaukiainen et al. (2002)
aggression	Bjorkqvist & Osterman (2000); Coie, Dodge, Terry, & Wright (1991); Pakaslahti & Keltikangas-Jarvinen (2001); Pepler, Craig, & Roberts (1998); Salmivalli et al. (2000)
delinquency	Caspi et al. (1993); Hirschi (1969); Stouthamer-Loeber et al. (2002)
criminal behaviour	Blumstein, Cohen, Roth, & Visser (1986); Gottfredson & Hirschi (1990)

Beliefs as an outcome. Silverberg et al. (1998) found that among the 43 adolescents in their study (39 males), those who were high in attachment security to adults in general were more likely to hold less favourable attitudes toward delinquency than those who were low in attachment security to adults. Their beliefs measure consisted of four items (e.g. it's okay to keep a found wallet with money in it) rated on a 5-point scale, ranging from "Agree" to "Disagree".

McMahon and Watts (2002), using aggressive beliefs as an outcome measure, found that this variable was predicted by ethnic identity, global self-worth, and exposure to violence. In addition, aggressive beliefs were moderately correlated with aggressive behaviour ($r = .32$). The participants were 209 (129 female) grade 5-8 youth, 94% of whom were African-American. Twenty items (e.g. "Is it generally wrong to get into physical fights with others?") were used to measure normative beliefs about aggression, on a 4-point scale.

Newcomb, Bukowski, and Bagwell (1999) provided a brief summary of their study involving 204 early adolescent males and females in which their friends' aggression was used to predict "tolerance of aggression", the outcome measure. An adolescent was considered to have a stable mutual friendship when the adolescent and another student selected each other both in the fall of grade 6 and, six months later, in the spring. Adolescents whose mutual friend was high in aggression in the fall showed increases in tolerance of aggression six months later, but there was no change in aggressive beliefs for adolescents with nonaggressive friends.

In the *Definitional Issues* subsection of the present thesis it was explained that internalization may be closely related, but is not identical, to the beliefs construct as it is

conceptualized in the current study. In a series of studies by Kochanska (1995, 1997), internalization as an outcome variable was measured in various ways but never directly. For example, sometimes the measurement involved observation in settings contrived in such a way as to make it possible for a child to “cheat” to win a prize, and sometimes it involved the children’s responses to scenarios that included moral judgements tailored to their level of understanding. Among the toddlers and preschoolers in these studies, internalization was predicted by interactions between parenting and temperament. Specifically, for children who were high in temperamental fearfulness, maternal gentle discipline at age 2-3 years resulted in greater internalization at age 4-5 than did security of mother-child attachment. On the other hand, for toddlers who were low in temperamental fear, security of attachment resulted in greater internalization than did maternal gentle discipline.

In another study (Kochanska & Aksan, 1995), once again internalization was measured indirectly and then used as an outcome variable. Sometimes this measure involved the ability to resist the temptation to touch forbidden toys in the absence of surveillance, and sometimes it involved compliance with maternal requests during clean-up of toys in the lab. Among the 26 to 41-month-old children in this study, both high mother-child positive affect (an important component of attachment) and maternal control were related to higher internalization, but low positive affect and negative control (harsh discipline) were related to low internalization.

Beliefs as a predictor. In this second set of studies the beliefs measure, rather than being examined as an outcome, was included as a possible predictor of negative outcomes. Vitaro et al. (2000) examined attitude toward delinquency among 567 boys

who were followed longitudinally from ages 6-14 years. The beliefs measure consisted of six items (e.g. “What do you think of boys your age who steal things in stores?”) rated on a 4-point scale, with a higher score indicating a more favourable attitude toward delinquency. Although tested primarily as a moderator of the relationship between friend’s aggression and one’s own delinquency, the beliefs variable at age 11-12 years also made a significant independent contribution in the prediction of age 13-14 delinquency. In addition, the zero-order correlation matrix revealed that both monitoring, conceptualized as parental knowledge of their adolescents’ activities, and attachment security were concurrently negatively related to attitude toward delinquency.

Costa et al. (1999) reported a number of findings from two studies with respect to their intolerance of deviance variable, low levels of which were considered as a possible risk factor for later deviant outcomes. Their attitudinal intolerance of deviance scale consisted of 10 items, and the respondents were required to rate the “wrongness” of various normative transgressions (including theft, physical aggression, lying, and property damage) on a 4-point scale. In the first study, involving 2,410 grade 7, 8, and 9 adolescents, intolerance of deviance was found to moderate the relationship between risk factors (deviant peers, low GPA) and problem behaviour (delinquency, excessive drug and alcohol use) (Jessor et al., 1995). In the second study, this same sample was followed up in a four-wave longitudinal study (Costa et al., 1999). Intolerance of deviance in grades 7, 8, and 9 predicted less problem drinking in grades 10, 11, and 12 among the remaining 1591 participants.

Finally, in a Dutch study involving 2301 adolescents aged 12 to 17 years, Landsheer and Hart (2000) measured attitude toward delinquency as the degree of

punishment participants thought to be appropriate for two offences – beating someone up to the point that he/she required hospitalization, and stealing a wallet. The participants who were rated as more tolerant of violent behaviour were more likely to have a record of violent behaviour themselves.

Closely related research and theoretical treatments. A number of other, more theoretical papers are discussed in the next few pages that have addressed the issue of how concepts related to normative beliefs may develop. These papers typically have included well-thought-out predictions based on the existing research but little supporting evidence for those predictions. This is likely because so little research has been done linking possible predictors with beliefs-related outcomes. The limited number of studies that are cited by the authors of these review papers generally measured beliefs-related *behaviours*, such as co-operative prosocial behaviour (Bretherton, Golby, & Cho, 1997) and moral reasoning (Eisenberg & Valiente, 2002; Pratt, Arnold, Pratt, & Diessner, 1999), rather than measuring beliefs directly. The implicit assumption in these studies appears to be that these behaviours are manifestations of beliefs, and that beliefs and behaviour are related.

In one of these more theoretical papers, based largely on correlational findings of links between parenting and such things as internalization of values, adjustment, and antisocial behaviour, Collins et al. (1997) proposed several possible influences on internalization, including parenting style, parental sensitiveness/responsiveness, parental encouragement of both autonomy and connectedness, and peer relationships. The outcome variables of the studies they reported on did not measure beliefs directly. In fact,

the authors themselves referred to the outcomes, such as autonomy and mature identity, as “manifestations of internalization” (p. 85).

In another highly theoretical paper, Grusec (2002) used the term “socialization”, another concept related to normative beliefs, in such a way as to make it seem very similar to the notion of internalization (for example, see discussion of the role of self-regulation in second paragraph of Grusec, 2002). Grusec described socialization as the acquisition of skills required for successful social functioning, and she suggested that higher socialization would be predicted by parental use of inductive reasoning, moderate power assertion, authoritative parenting style (including warmth and consistent control), monitoring, and the appropriate use of reinforcement and punishment contingencies. The possible role of other variables, such as age, gender, child temperament, mood, and socioeconomic factors, were also suggested. Although some research support was provided for the model, the studies cited did not measure beliefs directly. Instead, socialization was inferred on the basis of the presence of socially desirable behaviours, which appears to be common practice among researchers examining the internalization variable.

Several highly theoretical information-processing models that incorporate the role of beliefs have been proposed that suggest possible cognitive mechanisms involved in the decision to engage or not to engage in antisocial behaviour (Arsenio & Lemerise, 2004; Crick & Dodge, 1994; Guerra et al., 1995). Although allusions were made in these papers to possible cognitive differences between deviant and nondeviant children, little reference was made to possible causes of these cognitive differences. These and other models may hold some promise for future researchers, but to date these are either based largely on

conjecture (Damon, 1999) or have little to offer in the way of solid evidence for the development of normative beliefs (Fishbein, 1979; Trafimow, 2004).

New Directions Taken in the Current Study

A number of limitations have characterized much of the research into variables and processes involved in the emergence of both normative beliefs and antisocial behaviour, resulting in considerable “gaps” in our understanding of these important matters. The current study controlled for a number of these gaps, and these enhancements are outlined very briefly below. The importance of each of these new directions will become clear as the reader progresses through the thesis.

The measures used in the current study were carefully constructed with reference to both recent research findings and contemporary theorizing, and the design of the study allowed for examination of the following: (1) the unique relations of two aspects of parenting (monitoring knowledge and attachment security) and two temperament dimensions (activity level and approach) to normative beliefs (i.e. whether parenting is related to normative beliefs above and beyond temperament, and the other way around), and (2) whether parenting has differential relations with normative beliefs depending on child temperament, extending work with younger children on internalization (Kochanska, 1995, 1997).

A limitation of previous research, as mentioned above, is that the beliefs construct has usually been examined as a predictor of adjustment rather than as an outcome variable. Although directionality cannot be determined given the research design of the current study, normative beliefs legitimizing antisocial behaviour were conceptualized as

possible outcomes rather than as predictors. It is also possible that the relations between beliefs and the other study variables may in fact be bidirectional.

Another limitation of previous research is that beliefs-type variables have usually been measured indirectly. In the current study they were measured comparatively directly through adolescent self-reports of their perceptions of their own beliefs. This is more feasible with adolescents than with younger children. Details of how beliefs were measured in the current study appear in the *Method* section.

Another limitation of previous research in the areas of parenting, temperament, internalization of values, and related constructs is that a good deal of the research has involved infants, toddlers, preschoolers, or school-aged children. The majority of these studies have relied on maternal reports (Gaylord, Kitzmann, & Coleman, 2003; Putnam, Sanson, & Rothbart, 2002). However, it is very important that these variables and their interrelations be understood, both as they relate to late adolescence, and from the perspective of the adolescents themselves. One reason for this is that adolescent and parental perceptions about the above issues may differ (Grusec & Goodnow, 1994). For example, in a recent study parents and adolescents differed in their perceptions of parental monitoring behaviour, and it was the adolescents' perceptions that most strongly predicted adolescent drinking, marijuana, and sexual activity (Cottrell, Li, Harris, D'Alessandri, Atkins, Richardson, & Stanton, 2003).

Another reason for the importance of studying these relationships in later adolescence, in addition to childhood, is that this period may be markedly different from previous periods. Adolescents, with their more adult-like appearance, increased autonomy-seeking, and loosened parental and societal restrictions on their activities,

become increasingly independent from their parents and spend more time outside of the home, frequently in the company of peers (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996; Steinberg & Silk, 2002), and possibly being influenced toward antisocial beliefs and behaviour (Patterson, 1995). As a result, adolescents may have a greater likelihood than younger children of developing beliefs that are at variance with those of their parents. Another possible result of the adolescent changes mentioned above is that, because the parent-adolescent relationship must be transformed, different aspects of parenting may influence beliefs in adolescence compared to childhood, and parents may be attempting to find a balance between allowing greater autonomy while at the same time preserving emotional bonds and maintaining adequate parental control (Collins et al., 1997).

The sample was large and accurately represented a good cross-section (both male and female; and urban, suburban, and rural) of the adolescent population in a combined working and middle class region in Canada. Historically, much of the research into antisocial behaviour has focussed on boys. One reason for the emphasis on males may have been because they appear to be much more likely to be involved in the more overt types of antisocial activities (Crick & Grotpeter, 1995; Salmivalli, Kaukiainen, & Lagerspetz, 2000). These infractions are both more easily identifiable and seen to be more of a problem than less overt problems such as anxiety or depression. One of the strengths of the present study is that antisocial beliefs and behaviour were examined in both male and female students, which allowed an examination of whether the relations between monitoring, attachment, temperament, and normative beliefs were consistent or different for males and females. Additionally, the present study included participants

aged 14 to 18 years, which allowed for analysis of possible age-related changes in the levels of the study variables.

In keeping with the admonitions of many contemporary researchers, all variables in the current study were measured using a dimensional rather than a typological approach, which lends itself well to regression analyses (Fraley & Spieker, 2003; Repinski & Shonk, 2002; Seifer & Schiller, 1995). The study included two dimensions of parental control: monitoring knowledge and surveillance/tracking; an attachment security dimension; and two adolescent temperament dimensions: activity level (a self-regulation dimension) and approach/withdrawal (reactivity). The outcome variable, normative beliefs legitimizing antisocial behaviour, also was measured as a dimensional variable.

Parental Influences

As mentioned above, the current study represented an attempt to understand whether parental monitoring and parent-child attachment have differential relations to antisocial normative beliefs in adolescents of different temperaments. Two major parenting dimensions that may be involved in this process, and which have consistently emerged in previous research, are parental control and the parent-child relationship (Cummings, Davies, & Campbell, 2000; Gallagher, 2002). Together they have provided the framework for most of the parenting theories and research generated over the past 40 years (Becker, 1964; Baumrind, 1966; Mounts & Steinberg, 1995), and they consistently have been identified as being likely contributors to the development of antisocial beliefs and behaviour (see Coie & Dodge, 1998, for a review).

The first dimension, parental control, refers to parental efforts to control their children and socialize them. Parental control has come to include such parental

behaviours as appropriate involvement, engagement, regulation, discipline, rule setting and enforcement, and knowledge of children's whereabouts and activities (Barber, Olsen, & Shagle, 1994; Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003; Fauber, Forehand, McCombs Thomas, & Wierson, 1990; Gallagher, 2002). Cummings et al. (2000) described the parental control dimension, which they labelled behavioural control, as encompassing two broad aspects: (a) monitoring, or parental tracking and supervision of children's activities and whereabouts; and (b) discipline, which includes both parental strategies to enforce rules and instil values, and parental consistency in enforcing rules. Table 3 lists some of the terms used by other researchers to describe the parental control dimension.

The second major parenting dimension, the parent-child relationship, refers to variables such as warmth and acceptance that are related to the emotional connection between parents and their children. Some of the terms used by other researchers to describe the parent-child relationship dimension appear in Table 4. Attachment security, which is the measure of the parent-child relationship used in the current study, is discussed in detail in the second half of this *Parental Influences* subsection. The first half of this subsection focuses on the specific aspect of parental control that was measured in the current study – monitoring.

Parental Control: Monitoring

Monitoring, which has been shown to be both reliable and powerful as a measure of behavioural control (Barber, 1996), has been defined as parental knowledge of and concern about their children's activities, whereabouts, and associates, as well as parental efforts to ensure that their children adhere to rules laid out by the parents concerning

Table 3

Some of the terms used by other researchers to describe the parental control dimension of parenting

Researchers	Term
Maccoby & Martin (1983)	demandingness
Schaefer (1965)	firm versus lax control
Schwartz, Barton-Henry, & Pruzinsky (1985)	firm control
Fauber et al. (1990)	lax control
Barber (1996)	behavioural control
Gorman-Smith et al. (1996)	monitoring
Kerr & Stattin (2000)	“
Laird, Pettit, Bates, et al. (2003)	“
Brendgen, Vitaro, Tremblay, & Lavoie (2001)	“

these matters (Borawski et al., 2003; Dishion & McMahon, 1998). Parental monitoring has been associated with lower antisocial behaviour among adolescents (Borawski et al., 2003; Kerr & Stattin, 2000; Laird, Pettit, Bates, & Dodge, 2003; and for a review see Dishion & McMahon, 1998).

The nature of parental monitoring appears to change throughout development (Borawski et al., 2003), and monitoring may be especially crucial during the adolescent period. As mentioned above, adolescents become increasingly independent from their parents and spend more time outside of the home, frequently in the company of peers (Larson et al., 1996; Steinberg & Silk, 2002), who may have a negative influence on the adolescent's behaviour (Caspi, Lynam, Moffitt, & Silva, 1993; Schneider, 2000). It appears that, out of necessity, parental monitoring strategies come to involve less direct supervision and more tracking of such things as school attendance and peer interactions (Dishion & McMahon, 1998).

Table 4

Some of the terms used by other researchers to describe the essential features of the parent-child relationship

Researchers	Term
Ainsworth, Blehar, Waters, & Wall (1978)	sensitivity
Baumrind (1971)	responsiveness
Maccoby & Martin (1983)	responsiveness
Grusec & Goodnow (1994)	warmth/responsivity
Brendgen, Vitaro, Tremblay, & Lavoie (2001)	warmth/caregiving behaviour
Park, Belsky, Putnam, & Crnic (1997)	positive affect/sensitivity
Gorman-Smith et al. (1996)	involvement/positive parenting
Herman, Dornbusch, Herron, & Herting (1997)	connection/involvement
Gray & Steinberg (1999)	acceptance/involvement
Schwartz, Barton-Henry, & Pruzinsky (1985)	acceptance
Schaefer (1965)	acceptance vs. rejection
Fauber et al. (1990)	rejection/ withdrawal
Pottharst (1990)	trust, love
Armsden & Greenberg (1987)	trust, communication, alienation

Some concerns have been raised recently about apparent discrepancies between how the monitoring variable has been conceptualized and how it has been measured (Grusec, 2002; Kerr & Stattin, 2000; Laird, Pettit, Bates, et al., 2003). This discrepancy became apparent when a marked difference in outcomes was noticed between parental reports of their own monitoring *efforts* and measures of how much they actually *knew* about their adolescents' activities, whereabouts, and peer associations (Kerr & Stattin, 2000). Kerr and Stattin responded to this discrepancy by distinguishing two separate constructs. The term "monitoring", as it has usually been *measured*, refers to the frequency of specific parental behaviours, such as asking the adolescents, their friends, and their friends' parents about their children's activities, or controlling their adolescents' freedom to come and go as they please (Grusec, 2002; Kerr & Stattin, 2000; Laird, Pettit,

Bates, et al., 2003). Kerr and Stattin (2000) referred to these parental monitoring *efforts* as surveillance and tracking. On the other hand, the term “monitoring”, as it has usually been *conceptualized*, refers to parents’ actual *knowledge* of their children’s whereabouts and activities. Kerr and Stattin (2000) referred to this parental knowledge as monitoring knowledge. Child voluntary disclosure of information, which is one means by which parents may obtain monitoring knowledge, was found to be the best predictor of both the child’s exposure to deviant peers and child adjustment. This finding suggests that adolescents are “active agents” in the monitoring process (Kerr & Stattin, 2002).

In addition to its negative links with both exposure to deviant peers (Kerr & Stattin, 2000) and antisocial behaviour (Cummings et al., 2000; Laird, Pettit, Bates, et al., 2003; Laird, Pettit, Dodge, & Bates, 2003), monitoring knowledge has been positively linked with the parent-child emotional relationship (Dishion & McMahon, 1998; Kerns, Aspelmeier, Gentzler, & Grabill, 2001; Kerr & Stattin, 2000; Laird, Pettit, Dodge, et al., 2003). High surveillance/tracking and/or high parental control, on the other hand, have occasionally been associated with negative outcomes, such as rebellion, association with deviant peers, deviance (Kerr & Stattin, 2000), and maladjustment (Cummings et al., 2000; Grusec, 2002; Kerr & Stattin, 2000).

In the following subsection, monitoring mechanisms that may explain the associations between monitoring knowledge and adjustment, and which also may apply in some cases to surveillance/tracking, are presented. Following this, the surveillance/tracking variable is examined with respect to possible mechanisms that may be unique to this variable. Separate hypotheses are presented for each.

Monitoring Knowledge Mechanisms

It is important for the reader to understand that the mechanisms discussed in this subsection are based largely on research on monitoring in general, and not on the more strictly defined monitoring knowledge concept. This is because the distinction between monitoring knowledge and surveillance/tracking is a relatively new one and very little research exists to date that discriminates between the two. Notwithstanding, the implicit assumption made by the majority of researchers, regardless of how monitoring was actually measured, has commonly been that the measure used reflects the parents' monitoring *knowledge* (Grusec, 2002).

High monitoring has, in general, been shown to be an important predictor of positive adolescent outcomes (Borawski et al., 2003; Dishion & McMahon, 1998; Forehand, Miller, Dutra, & Watts Chance, 1997; Loeber, Farrington, Stouthamer-Loeber, Moffitt, Caspi, & Lynam, 2001). In contrast, Laird, Pettit, Dodge, et al. (2003) found that low monitoring knowledge predicted delinquent behaviour. A number of complementary explanations have been offered for the apparent effectiveness of monitoring, and two of these general monitoring mechanisms are described in the following subsections.

Peer influences. Research has shown that an adolescent's own aggression and his/her friend's aggression are positively related, and this interpersonal similarity between the two friends increases over time (Newcomb et al., 1999). It has been found that parents, through the use of adequate supervision, can moderate the influence of deviant peers (Brown, Mounts, Lamborn, & Steinberg, 1993; Parke et al., 1998). Low supervision, on the other hand, has been associated with both a higher susceptibility to peer pressure (Steinberg, 1986) and, as mentioned earlier, higher levels of aggression and

delinquency (Borawski et al., 2003; Dishion & McMahon, 1998; Forehand, Miller, Dutra, & Watts Chance, 1997; Loeber et al., 2001). Monitoring enables parents to supervise peer contacts, discipline maladaptive peer-related behaviours (Rubin, Bukowski, & Parker, 1998), apply appropriate reinforcement and punishment contingencies (Grusec, 2002; Patterson, Capaldi, & Blank, 1991), and protect children from negative influences of the peer group (Grusec, 2002). In contrast, poor parental monitoring of their children's peer-related activities has been linked to higher rates of externalizing behaviour (Dishion, Spracklen, Andrews, & Patterson, 1996; Pettit, Bates, Dodge, & Meece, 1999). This may in part be due to the issues raised earlier related to adolescents spending more time associating with peers and free from direct parental supervision.

In support of the foregoing, the likelihood of an adolescent coming into contact with deviant peers, and thereby being exposed to activities and points of view that are contrary to those endorsed by the parents, appears to increase with age (Steinberg & Silk, 2002). In addition, Newcomb et al. (1999) found that, over time, children's behaviour is influenced by the characteristics of their friends. Specifically, the fifth- and sixth-grade children in their longitudinal study eventually came to see aggression displayed by their friends as normative. They further found that friends' beliefs preceded a child's own development of similar beliefs.

One possible reason for the links between poor parental monitoring, more time spent in the company of peers, and higher rates of externalizing behaviour relates to a process referred to as peer deviancy training (Patterson, 1995; Patterson et al., 1991). Patterson, Dishion, and their colleagues (Dishion et al., 1996; Patterson et al., 1991; Patterson, DeBaryshe, et al., 1989) suggested that poorly monitored children spend more

time with deviant peers, learning delinquent activities and both talking about and being positively reinforced for their own antisocial behaviour. However, high monitoring knowledge has been found to be associated with both lower association with deviant peers and with positive adjustment outcomes (Kerr & Stattin 2000; Laird, Pettit, Bates, et al., 2003).

Parental use of reinforcement/punishment. Patterson and colleagues suggested a process whereby antisocial behaviour may become more likely as a result of such ineffective parenting practices as positive reinforcement for antisocial behaviours, lack of positive reinforcement for appropriate social behaviours, lack of punishment for antisocial behaviours, and/or inconsistent parental use of contingencies (Patterson, DeBaryshe, et al., 1989). Monitoring knowledge is an essential precursor to parental application of appropriate reinforcement and punishment contingencies with respect to their adolescents' behaviour, since parents cannot deal with their adolescents' antisocial behaviours unless they are aware they are occurring.

Parents who are low in monitoring knowledge, and who therefore are not in a position to apply reinforcement or punishment properly, may be placing their adolescents in a difficult situation. In the school setting, for example, the antisocial behaviours that result from such ineffective parenting, and the adolescents' lack of appropriate positive social skills, may result in rejection by conventional peers (Patterson, DeBaryshe, et al., 1989; Vitaro, Tremblay, & Bukowski, 2001). An adolescent in this situation, especially if poorly monitored, may be more likely to become involved with deviant peers than an adolescent with adequate social skills (Eisenberg & Valiente, 2002; Gauze, Bukowski, Aquan-Assee, & Sippola, 1996; Patterson, DeBaryshe, et al., 1989). The final outcome of

deviant peer group affiliation, as discussed above, is likely to be adolescent antisocial behaviour (Berndt, 1999; Dishion et al., 1996; Patterson, DeBaryshe, et al., 1989).

Hypothesis 1: Monitoring Knowledge and Normative Beliefs

On the basis of these proposed mechanisms, **I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by parental monitoring knowledge. Specifically, I predicted that monitoring knowledge would be linearly and negatively associated with normative beliefs legitimizing antisocial behaviour.**

Surveillance/Tracking Mechanisms

In contrast to monitoring knowledge, Kerr and Stattin (2002) claimed that there is little evidence that parental surveillance/tracking lessens the likelihood of exposure to deviant peers, and no direct evidence to link parental tracking efforts to good adolescent adjustment. In fact, it has even been suggested that *high* surveillance/tracking may lead to *negative* adolescent adjustment outcomes. Excessive surveillance/tracking may result in anger, hostility, and resentment if parental monitoring efforts are perceived as intrusive and as posing a threat to the adolescent's autonomy (Caprara et al., 2005; Grusec & Goodnow, 1994). Under such circumstances, adolescents may focus on self-protective measures, such as seeking refuge within a peer group that is beyond the reach of parental control (Kerr & Stattin, 2000), rather than focusing on the parental moral message (Grusec & Goodnow, 1994; Hoffman, 1970). There is some research support for the notion that high feelings of being controlled lead to poor adjustment (Barber, 1996; Caprara et al., 2005; Stice, Barrera, & Chassin, 1993). Kerr & Stattin (2000), after noting previous research that found high parental control to be associated with rebellion, found in their own study that high parental control predicted positive adjustment only after the

child's feelings of being controlled were partialled out. Some research has supported the link between adolescents' antisocial behaviour and their beliefs in the appropriateness of their parents' monitoring strategies (Laird, Pettit, Dodge, et al., 2003).

In contrast, low surveillance/tracking may yield outcomes similar to those for low monitoring knowledge, and possibly for the same reasons – peer influences and parental inability to apply appropriate reinforcement/punishment contingencies. *Moderate* levels of surveillance/tracking may be optimal, sufficient to capture the child's attention but not so high as to threaten the child's autonomy (Caprara et al., 2005; Grusec, 2002; Hoffman, 1994; Kerr & Stattin, 2000). Stice et al. (1993) found evidence for such a curvilinear relationship between parental extreme control and externalizing among adolescents (Mean age = 12.7 years) and their parents, but Colder et al.'s (1997) attempt to replicate those findings in fourth and fifth-grade boys were unsuccessful.

Hypothesis 2: Surveillance/Tracking² and Normative Beliefs

On the basis of these proposed mechanisms, **I hypothesized that the relationship between parental surveillance/tracking and normative beliefs legitimizing antisocial behaviour would be curvilinear. Specifically, I predicted that both a low and a high degree of surveillance/tracking would be associated with high normative beliefs legitimizing antisocial behaviour, and moderate surveillance/tracking would be associated with low normative beliefs legitimizing antisocial behaviour.**

The Parent-Child Emotional Relationship: Attachment

Cummings et al. (2000) reviewed previous research and described the second of the two parental dimensions, which they called the parent-child emotional relationship, in

great detail. Based on their analysis, some of the features of a positive parent-child emotional relationship that are significant to children's adjustment are parental acceptance, emotional availability, support, expressions of warmth or positive emotional tone, sensitivity to children's psychological states, and responsiveness to children's psychosocial needs. Some of the terms used by other researchers to describe the essential characteristics of the parent-child emotional relationship appear in Table 4 (above).

The parent-child relationship has been exhaustively researched from the perspectives of two distinct theoretical traditions – the first involving the responsiveness dimension of parenting, as exemplified by Baumrind and those who came after her working within the parenting field, and the second deriving from the sphere of attachment. Attachment security, which is the quality of the parent-child relationship measured in the current study, is outlined in the following subsection.

Attachment

This part of the Parental Influences section begins with a review of the parent-child attachment construct. This is followed by a discussion of the three dimensions of attachment security measured in the current study – trust, communication, and alienation. In the final part of this subsection, some mechanisms through which attachment security may influence adjustment are proposed.

Attachment was described by the late Mary Ainsworth as, “an affectional tie that one person or animal forms between himself and another specific one – a tie that binds them together in space and endures over time” (Ainsworth & Bell, 1970, p. 50).

Ainsworth is responsible for the establishment of the commonly used attachment categories - secure, avoidant, and resistant – that have sparked so much thought and

research over the past four decades (for a thorough historical background of the attachment construct see Thompson, 1998).

Many theorists have suggested that the nature of early interactions has a huge influence on the quality of adolescent and adult social relationships (Bowlby, 1969, 1973, 1980; Ditommaso, Brannen-McNulty, Ross, & Burgess, 2003), and that the same underlying attachment construct present at birth, although altered through development and environmental experience, continues to influence behaviour and relationships throughout the life span (Ainsworth, 1991; Bowlby, 1969; Bretherton & Munholland, 1999; Main, 1995). This *internal working model* may serve as a script for future social interactions (Bretherton & Munholland, 1999), influencing how the person will anticipate, interpret, and respond to the communications of others (Bowlby, 1969, 1973, 1980; Ditommaso et al., 2003).

Crowell, Fraley, and Shaver (1999) provided a thorough review of adult attachment conceptualizations and measurement techniques and concluded that adult attachment conceptualizations are consistent and compatible with the infant attachment theories of Bowlby and Ainsworth. This statement is further supported by Main's (1995) findings that early strange situation attachment classifications were related to corresponding classifications in adulthood. Other research has supported the notion that attachment is relatively stable from infancy to adulthood (Waters, Weinfield, & Hamilton, 2000), although contrary findings also have been reported (see Allen & Land, 1999 for a review). Both early (Ditommaso et al., 2003) and adult attachment status (Freeman & Brown, 2001; Kirkpatrick & Davis, 1994; Simpson, Rholes, & Nelligan,

1992; Stackert & Bursik, 2003) have been linked to adult loneliness and the quality of adult social relationships.

Ainsworth (1991) herself referred to the secure base phenomenon, which in childhood refers to the role of the parent as a haven to which the child may retreat in the face of perceived threat (Ainsworth, 1991; Bowlby, 1969), as the critical element in adult attachment. A secure base may provide feelings of security and belonging, without which loneliness and restlessness develop, and family members or spouses may provide a safe haven from which one may confidently venture out and engage in activities in the larger social environment (Ainsworth, 1991; Byng-Hall, 1999).

Allen and Land (1999) stated that, although a great deal is already known about adolescent attachment, future researchers should attempt to determine what function attachment serves during this stage of the life span. The role of mother-adolescent attachment security in the development of normative beliefs legitimizing antisocial behaviour is investigated in the current study.

Trust, Communication, and Alienation

In a large-scale examination of the general affective/cognitive qualities of attachment in adolescence, Armsden & Greenberg (1987) identified three dimensions among their 16 to 20-year-old participants: trust, communication, and alienation (See Table 5 for some examples of attachment dimensions identified by other researchers). *Trust* refers to parental understanding and respect, mutual trust, and the child's felt security that the attachment figure understands the child's needs and will respond sensitively and respectfully. *Communication* includes the extent and quality of parent-child verbal communication. *Alienation* refers to feelings of isolation and anger toward,

Table 5

Representative sample of attachment categories and dimensions identified by various researchers

Category/Dimension Name	Description
I. B. Securely Attached (65%)	- adults provide secure base - seek proximity or contact - mild distress at separation; respond positively to adult's return
A. Insecure – Avoidant (20%)	- avoid or fail to greet adult upon return - subtle signs of avoidance during other episodes
C. Insecure – Resistant (10-15%)	- resistance, anger, and/or distress upon adult's return
II. same as #I (above), plus D. Disorganized-Disoriented (<5%)	- confused, contradictory behaviours e.g. look away while being held, or approach with flat, depressed gaze - a few display odd, frozen postures - a few cry out unexpectedly after seeming to have calmed down
III. 1. Proximity-Seeking vs. Avoidance Strategies 2. Angry and Resistant Strategies	- variability in amount of proximity- maintaining behaviour - variability in amount of overt conflict and anger toward caregiver
IV. 1. Trust 2. Communication 3. Alienation	- parental understanding and respect; mutual trust - extent & quality of verbal communication with parents - alienation and isolation; anger towards parents
V. 1. secure attachment base 2. parental discipline 3. threats of separation 4. peer affectional support	- trust, love - e.g. not allowed to see friends - e.g. parents threatened to leave or to call police - e.g. dependability of friends
VI. 1. Autonomous (or Secure) 2. Dismissing (or avoidant) 3. Preoccupied (or ambivalent)	- coherence in talking about attachment-related experiences and affect - uncomfortable discussing attachment-related issues; minimize, dismiss, devalue, or deny impact of negative attachment experiences (but show increases in skin conductance) - active anger or passivity regarding past experiences - may be due to non-loving but involving (or role-reversing) parents, because the child needed to be alert to the parents' needs at expense of his/her own; or because the mother had difficulty separating from child, leaving the child poorly prepared for separation

(continued...)

4. Unresolved	<ul style="list-style-type: none"> - not an independent classification, but in addition to one of the other three classifications (11% of secure, 26% of dismissing, 40% of preoccupied are at the same time classified as unresolved) - may be due to attachment-related trauma (abuse, loss), resulting in confusion and disorganization
VII. 1. Secure	- high approach, low anxiety
2. Preoccupied	- high approach, high anxiety
3. Dismissing	- avoidance, low anxiety
4. Fearful	- avoidance, high anxiety
VIII. 1. Proximity-Seeking	- feel lost & upset if caregiver absent
2. Separation Protest	- feel abandoned when caregiver away for a few days
3. Feared Loss	- afraid of losing attachment figure's love
4. Availability	- confident figure will try to understand feelings
5. Use of Attachment Figure	- talk things over
6. Angry Withdrawal	- frustrated when attachment figure not around
7. Compulsive Caregiving	- put attachment figure's need before own
8. Compulsive Self-Reliance	- feel it's best not to rely on attachment figure
9. Compulsive Care-Seeking	- would feel helpless without attachment figure

I. Ainsworth et al. (1978); for children, on basis of strange situation observations

II. Main & Solomon (1986); for children, on basis of strange situation; identified a 4th category to be included with A, B, & C above

III. Fraley & Spieker (2003); for children, on basis of strange situation but using dimensional rather than categorical approach; proposed 2 dimensions determined through factor analysis

IV. Armsden & Greenberg (1987); Inventory of Parent & Peer Attachment (IPPA) for adolescents, assessing current attachment to parents and peers

V. Pottharst (1990); Attachment History Questionnaire (AHQ) for adults, assessing their earlier attachment experiences; yielded single security score on basis of 4 factors

VI. Main (1995), Main, Kaplan, & Cassidy (1985), & Kobak, Cole, Ferenz-Gillies, Fleming, & Gamble (1988); Adult Attachment Interview (AAI) & AAI Q-Sort for adults, assessing adult attachment

VII. Bartholomew & Horowitz (1991); 4-Group Model of Attachment Styles for adults, assessing adult attachment on 2 dimensions: self-image -- positive (low anxiety) or negative (high anxiety), and image of others -- positive (high approach) or negative (avoidance)

VIII. West & colleagues (in Crowell et al.; 1999); (5 components of adult attachment system and 4 general attachment behaviours), Reciprocal Attachment Questionnaire (RAQ) for adults, assessing attachment to their current perceived primary attachment figure

or emotional detachment from, the attachment figure. It is seen to be a response to actual or the perceived threat of disruption of the attachment relationship. The attachment security items used in the current thesis were based on these three Armsden and Greenberg (1987) dimensions. High scores on the trust and communication dimensions contributed to a higher attachment security score, while high alienation scores contributed to a lower attachment security score. Recent research has confirmed the importance of these three dimensions to attachment security in adolescence and adulthood (Feeney, Noller, & Roberts, 1998; Mikulincer, 1998a, 1998b; Rholes, Simpson, & Orina, 1999).

Attachment Mechanisms

A limited but meaningful research base underlies the proposed existence of a relationship between adolescent attachment security and constructs related to normative beliefs. In their large-scale review, Collins et al. (1997) reported on a large sample of studies that they claimed found secure attachment to be predictive of higher internalization (see Bretherton et al., 1997, for a similar review involving younger children). The majority of the reviewed studies, however, did not measure antisocial beliefs directly, often using what may be conceptualized as more distal outcomes, such as avoidance of antisocial behaviour, mature identity, psychosocial maturity, or ego development, which they *assumed* reflected internalization of adaptive beliefs. In the current study, normative beliefs legitimizing antisocial behaviour were measured relatively directly through adolescent self-reports.

A wealth of research has found relationships between adolescent attachment security and various measures of antisocial behaviour (Allen, Moore, Kuperminc, & Bell, 1998; and see Allen & Land, 1999, & Crowell et al., 1999 for reviews). A number of theories have been

advanced as researchers have attempted to determine the mechanisms through which attachment security might influence adjustment (Collins et al., 1997). Two possible mechanisms are discussed in the following section. The first one relates to the possibility that securely attached adolescents may be more likely to accept parental moral messages. The second mechanism refers to the possible link between low attachment security and poor social skills.

The child's willingness to accept the parental message. According to Grusec (2002), the child's willingness to accept parental moral messages is influenced by factors related to secure attachment. Warmth, trust, a desire to please the parents, a script of mutual compliance, a desire not to do anything to embarrass the parents, and a desire not to do anything that might pose a threat to felt security all may increase the motivation for acceptance (Grusec, 2002; Maccoby & Martin, 1983). Acceptance may be even more likely if the child feels the parental message is acceptable and reasonable (Grusec, 2002; Laird, Pettit, Dodge, et al., 2003), and if reasoning is provided to the child at an age-appropriate level (Grusec, 2002). Such characteristics as these may occur more frequently in the context of a secure attachment relationship, especially one characterized by trust, communication, and low alienation (Barnett et al., 1998; Eisenberg & Valiente, 2002; Grusec, 2002).

Attachment and social skills. In accordance with the internal working model of attachment (Bowlby, 1969, 1973, 1980), parent/infant attachment is assumed to lay the groundwork for future peer relationships (Rubin et al., 1998). The link between insecure attachment and poor social skills is well-established (Allen & Land, 1999; Patterson et al., 1991), and some research support has been found for each step of a model in which

low parental attachment-related behaviours predicted childhood behaviour problems, which in turn predicted peer rejection, involvement in deviant peer groups, and, finally, delinquent behaviour (Patterson, DeBaryshe, et al., 1989; Rubin et al., 1998; Schneider, Atkinson, & Tardif, 2001). Collins et al. (1997) suggested that peer rejection reduces the size of the pool from which an adolescent may select friends, and antisocial adolescents tend to select other antisocial adolescents as associates. Patterson, DeBaryshe, et al. (1989) found that low attachment security plus peer rejection predicted greater behaviour problems among adolescents than either predictor on its own, and Patterson, Cohn, and Kao (1989) found that the six-year-old children in their study who both were insecurely attached and had experienced peer rejection had more behaviour problems than those who were securely attached and had experienced peer rejection, suggesting a buffering role for attachment. In a previous subsection of this thesis it was suggested that monitoring knowledge may be linked to normative beliefs through the operation of peer deviancy training. The information provided in this paragraph suggests that attachment security may be linked with normative beliefs through this same peer deviancy training mechanism.

Hypothesis 3: Attachment Security and Normative Beliefs

On the basis of these proposed mechanisms, **I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by attachment security. Specifically, I predicted that attachment security would be linearly and negatively associated with normative beliefs.**

Hypothesis 4: Attachment Security as a Moderator of the Curvilinear Relation between Surveillance/Tracking and Normative Beliefs

The first three hypotheses all involved relationships between normative beliefs and a single parenting variable. The hypothesis that appears below represents an interaction between two parenting variables – surveillance/tracking and attachment security – in the prediction of normative beliefs. According to Hypothesis 2 above, the relationship between surveillance/tracking and normative beliefs legitimizing antisocial behaviour was expected to be curvilinear, with both low and high levels of surveillance/tracking being associated with higher normative beliefs legitimizing antisocial behaviour, and moderate surveillance/tracking being associated with low normative beliefs legitimizing antisocial behaviour. According to Hypothesis 4 below, however, this relationship was expected to hold only for adolescents who were low in attachment security.

In attachment relationships characterized by high security, high surveillance/tracking may provide parents with the relevant information about the adolescents' activities because the adolescents may perceive their parents' behaviour as less intrusive (Grusec, 2002), more acceptable/reasonable (Grusec, 2002; Laird, Pettit, Dodge et al., 2003), and more age-appropriate (Grusec, 2002). Because such characteristics may be more likely in secure attachment relationships (Barnett et al., 1998; Eisenberg & Valiente, 2002; Grusec, 2002), the adolescent may be more forthcoming with the relevant information (Barnett et al., 1998, Eisenberg & Valiente, 2002). This is in line with the suggestion that power assertion from a warm, nurturant parent is likely to be more effective than from a cold, non-nurturant parent (Grusec & Goodnow, 1994).

In light of these proposed processes, I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between surveillance/tracking and attachment security. Specifically, I predicted that for adolescents who were low in attachment security, the relationship between surveillance/tracking and normative beliefs legitimizing antisocial behaviour would be curvilinear as was described in Hypothesis 2, in which both low and high levels of surveillance/tracking predicted high normative beliefs legitimizing antisocial behaviour, and intermediate levels of surveillance/tracking predicted low levels of normative beliefs legitimizing antisocial behaviour. For adolescents who were high in attachment security, however, the relationship between surveillance/tracking and normative beliefs was predicted to be linear and negative.

Temperament

The previous section was an examination of two potential parental influences on the development of normative beliefs – monitoring and attachment security. This section is an analysis of possible temperamental influences. The first part of this subsection consists of a background of the temperament construct as it is conceptualized in current research. The second and third parts consist of brief descriptions of the proposed mechanisms that may be involved in the relationship between the two temperament dimensions examined in the current study (activity level and approach) and normative beliefs. Separate hypotheses were made for each.

Temperament Background

Temperament has been defined recently as, “constitutionally based individual differences in emotional, motor, and attentional reactivity and self-regulation” that are

relatively consistent across time and situations (Rothbart & Bates, 1998, p. 109; for similar definitions see Kagan, 1998; Seifer & Schiller, 1995; Vaughn & Bost, 1999). Rothbart and Bates (1998; and Bates, 1989) listed 5 points of general agreement about temperament characteristics among workers in the field, stating that such characteristics are (1) inherent and biologically/constitutionally based; (2) early appearing, first surfacing in childhood, although some forms emerge and recede with development; (3) behavioural tendencies that constitute the core of personality and influence directions for development; (4) somewhat stable across time and situations, although affected by developmental processes and social context; and (5) most readily observed in social interactions (see also Goldsmith et al., 1987). Temperament is assumed to be well established by 3 years of age (Kagan, 1998; McCrae et al., 2000; Rothbart & Bates, 1998) and appears to be at least moderately stable across situations and over time into adulthood (Caspi, 2000; Caspi, Harrington, Milne, Amell, Theodore, & Moffitt, 2003; Fox & Henderson, 2000; Pesonen, Raikkonen, Keskivaara, & Keltikangas-Jarvinen, 2003).

The results of factor analyses performed by various temperament research groups are shown in Table 6. To facilitate appreciation of the similarities among the factors in Table 6, the second column provides brief descriptions of each construct, most of which were supplied by the researcher who named the construct. As mentioned by Rothbart, Ahadi, & Evans (2000), there is more agreement among temperament researchers than it may first appear, but the similarities are often masked by each researcher's own preferred label for each factor. Vaughn and Bost (1999) stated that at the behavioural observation

Table 6

Examples of temperament dimensions identified by various researchers

Factor Name	Description
I. 1. Activity Level 2. Rhythmicity 3. Approach-Withdrawal 4. Adaptability 5. Threshold of Responsiveness 6. Intensity of Reaction 7. Quality of Mood 8. Distractibility 9. Attention Span and Persistence	overall regularity in sleeping, eating, defecation new objects, situations (e.g. baths), people to disruptions of routine sense every sight/sound/touch (e.g. wet diaper, wake at slightest noise, turn away from distant light) vs. unaware scream when crying vs. frown; or chortle when laughing vs. smile generally happy vs. unhappy or grumpy stop fussing when given toy/pacifier or when sung to; easily diverted from dangerous to safer activity play happily with same toy for long time vs. drop it after short period of time
II. 1. Activity Level 2. Distress to Limitations 3. Fear 4. Duration of Orienting 5. Smiling & Laughter 6. Soothability	movement of arms & legs fussing, crying, or other distress when confined, in caretaking activity, or unable to perform a desired action startle or distress to novel objects or people attention to/interaction with single object over time in general play & caretaking situations reduction in fussing, crying, or other distress when caretaker attempts to soothe
III. 1. Extraversion/Surgency 2. Negative Affectivity 3. Effortful Control	impulsivity, activity level, low shyness fear, anger, frustration inhibitory control, attention
IV. 1. Negative Emotion and Somatic Arousal 2. Positive Emotion and Sensitivity 3. High Intensity Pleasure or Sensation Seeking	fear, autonomic reactivity, sadness, irritability, shyness, inattention, motor activation sensitivity, low-intensity pleasure, attention high-intensity pleasure, activity level, low fear, low shyness
V. 1. Activity Level – General 2. Activity Level – Sleep 3. Approach/Withdrawal 4. Flexibility/Rigidity 5. Mood 6. Rhythmicity – Sleep 7. Rhythmicity – Eating 8. Rhythmicity – Daily Habits	e.g. sports e.g. toss & turn or stay relatively still new persons/situations in responding to changes in external environment generally positive or negative regularity “ “

(continued...)

- 9. Distractibility
- 10. Persistence

VI.	1. Orienting Sensitivity	perceptual sensitivity, attention
	2. Extraversion	sociability, high intensity pleasure, activity level
	3. Effortful Attention	attentional shifting, focusing
	4. Negative Affectivity	fear, frustration, discomfort, sadness
VII.	1. Activity Level	frequency/speed of gross motor activity
	2. Adaptability	adjustment to change, emotional responses
	/Agreeableness	
	3. Inhibition	approach/withdrawal, reaction to strangers,
	4. Negative Emotionality	intensity/persistence of negative emotional reactions
	5. Task Persistence	attention span, ability to control motoric activity,
	6. Rhythmicity	time to fall asleep/wake up, feeding times
	7. Threshold	sensitivity (e.g. to light, new foods) of visual, auditory, tactical, & olfactory processes

-
- I. Thomas & Chess (1977); infancy
 - II. Rothbart (1981); infancy
 - III. Rothbart et al. (2000); preschool and early school age
 - IV. Capaldi & Rothbart (1992); adolescence
 - V. Windle and Lerner (1986); adolescence/young adulthood
 - VI. Rothbart et al. (2000); young adulthood
 - VII. Martin, Wisenbaker, and Hutunen (1994); factor analysis of data from existing studies, birth to age 17

level there is broad agreement among researchers of temperament. For a thorough review and discussion of the characteristics and dimensions identified by various researchers see Rothbart and Bates (1998).

It is generally accepted in the literature that temperament includes both reactive and self-regulatory components (Crockenberg, 2003). Reactivity refers to the ease of arousal of motor, sensory, and affective response systems in response to environmental stimulation (Rothbart, 1989; Teglasi, 1998). Examples of temperament dimensions that fall into this category are fear, distress to limitations, irritability, smiling, laughter (Teglasi, 1998), negative emotionality, positive affect, approach/withdrawal, fear (Rothbart & Bates, 1998), and dispositional anger/frustration (Zhou, Eisenberg, Wang, & Reiser, 2004).

Self-regulation, which represents attempts to modulate reactivity through attentional focusing and inhibitory control, develops over time through such processes as maturation, experience, cognitive growth, and emotional development (Teglasi, 1998; Thompson & Calkins, 1996). Examples of temperament dimensions that are considered self-regulatory include attention, activity level, behavioural inhibition (Teglasi, 1998), and effortful control (Zhou et al., 2004). Both reactivity and self-regulation are considered to be functions of neurobiological processes (Teglasi, 1998) such as cardiac reactivity (Rothbart & Bates, 1998) (see Rothbart & Bates, 1998 for more details on reactivity and self-regulation). Table 7 contains examples of temperament dimensions used in previous research that are similar to the two used in the current study (activity level and approach) listed under the headings of either reactivity or self-regulation.

Table 7

Examples of various theorists' temperament dimensions that are similar to those used in the present thesis

Same as or Similar to Activity Level (Self-Regulation)	Same as or Similar to Approach (Reactivity)
1. inhibitory control (incl. approach)	1. negative/positive emotionality
2. motor activity	
3. activity	
4. activity (energy) level	4. inhib'n (approach/ withdrawal)
5. surgency (incl. approach/withdrawal)	
6. energy/activity level	6. mood (incl. approach)
7. activity	7. approach
8. activity level	8. approach/withdrawal
9. effortful control	

1. Aksan et al. (1999)
2. Bates (1989), Rothbart (1989)
3. Buss & Plomin (1984)
4. Martin et al. (1994)
5. Rothbart & Bates (1998)
6. Scholom (1975), in Thomas & Chess (1977)
7. Seifer & Schiller (1995)
8. Thomas & Chess (1977)
9. Zhou et al. (2004)

Another recent development among researchers in the temperament field is that many are calling for a deliberate move away from global characteristics, such as Thomas & Chess' (1977) difficult temperament, toward a more "fine-grained", dimensional approach in the analysis of temperament (Gallagher 2002; Putnam et al., 2002; and see Goldsmith et al., 1987, for the opinions of a number of influential temperament researchers involved in a roundtable discussion). This dimensional approach is beginning to take hold among temperament researchers (Belsky, Hsieh, & Crnic, 1998), and this is the approach taken in the present study. The two temperament dimensions examined in

the current study were activity level (an example of a component of temperamental self-regulation), and approach (an example of a component of temperamental reactivity).

Other researchers have recommended the inclusion of at least one of each of these two temperament components (Zhou et al., 2004).

Activity Level Mechanisms

Temperament may have effects on antisocial outcomes. In the next few pages some possible mechanisms connecting temperament with these negative outcomes are suggested for each of the two temperament dimensions being investigated.

Activity level, a dimension of self-regulation, refers to pervasiveness of movement and degree of energy expenditure (Windle & Lerner, 1986). High activity level has been found to be related to greater externalizing behaviour (Hagekull, 1994; Karp, Serbin, Stack, & Schwartzman, 2004; Wills, Windle, & Cleary, 1998), and this relationship may stem from the disturbing effect that the person's constant energy, movement, impulsivity, and interference has on others, including parents and peers. The annoying effect on peers may lead to peer rejection and perhaps, in turn, to association with deviant peers and subsequent peer deviancy training, as discussed above (Patterson, DeBaryshe, et al., 1989; Patterson et al., 1991). The annoying effect on the parents of the children's high activity level could lead to insecure attachment. Insecure attachment may, in turn, lead to impaired social skills and, again, subsequent peer rejection, association with deviant peers, and peer deviancy training (Patterson, DeBaryshe, et al., 1989; Rubin et al., 1998; Schneider, Atkinson, & Tardif, 2001). Finally, the end result of peer deviancy training may be the development of antisocial beliefs and behaviour (Patterson, DeBaryshe, et al., 1989). The foregoing scenarios represent examples of evocative gene-

environment correlations, wherein a person's genetic characteristics evoke particular responses from other people in his/her social environment (see Rutter, 1997, and Scarr & McCartney, 1983, for thorough reviews of this concept).

Hypothesis 5: Activity Level and Normative Beliefs

In keeping with the foregoing research and the proposed mechanisms, I hypothesized that activity level would be linearly and positively associated with normative beliefs legitimizing antisocial behaviour.

Approach Mechanisms

Approach, an aspect of reactivity, refers to reactions to novel persons, situations, and events (Windle & Lerner, 1986). Low scores on reactivity-related variables have been found to be related to externalizing problems (Raine, Reynolds, Venables, Mednick, & Farrington, 1998; Rothbart, Ahadi, et al. 2000; Schwartz, Snidman, & Kagan, 1996; Shaw, Gilliom, Ingoldsby, & Nagin, 2003), although a few studies have connected high reactivity with externalizing behaviours (Colder, Lochman, & Wells, 1997). Persons high in approach may be more likely to engage in high-risk, peer-related activities than are low approach persons, whose passivity may partially buffer them from these activities. Involvement in high-risk activities may increase the likelihood that these adolescents will become involved with deviant peers and, following a pattern similar to that described above for high-activity-level adolescents, become susceptible to peer deviancy training and, subsequently, the development of antisocial beliefs and behaviour. This scenario is another example of a gene-environment correlation, this time in the form of an active gene-environment correlation, in which people actively choose their preferred

environments and activities (see Rutter, 1997, and Scarr & McCartney, 1983, for thorough reviews of this concept).

Hypothesis 6: Approach and Normative Beliefs

In keeping with the foregoing research and the possible proposed mechanisms, I **hypothesized that approach would be linearly and positively associated with normative beliefs legitimizing antisocial behaviour.**

Parenting/Temperament Interactions

It has been suggested that it is necessary to investigate the interaction effects of parenting and child temperament to uncover possible conditional effects (Bates et al., 1998; Bronfenbrenner & Morris, 1998; Eisenberg & Valiente, 2002; Sanson & Rothbart, 1995; Wachs & Plomin, 1991). Some researchers have already adopted this fine-grained approach and found interactions between particular temperament and parenting dimensions in the prediction of either antisocial beliefs or behaviour (see Table 8).

The following subsection is comprised of a brief review of four recent studies that examined parenting/temperament interactions in the prediction of adjustment. The final part of this section presents one possible model for the interpretation of complicated parenting/temperament interactions, wherein temperament serves as a moderator of the relation between parental predictors and adjustment outcomes.

Studies Involving Parenting/Temperament Interactions

Recently there has been an accumulation of research documenting the role of parenting and temperament interactions in the prediction of beliefs and adjustment (see Table 8 for some examples). Bates et al. (1998) found that, for the 7 to 11-year-olds' in their study, temperamental resistance to control in infancy and toddlerhood was more

Table 8
Parenting and temperament interactions in previous research

Temperament Dimension	Parenting Dimension	Outcome
1. resistance to control (hi)	restrictive control (lo)	externalizing (hi)
2. infant negativity (hi)	negative parenting (hi)	externalizing (hi)
3. difficult temperament (hi)	par'l negative discipline (hi)	externalizing (hi)
4. negative reactivity (hi)	maternal guidance (hi)	compliance (lo)
5. negative reactivity (hi)	control (hi)	compliance (lo)
6. behavioural inhibition (hi)	avoidant attachment (hi)	externalizing (hi)
7. fearfulness (hi)	harsh discipline (hi)	aggression (hi)
8. activity level (hi)	monitoring (lo)	aggression (hi)
9. fearfulness (hi)	maternal sensitivity (hi)	active engagement (hi)
10. fearfulness (hi)	mat'l gentle discipline (hi)	conscience (hi)
11. fearfulness (lo)	responsiveness (hi)	conscience (hi)
12. distress (hi)	maternal constraint (lo)	secure attachment (hi)
13. demandingness (lo)	maternal responsiveness (hi)	compliance (hi)
14. negative emotionality (hi)	parental negative affect (hi)	inhibition (lo)
15. persistence (hi)	parental warmth (hi)	social skills (hi)
16. inflexibility (hi)	parental punishment (hi)	externalizing (hi)
17. peer inhibition (hi)	intrusive control (hi) and/or	social reticence (hi)
18. negative emotionality (hi)	low-power par'l disc (hi)	prosocial beh (hi)
19. negative temperament (hi)	taught parenting skills (hi)	negativity (lo), sociabil. (hi)

1. Bates et al. (1998)
2. Belsky et al. (1998)
3. Blackson et al. (1996)
4. Braungart-Rieker et al. (1997)
5. “
6. Burgess et al. (2003)
7. Colder et al. (1997)
8. “
9. Early et al. (2002)
10. Kochanska (1995, 1997)
11. “
12. Mangelsdorf et al. (1990)
13. Martin (1981)
14. Park et al. (1997)
15. Paterson & Sanson (1999)
16. “
17. Rubin et al. (2002)
18. Stanhope (1999; as cited in Gallagher, 2002)
19. van den Boom (1994)

strongly related to externalizing behaviour in children whose parents used lower levels of control than in those whose parents were high in control. Colder et al. (1997) found that, among the grade 4-5 boys in their sample, low monitoring was associated with higher aggression, but only for the boys with a temperamentally high activity level. They also reported that among the high and moderately fearful but not the low-fear boys, harsh discipline was associated with higher aggression. Paterson and Sanson (1999) found that for the 5 to 6-year-old boys and girls in their sample who were low in persistence and high in rigidity, low parental warmth and high levels of punishment were associated with poor adjustment. Kochanska (1997) found that children who were temperamentally fearful as toddlers were more likely to experience enhanced conscience development in response to maternal gentle discipline deemphasizing power, whereas temperamentally fearless children were more likely to respond to aspects of a highly positive parent-child relationship, including secure attachment and maternal responsiveness. Possibly these latter parents were capitalizing on their children's parental approval-seeking behaviour and their desire to maintain a positive relationship with their parents, as discussed above in the *Attachment Mechanisms* subsection..

Temperament as Moderator

When one variable influences the strength of the relationship between a predictor and a criterion, that variable is called a moderator variable because it affects, or moderates, the predictor/criterion relationship. The moderator is said to interact with the predictor in a way that affects the level of the criterion (see Baron & Kenny, 1986, and Holmbeck, 1997, for thorough explanations of the concept of moderator). Putnam et al. (2002) pointed out the importance of the distinction between parenting as a moderator of

temperament and temperament as a moderator of parenting in the production of outcomes. The former relates to the role of parents as protective or risk factors, while the latter highlights the importance of sensitivity by parents to child temperament in selecting socialization practices. This distinction is important in terms of how to target intervention efforts.

For the purposes of the current analysis, temperament was examined as a possible moderator of the relation between parenting characteristics and adolescent outcomes. This paradigm was chosen because, as suggested by Gallagher (2002), it will increase understanding of which aspects of parenting promote positive child adjustment for children of different temperaments. Figure 1 illustrates the hypothesized moderation effects. Due to the experimental design of the current study, it is impossible to determine directions of causality in the relationships among the variables. This matter is recognized in Figure 1 through the use of bidirectional arrows. Although it is likely that at least some of the temperament and parenting variables are correlated with each other, these arrows were omitted in order to simplify the figure and to emphasize the specific hypotheses tested in the current study.

Three specific parenting/temperament interactions are predicted in the following subsections, including two that involve approach and one that involves activity level. Each hypothesis and its corresponding rationale are discussed in turn.

Hypothesis 7: Monitoring Knowledge by Activity Level

Low monitoring knowledge has been shown to be predictive of antisocial behaviour (Laird, Pettit, Dodge, et al., 2003; and see Dishion & McMahon, 1998, for a

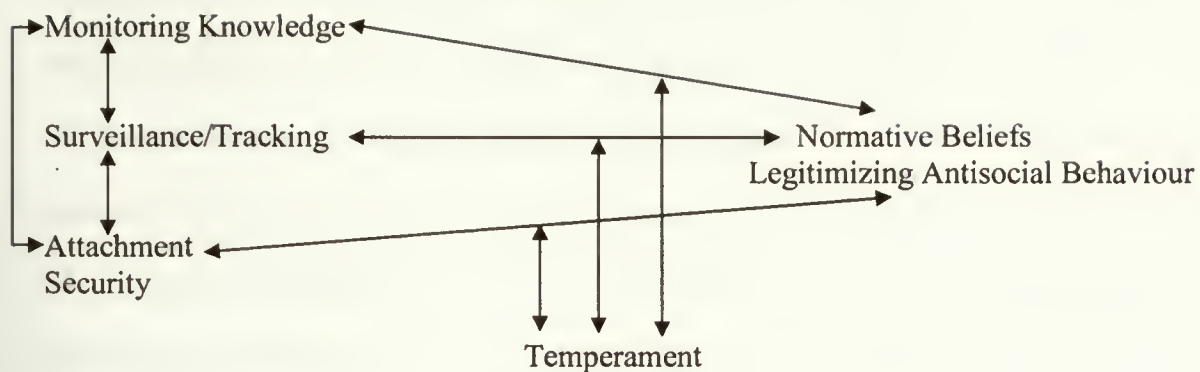


Figure 1. Hypothesized pathways for the emergence of normative beliefs legitimizing antisocial behaviour: Moderating influence of temperament (activity level, approach) on the relationships between the parenting predictors (monitoring knowledge, surveillance/tracking, attachment security) and the outcome (normative beliefs).

review). As discussed earlier, this may be due to the possibility that poorly monitored adolescents spend greater amounts of unsupervised time in the company of deviant peers, making it difficult for parents to protect their adolescents from experiencing peer deviancy training. More unsupervised time with peers may also make it difficult for parents to provide appropriate reinforcement/punishment contingencies for their adolescents' social behaviours (Grusec, 2002; Patterson et al., 1991). In contrast, high monitoring knowledge may provide the knowledge necessary for the parents to protect their adolescents from the negative influences of deviant peers. For these reasons, and as predicted earlier, monitoring knowledge was expected to be related linearly and negatively to normative beliefs legitimizing antisocial behaviour (see Hypothesis 1).

However, Colder et al. (1997) found that, among the 9 to 11-year-old boys in their study, low monitoring was associated with high aggression, but only for boys who were high in activity level. Similarly, Stice and Gonzales (1998) found that low maternal control of the 16 to 19-year-old boys in their study was associated with higher aggression, but only for the boys who were low in self-regulation, which is related to high activity level. Results such as these may occur because adolescents who are more active may emit more antisocial behaviours, be rejected by conventional peers, become involved with deviant peers, and experience peer deviancy training (Colder et al., 1997; Patterson, DeBaryshe, et al., 1989). This unfolding of events may be particularly likely to occur when parental monitoring is low, and may be further exacerbated by the fact that parents who are low in monitoring knowledge are not in a position to apply appropriate reinforcement/punishment contingencies (Colder et al., 1997). Therefore, high activity level adolescents may need very close monitoring to ensure that they stay out of trouble.

On the basis of these proposed mechanisms, **I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between monitoring knowledge and temperamental activity level. Specifically, I predicted that monitoring knowledge would be linearly and negatively associated with normative beliefs legitimizing antisocial behaviour for adolescents high in activity level, but not for those low in activity level.**

Hypothesis 8: Monitoring Knowledge by Approach

As discussed with respect to the previous hypothesis, low monitoring knowledge has been shown to be predictive of antisocial behaviour (Laird, Pettit, Dodge, et al., 2003; and see Dishion & McMahon, 1998, for a review), possibly because poorly monitored adolescents spend greater amounts of unsupervised time in the company of deviant peers, making it difficult for parents to protect their children from peer deviancy training or provide appropriate reinforcement/punishment contingencies for social behaviours (Grusec, 2002; Patterson et al., 1991). In a manner somewhat akin to the mechanism suggested for the previous hypothesis, low monitoring knowledge may be more strongly associated with high normative beliefs legitimizing antisocial behaviour for adolescents who are high in approach compared to those who are low in approach, because high approach adolescents may be more likely to approach and become involved with deviant peers, thereby becoming susceptible to peer deviancy training. This possible mechanism, if verified, would explain the relationship between infants' high approach and age 7 aggression as found by Rothbart, Ahadi, et al. (2000). Low approach, however, may act as a buffer against low monitoring knowledge, making these adolescents less susceptible

to negative peer influences such as deviancy training (Grusec & Goodnow, 1994; Patterson, DeBaryshe, et al., 1989; Rothbart, Ahadi, et al.; 2000).

Based on these proposed processes, **I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between monitoring knowledge and temperamental approach. Specifically, I predicted that monitoring knowledge would be linearly and negatively associated with normative beliefs legitimizing antisocial behaviour for adolescents high in approach, but not for those low in approach.**

Hypothesis 9: Attachment Security by Approach

Secure attachment is associated with favourable outcomes (Easterbrooks et al., 1993; Erickson et al., 1985; Stams et al., 2002; and see Greenberg, 1999, for a review). This may be related to the possibility, as discussed above, that in the context of a secure attachment relationship an adolescent may be more motivated to accept parental moral messages (Grusec, 2002). It also may be related to the possibility that if a child's basic attachment-related needs are not met within the family, he/she may lack appropriate social skills and be at greater risk for peer rejection, association with deviant peers and, ultimately, increased antisocial behaviour (Patterson, DeBaryshe, et al., 1989; Patterson, Cohn, et al., 1989; Rubin et al., 1998).

However, it has been suggested that parenting and the parent-child relationship may play important roles in the socialization of children of different temperaments (Gallagher, 2002; Kochanska, 1995, 1997). For example, Kochanska (1995, 1997) found that only the temperamentally fearless children (similar to high approach) in her sample were more likely to experience enhanced conscience development in the presence of a

highly positive parent-child relationship (secure attachment, maternal responsiveness). Temperamentally fearful (low approach) children, on the other hand, responded better to maternal gentle discipline (e.g. reasoning, positive incentives).

On the basis of these proposed mechanisms, **I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between attachment security and temperamental approach. Specifically, I predicted that attachment security would be linearly and negatively associated with normative beliefs legitimizing antisocial behaviour for adolescents high in approach, but not for those low in approach.**

Gender Differences

Hypothesis 10: Gender and Normative Beliefs

As mentioned above, boys are much more likely than girls to be involved in the more overt types of antisocial activities (Crick & Grotpeter, 1995; Salmivalli, Kaukiainen, & Lagerspetz, 2000). Huesmann and Guerra (1997) found that males were more likely than females to hold normative beliefs supportive of aggression. In keeping with the foregoing findings, **I hypothesized that males would be significantly higher than females in normative beliefs legitimizing antisocial behaviour.**

Hypothesis 11: Gender by Monitoring Knowledge

Low monitoring has been found to be more detrimental to adjustment for boys than for girls (Borawski et al., 2003; Crouter, McHale, & Bartko, 1993; Griffin, Botvin, Scheier, Diaz, & Miller, 2000; Jacobson & Crockett, 2000). In keeping with the foregoing research and keeping in mind the mechanisms proposed earlier (particularly those related to peer deviancy training), **I hypothesized that normative beliefs**

legitimizing antisocial behaviour would be predicted by an interaction between gender and monitoring knowledge. Specifically, I predicted that the relationship between monitoring knowledge and normative beliefs would be linear and negative, and that this relationship would be stronger for males than for females.

Hypothesis 12: Gender by Attachment Security

Like monitoring knowledge, secure attachment may be more important for the adjustment of boys than for girls (Leaper, 2002). Research has supported this suggestion with preschool (DeMulder, Denham, Schmidt, & Mitchell, 2000; Kerns & Barth, 1995) and early elementary school children (Cohn, 1990; Renken, Egeland, Marvinney, Mangelsdorf, & Sroufe, 1989), but little is known about gender effects on attachment security in older children. In an attempt to extend the research findings above to include adolescents, **I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between gender and attachment security. Specifically, I predicted that the relationship between attachment security and normative beliefs would be linear and negative, and that this relationship would be stronger for males than for females.**

Age Differences

Hypothesis 13: Age and Normative Beliefs

A wealth of research has demonstrated that the incidence of antisocial behaviour increases throughout adolescence, peaking at approximately age 18, and decreasing sharply thereafter (Moffitt, 1993; Nagin et al., 1995; Stouthamer-Loeber, Loeber, Wei, Farrington, & Wikstrom, 2002). This may be related to the finding that, with age, adolescents become increasingly independent from their parents and spend more time out

of the home engaged in unsupervised activities (Dishion & McMahon, 1998; Larson et al., 1996). The foregoing increases the opportunity for involvement with deviant peers and engagement in delinquent behaviour (Dishion & McMahon, 1998; Steinberg & Silk, 2002). On the basis of this research, **I hypothesized that age would be associated linearly and positively with normative beliefs legitimizing antisocial behaviour.**

Hypothesis 14: Age by Monitoring Knowledge

As mentioned above, with increasing age adolescents become progressively more independent from their parents and spend more time outside of the home (Dishion & McMahon, 1998; Larson et al., 1996; Steinberg & Silk, 2002). Parents who are high in monitoring knowledge are likely to be more aware of their adolescent children's activities and relationships, and are therefore in a better position to apply appropriate reinforcement/punishment contingencies for their adolescents' social behaviours, than parents who are low in monitoring knowledge.

Based on these factors, **I hypothesized that age and monitoring knowledge would interact in the prediction of normative beliefs. Specifically, I predicted that age would be linearly and positively related to normative beliefs legitimizing antisocial behaviour for adolescents who rated their parents low in monitoring knowledge, but not for those who rated their parents high in monitoring knowledge.**

Review of Hypotheses

Monitoring Hypotheses

1. I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by parental monitoring knowledge. Specifically, I predicted that monitoring

knowledge would be linearly and negatively associated with normative beliefs legitimizing antisocial behaviour.

2. I hypothesized that the relationship between parental surveillance/tracking and normative beliefs legitimizing antisocial behaviour would be curvilinear. Specifically, I predicted that both a low and a high degree of surveillance/tracking would be associated with high normative beliefs legitimizing antisocial behaviour, and moderate surveillance/tracking would be associated with low normative beliefs legitimizing antisocial behaviour.

Attachment Security Hypothesis

3. I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by attachment security. Specifically, I predicted that attachment security would be linearly and negatively associated with normative beliefs.

Attachment Security as a Moderator of the Curvilinear Relation between Surveillance/Tracking and Normative Beliefs Hypothesis

4. I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between surveillance/tracking and attachment security. Specifically, I predicted that for adolescents who were low in attachment security the relationship between surveillance/tracking and normative beliefs legitimizing antisocial behaviour would be curvilinear as was described in Hypothesis 2, in which both low and high levels of surveillance/tracking predicted high normative beliefs legitimizing antisocial behaviour, and intermediate levels of surveillance/tracking predicted low levels of normative beliefs legitimizing antisocial behaviour. For adolescents who were high in

attachment security, however, the relationship between surveillance/tracking and normative beliefs was predicted to be linear and negative.

Temperament Hypotheses

5. I hypothesized that activity level would be linearly and positively associated with normative beliefs legitimizing antisocial behaviour.

6. I hypothesized that approach would be linearly and positively associated with normative beliefs legitimizing antisocial behaviour.

Parenting/Temperament Interaction Hypotheses

7. I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between monitoring knowledge and temperamental activity level. Specifically, I predicted that monitoring knowledge would be linearly and negatively associated with normative beliefs legitimizing antisocial behaviour for adolescents high in activity level, but not for those low in activity level.

8. I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between monitoring knowledge and temperamental approach. Specifically, I predicted that monitoring knowledge would be linearly and negatively associated with normative beliefs legitimizing antisocial behaviour for adolescents high in approach, but not for those low in approach.

9. I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between attachment security and temperamental approach. Specifically, I predicted that attachment security would be linearly and negatively associated with normative beliefs legitimizing antisocial behaviour for adolescents high in approach, but not for those low in approach.

Gender Hypotheses

10. I hypothesized that males would be significantly higher than females in normative beliefs legitimizing antisocial behaviour.

11. I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between gender and monitoring knowledge. Specifically, I predicted that the relationship between monitoring knowledge and normative beliefs would be linear and negative, and that this relationship would be stronger for males than for females.

12. I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between gender and attachment security. Specifically, I predicted that the relationship between attachment security and normative beliefs would be linear and negative, and that this relationship would be stronger for males than for females.

Age Hypotheses

13. I hypothesized that age would be associated linearly and positively with normative beliefs legitimizing antisocial behaviour.

14. I hypothesized that age and monitoring knowledge would interact in the prediction of normative beliefs. Specifically, I predicted that age would be linearly and positively related to normative beliefs legitimizing antisocial behaviour for adolescents who rated their parents low in monitoring knowledge, but not for those who rated their parents high in monitoring knowledge.

Method

Overview

The current study is a part of the much larger Youth Lifestyle Choices – Community University Research Alliance (YLC-CURA) project in the Niagara Region, the goal of which is to identify and describe the major developmental pathways of risk behaviours and resilience in youth. The 23-page self-report YLC-CURA Youth Resilience Questionnaire was administered to over 7400 Niagara youth in grades 9, 10, 11, 12, and OAC in 25 high schools. Domains covered included personal, social, behavioural, physical/mental health, and ecological spheres and included questions on leisure activities, community and religion, and risk behaviours. Ethics approval was obtained by YLC-CURA from Brock University's Research Ethics Board (see Appendix A). A portion of YLC-CURA's survey data was used for the current study.

Participants and Recruitment

The original sample of 7430 participants (3553 boys, 3598 girls, and 279 participants with missing gender information), distributed across grades 9-OAC and aged 14-18 years ($M = 15.7$, $SD = 1.39$), represented a sizable cross-section of the secondary students in the Niagara Region Public and Catholic School Boards in 2001. In total, 25 of the 30 (83%) secondary schools in the region agreed to participate in this study. Eighteen parent information nights were held and information letters and consent forms were mailed to the students' parents requesting that the consent forms be returned to the school only if they did not wish their adolescent to participate in the study. Evidence suggests that the use of such passive consent procedures reduces sample bias that may be attributable to reduced participation rates by poorly-functioning adolescents (see Gray &

Steinberg, 1999 for a discussion of this issue). Student absenteeism accounted for the largest percentage of nonparticipation (17%). Other reasons were non-consent of student (4%) and non-consent of parent(s) (3%). Thus, the overall participation rate for students from the 25 participating secondary schools was 76%. Of the resulting total of 7430 participants, 295 failed to provide either (or both) age or gender data. Thus, the analyses in the current study were based on the remaining 7135 students.

Table 9 provides an overview of the demographic characteristics of the sample. Ethnically, the sample was relatively homogeneous. Ninety-three percent of the youth were born in Canada, as were 77.3% of their parents. Over 70% reported a western European background, and 17.8% were from an Eastern European background. A further 4.6% described their background as American. These figures are consistent with those for the broader Canadian population (Statistics Canada, 2003). English was the first language in 93.1% of the homes. The parents generally were well-educated, and 81 percent of the mothers and 94.3% of the fathers worked full-time. In terms of family structure, 61.2% of the students lived with both birth parents, 16% lived with either their birth father or their birth mother serving as a single parent, and 12.2% lived with one birth parent and one step-parent.

Procedure

The large YLC-CURA Youth Resilience Questionnaire, which was administered in the students' classrooms, was strictly confidential and took approximately two hours to complete. Included were questions on interpersonal relationships (e.g. friendship network), family and peer relationships (e.g. parental and peer attachment), risk

Table 9
Demographic data

Variables	Number	Percent	Missing
Sex			279
Male	3553	47.8	
Female	3598	48.4	
Age			52
14 or less	2048	27.2	
15	1342	18.1	
16	1745	23.5	
17	1234	16.6	
18 or more	1009	13.6	
Grade			58
9 or less	2841	38.3	
10	779	10.5	
11	2124	28.6	
12	913	12.3	
OAC	710	9.6	
Univ., coll., or not in school	5	.1	
Born in Canada	6636	93.0	
Mother Born in Canada	5651	79.2	
Father Born in Canada	5387	75.5	
Ethnic/Cultural Background			
Western European	4709	66.0	
Eastern European	1320	18.5	
American	328	4.6	
Native American	235	3.3	
Asian	143	2.0	
Language Spoken in Home			
English	6635	93.0	
French	340	5.6	
Family Living Situation			
Both Birth Parents	4367	61.2	
Father Only	243	3.4	
Mother Only	899	12.6	
Birth Mother & Stepfather	678	9.5	
Birth Father & Stepmother	193	2.7	
Grandparent	164	2.3	

(continued...)

Mother's Education

Did Not Finish High School	635	8.9
Finished High School	1948	27.3
Some College/University or Technical/Apprenticeship	1998	28.0
University Undergraduate Degree	785	11.0
Professional Degree	685	9.6
Still in School	71	1.0

Father's Education

Did Not Finish High School	36	0.5
Finished High School	1505	21.1
Some College/University or Technical/Apprenticeship	1976	27.7
University Undergraduate Degree	778	10.9
Professional Degree	878	12.3
Still in School	849	11.9

Mothers Employed Full-Time	5779	81.0
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Fathers Employed Full-Time	6728	94.3
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behaviours (e.g. substance use), leisure activities (e.g. common after-school activities), community (e.g. neighbourhood safety), school behaviours (e.g. achievement), physical/mental health (e.g. nutrition), and religion. Teachers read a brief script explaining the questionnaire's purpose and content, and the teacher and research assistants (3-5 per school) were present while the questionnaire was being administered. Further details of the administration of the questionnaire have been published elsewhere (YLC-CURA Niagara, 2001).

Measures

Monitoring

In the current study the monitoring constructs were assessed in two distinct sections of the questionnaire. In the monitoring knowledge part the adolescents reported on how much their parents really knew about their whereabouts, activities, and peers. The surveillance/tracking part referred to the parents' frequency of asking (parental efforts to gain knowledge) about these things. Monitoring knowledge and surveillance/tracking, in turn, are discussed below.

Monitoring knowledge. Monitoring knowledge was measured using a modified version of a strictness/supervision scale developed by Steinberg and colleagues (Lamborn, Mounts, Steinberg, & Dornbusch, 1991). In the current study the adolescents rated their parents on how much they really *know* about such things as where their adolescent children go at night, who their friends are, and what they do. Response options were on a 3-point Likert-type scale, ranging from *they always know* to *they sometimes or they never know* (see Appendix B for a list of the monitoring knowledge items). The

items were reverse coded so that higher scores indicated higher levels of parental monitoring knowledge.

A two-factor solution was derived from a principle component factor analysis of the 9 items (eigenvalues = 5.13 and 1.22), followed by varimax rotation that accounted for 71% of the variation in scores. The first set of items was interpreted as parental knowledge of their adolescents' general, out-of-the-home activities, such as where they went at night. The second factor referred to specific, in-home activities, such as what they watched on television. The correlation between the out-of-the-home and the in-home items ($r = .612$) was rather large (Cohen, 1988), so the two sets of items were combined to create one overall monitoring knowledge measure ($\alpha = .90$). Subsequent, exploratory regression analyses revealed that the same results were obtained both when the two sets of items were entered as separate variables and when all monitoring knowledge items were entered as a single variable.

Surveillance/tracking. The surveillance/tracking variable used in the current study consisted of the same nine items as for monitoring knowledge, except this time the adolescents rated their parents according to how often the parents *asked* them rather than how much they really knew about their whereabouts, activities, and friends. The items were responded to on a 3-point scale, ranging from *they often ask* to *they never ask* (see Appendix C for a list of the surveillance/tracking items). The items were reverse coded so that higher scores indicated higher levels of parental surveillance/tracking.

A two-factor solution was derived from a principle component factor analysis of the 9 items (eigenvalues = 3.63 and 1.47), followed by varimax rotation that accounted for 57% of the variation in scores. The two factors appeared to be the same as those

identified for monitoring knowledge, interpreted as one general factor for out-of-home activities, and the other for specific in-home activities. The correlation between the out-of-home and the in-home items ($r = .412$) was in the medium to large range (Cohen, 1988), so the two sets of items were combined to create one overall surveillance/tracking measure ($\alpha = .81$). Subsequent, exploratory regression analyses revealed that the same results were obtained both when the two sets of items were entered as separate variables and when all surveillance/tracking items were entered as a single variable.

Attachment Security

Attachment security was measured using a modified version of the parenting portion of Armsden & Greenberg's (1987) Inventory of Parent and Peer Attachment (IPPA). This original scale measured three dimensions of parent-adolescent attachment security determined through factor analysis: trust, communication, and alienation. The authors reported support for their placement of all of the items on a single security/insecurity dimension. For the version used in the current study, the students responded to each item on a 4-point Likert-type scale, ranging from *almost always or always* to *almost never or never*.

A two-factor solution was derived from a principle component factor analysis of the 17 items (eigenvalues = 6.82 and 2.73), followed by varimax rotation that accounted for 56% of the variation in scores. The two factors correspond well with those of Armsden and Greenberg (1987). Eleven items loaded onto what was labelled a combined trust and communication factor, and six onto an alienation factor (see Appendix D for a list of the attachment items). The correlation between the trust/communication factor and the alienation factor ($r = -.330$) was in the medium to large range (Cohen, 1988), so the

two sets of items were combined to create one overall attachment security measure ($\alpha = .90$). This is in line with Armsden & Greenberg's (1987) approach, as mentioned above, in which the trust/communication and alienation items were considered to be on a single security/insecurity dimension. Subsequent, exploratory regression analyses revealed that the same results were obtained both when the two sets of items were entered as separate variables and when all attachment security items were entered as a single variable. The items were reverse coded when necessary so that higher scores indicated higher attachment security to mother.

Temperament

Temperament was assessed with a modified version of Windle and Lerner's (1986) Dimensions of Temperament Survey – Revised (DOTS-R), which consisted of 54 items measuring 11 adolescent temperament dimensions determined through factor analysis. Twenty-four of these items were adapted for the overall YLC-CURA project because they represented six temperament dimensions that were deemed to be either the most commonly reported or among the most theoretically relevant in research involving adolescents (see Capaldi & Rothbart, 1992, for a discussion of the relevance to adolescence of some of the items on this scale).

A six-factor solution was derived from a principle component factor analysis of the 24 items (eigenvalues = 4.23, 2.96, 2.06, 1.64, 1.36, and 1.06), followed by varimax rotation that accounted for 55% of the variation in scores. The six factors correspond well with those of Windle and Lerner (1986). Three items loaded onto a factor which was labelled activity level, 4 on approach, 6 on persistence, 4 on positive affect, 4 on rhythmicity-sleep, and 3 on flexibility/rigidity. Two of the six factors, activity level and

approach, were selected for analysis in the current study, and they are described below (see Appendix E for a list of the temperament items for these two factors).

Activity level. The first factor, activity level, represents the self-regulation component of temperament, and it refers to pervasiveness of movement and degree of energy expenditure (Windle & Lerner, 1986). The activity level items were scored such that higher scores indicated higher levels of activity. All temperament items were responded to on a 4-point scale ranging from *almost always or always* to *almost never or never* ($\alpha = .79$).

Approach. The second factor, approach, was chosen to serve as a measure of the reactive component of temperament. Approach refers to reactions to novel persons, situations, and events (Windle & Lerner, 1986). The approach items were scored such that higher scores indicated higher levels of approach ($\alpha = .70$).

Normative Beliefs Legitimizing Antisocial Behaviour

Normative beliefs legitimizing antisocial behaviour was assessed using Jessor et al.'s (1995) Attitudinal Intolerance of Deviance Scale, which was explained in detail in the previous research subsection of the *Introduction* to the current study. Jessor et al.'s scale assesses the adolescent's judged "wrongness" of engaging in certain antisocial behaviours, such as physical aggression, theft, and damaging property. The normative beliefs measure used in the current study consisted of 11 items rated on a 4-point Likert-type scale ranging from *very wrong* to *not at all wrong*.

A two-factor solution was derived from a principle component factor analysis of the 11 items (eigenvalues = 5.37 and 1.20), followed by varimax rotation that accounted for 60% of the variation in scores. The first set of items was interpreted as representing

beliefs about minor delinquent acts, such as giving the teacher a fake excuse for being absent. The second factor referred to beliefs about major delinquent acts, such as threatening a teacher. The two factors were highly correlated ($r = .655$) according to Cohen's (1988) rule of thumb, so beliefs about minor and major antisocial acts were combined into a single, overall normative beliefs dimension ($\alpha = .89$). The items were coded such that higher scores indicated higher endorsement of antisocial activities (see Appendix F for a list of the normative beliefs items).

Results

Data Screening

Missing Data

Overall, 5.6% of the data were missing, ranging from 1.0% for the approach items to 14.8% for normative beliefs. Table 10 provides a summary of the percentage of missing data for the items used in the current study, listed by variable. Both normative beliefs legitimizing antisocial behaviour and attachment security occurred further along in the questionnaire than the other study variables. This may, in part, account for the relatively large amount of missing data for these two variables, since some participants may not have had enough time to complete these two, later-appearing sections. Additionally, some of the missing data for attachment security may be attributable to the fact that 238 students did not live with either a mother or stepmother and therefore they could not respond to the items in the mother/adolescent attachment section of the questionnaire. Further investigation revealed, however, that eliminating those who reported living with “father only” from the analysis had no effect on the results.

Composite scores were computed for participants who responded to at least 50% of the items for a given variable, and missing values were imputed for students responding to less than 50% of the items for a given variable, using the ‘expectation maximization’ (EM) method. With large sample sizes, the three most common methods for dealing with missing data – pairwise deletion, listwise deletion, and mean imputation – are generally less effective than the EM procedure (for a full explanation of the relative strengths and weaknesses of the various methods used to deal with missing data, see

Table 10
Percentage of missing data by variable

Variable	Percent	<i>n</i>
age	0.7	52
gender	3.8	279
monitoring knowledge	4.4	327
surveillance/tracking	4.0	295
attachment	14.1	1048
activity level	1.9	138
approach	1.0	71
normative beliefs legitimizing antisocial behaviour	14.8	1103

N = 7135 overall average missing data = 5.6%

Cohen, Cohen, West, & Aiken, 2003; Schafer & Graham, 2002; Tabachnick & Fidell, 2001).

EM is an iterative procedure involving two steps. In the first step, “expectation”, the nonmissing data is used to provide estimates of the variances, covariances, and means. These are then used to estimate the regression coefficients, and the missing data is then estimated using these regression coefficients. In the second step, “maximization”, the data generated in the previous step is used to recalculate the regression coefficients and to re-estimate the missing data. This iterative process continues until the estimates remain relatively stable, and it is these final values on the covariance matrix that are imputed for the missing values (Howell, 2002; and see Tabachnick & Fidel, 2001, for a

more complete explanation of this method and for a general discussion of issues related to missing data).

The EM procedure is appropriate when the missing values are either missing completely at random (MCAR), in which missing values on variable X are independent of other observed variables as well as the values of X itself, or missing at random (MAR), in which missing values on variable X are correlated with other study variables but not with X itself. However, it is not acceptable for variables to be “missing not at random” (MNAR), in which the probability that variable X is missing depends on X itself (Enders, 2001; Schafer & Graham, 2002). In other words, the probability that data is missing on variable X can be predicted from other variables in the analysis, but cannot be predicted from X itself (Cohen, Cohen, West, & Aiken, 2003; Schafer & Graham, 2002). Moderate departures from MAR, however, are likely acceptable (Schafer & Graham, 2002). An example of when data could not be safely assumed to be MAR would be on a test of cognitive abilities, in which a test requiring above-average reading skills would be more likely to be skipped by poor readers than by good readers. Such data would be assumed to be MNAR.

Data in the current study were assumed to be missing at random because there was no reason, either theoretical or empirical, to predict otherwise for any of the study variables. Furthermore, analysis of the correlation matrix revealed no differences between those who were missing data and those who were not. Moreover, the amount of missing data was well within acceptable limits as suggested by Tabachnick and Fidell (2001).

Research has demonstrated that the expectation maximization procedure is generally more effective than other methods for dealing with missing data (Schafer &

Graham, 2002). Enders (2001), in a comparison of four commonly used methods for dealing with missing data, found less bias and lower sampling variability with EM than with the three procedures mentioned in the above paragraph, and Cohen et al. (2003) maintain that EM provides the best possible estimates of the population values.

It makes no sense to impute data for some variables, such as age and gender, for obvious reasons. For these two variables the percent of missing data was only .7 and 3.8 respectively. This was well below the acceptability limit of 5% suggested by Tabachnick and Fidell (2001), so no further analysis was considered necessary.

Distributions

Three assumptions underlie most multivariate procedures, including linear regression, which was the procedure used in the present study. The assumptions apply to the distributions of the variables and to the residuals of the analysis. The assumptions are that each variable in the study is itself normally distributed, the relationships between pairs of variables are linear, and the variance of one variable is the same for all levels of the other variables – the principle of homoscedasticity (Tabachnick & Fidell, 2001). Violations of these assumptions may weaken or invalidate an analysis. Tabachnick and Fidell (2001) called the three assumptions, collectively, the assumption of multivariate normality.

This assumption can be examined by visually analyzing the residuals because when a variable is normally distributed, its errors are also normally distributed (Tabachnick & Fidell, 2001). Tabachnick and Fidel (2001) stated that, with large sample sizes, visual inspection of the distribution is preferable to formal inference tests when inspecting for normality. This is because with large samples the null hypothesis is likely

to be rejected even with minor deviations from normality, owing to a decrease in standard errors for both skewness and kurtosis. Visual analyses were performed using two types of graphs: scatterplots, and P-P plots.

Scatterplots of the predicted values for Y against the residuals (errors in prediction) can be inspected to see if the assumption of multivariate normality has been met. If there are no discernible patterns or gaps in the graph and there are the same densities of points in homologous regions above and below a line representing the mean of Y, or zero, then homoscedasticity of residuals can be reasonably assumed. Tabachnick and Fidell (2001) stated that in regression, if the residuals plot (scatterplot) looks normal there is no reason to screen the individual variables for normality. In the current study, analysis of the scatterplot supported the assumption of multivariate normality.

A second visual analysis was carried out with reference to the proportion-proportion (P-P) plot, sometimes called the “expected normal probability plot”. This is a plot of the z-score that each case holds in the *actual* distribution (X-axis) against the z-score that each case would be expected to hold in a *theoretical* normal distribution, as computed on the basis of scores in the data set. If the data approximates the “normal” diagonal line that runs from the bottom left to the top right of the graph, normality is assumed. In the current study, analysis of the P-P plot supported the assumption of multivariate normality.

In addition to these two residuals analyses, frequency histograms of the distribution of each variable, with the normal curve superimposed on the distribution, were analyzed visually for normality. The distributions for all six of the study variables (age and gender were not analyzed in this way) appeared to approximate a normal

distribution, but evidence of low degrees of skewness and kurtosis suggested that further analyses of these two factors were advisable. Therefore, a final analysis, this time statistical rather than visual, was carried out to further test the assumption of multivariate normality. This test involved the computing of skewness and kurtosis values for the frequency distributions of each study variable. Skewness refers to the symmetry of a distribution and kurtosis refers to the degree of peakedness in the distribution. A perfectly normal distribution would have values of zero for both skewness and kurtosis (Tabachnick & Fidell, 2001). Values for either measure that fall between ± 1 are considered excellent, values between ± 2 are usually considered acceptable, and values beyond ± 2 indicate that the distribution may depart markedly from normality (George & Mallery, 2003). Values found with the current data are shown in Table 11, which indicates that all variables appear to be sufficiently normal with the possible exception of surveillance/tracking. All of the skewness values were excellent except for surveillance/tracking, but it was still acceptable (1.466). All of the kurtosis values were excellent except for, again, surveillance/tracking, but it was only marginally beyond the arbitrary ± 2 point at 2.262. On the basis of these calculations and the previously mentioned visual inspections of the data, all study variables were considered to be normally distributed, and therefore no transformations were deemed necessary.

Descriptive Statistics

Means and Standard Deviations

Means and standard deviations for each of the predictors used in the current study, both overall and by gender, appear in Table 12. Visual inspection of the table suggests

Table 11
Skewness and kurtosis values for variables in current analysis

Variable	Skewness	Kurtosis
Monitoring Knowledge	.234	-.766
Surveillance/Tracking	1.466	2.262†
Attachment	-.514	.233
Activity Level	.276	-.685
Approach	-.261	-.422
Normative Beliefs Legitimizing Antisocial Behaviour	.679	.996

†exceeds arbitrary value of 2.00 (George & Mallery, 2003)

that the scales used were not likely affected by floor or ceiling effects. With respect to gender effects, a series of independent samples t-tests showed females to be significantly lower in normative beliefs legitimizing antisocial behaviour and significantly higher in monitoring knowledge, surveillance/ tracking, attachment, and approach. The means for activity level did not differ significantly by gender.

Correlations

The zero-order correlation matrix for each variable with each of the other variables is shown in Table 13. As can be seen, there were a large number of significant intercorrelations among the variables. Even correlation coefficients that would generally be seen by most statisticians as quite small (Cohen, 1988) were nonetheless statistically significant at $\alpha = .01$. This is likely related to the increased power that results from a

Table 12

Means and standard deviations for each predictor variable, overall and by gender; and results of t-tests of gender differences for each variable

	MK	S/T	Att	ActLev	Appr	NB
Overall:						
Mean	1.93	1.46	3.02	2.33	3.02	1.96
SD	.56	.43	.55	.82	.58	.55
Males:						
Mean	1.86	1.41	2.99	2.34	3.00	2.05
SD	.55	.41	.48	.81	.59	.58
Females:						
Mean	2.01	1.51	3.06	2.33	3.06	1.86
SD	.57	.44	.62	.83	.57	.49
t-test:						
t-value	-11.52*	-10.53*	-5.58*	.64	-4.74*	15.20*
df	7147.56	7118.22	6814.57	7149.0	7149.0	6919.71
p	.000	.000	.000	.520	.000	.000

* $p < .01$

Note. All variables were measured on 4-point scales except monitoring knowledge and surveillance/tracking, which were measured on 3-point scales. MK = monitoring knowledge; S/T = surveillance/tracking; Att = attachment security; ActLev = activity level; Appr = approach; NB = normative beliefs

large sample size (Cohen & Cohen, 1983). Cohen (1988) suggested a rule of thumb whereby $r = .10$ constitutes a small effect size, $r = .30$ a medium effect size, and $r = .50$ a large effect size. These guidelines were followed in the current study, and correlations of less than $r = .10$ were not considered to be of a meaningful magnitude.

Overall, high normative beliefs legitimizing antisocial behaviour were associated with higher activity level and lower monitoring knowledge, surveillance/tracking, attachment security, and approach. Age was the only variable not significantly related to the outcome, normative beliefs. In terms of gender, males were higher in normative

Table 13
Zero-order correlations

	1. Age	2. Gender	3. MK	4. S/T	5. Att	6. ActLev	7. Appr	8. NB
1. Age	---	.012	-.070**	-.021	.002	-.019	.053**	.008
2. Gender		---	.135**	.120**	.066**	-.008	.056**	-.177**
3. MK			---	.440**	.431**	-.113**	.126**	-.401**
4. S/T				---	.288**	-.063**	.128**	-.250**
5. Att					---	-.225**	.138**	-.351**
6. Act Lev						---	.081**	.179**
7. Appr							---	-.160**
8. NB								---

* $p < .01$. ** $p < .001$, two-tailed.

Note. MK = monitoring knowledge; S/T = surveillance/tracking; Att = attachment security; ActLev = activity level; Appr = approach; NB = normative beliefs

beliefs legitimizing antisocial behaviour, and the parents of females tended to be rated higher than the parents of males in monitoring knowledge and surveillance/tracking. Two positive correlations were of medium effect size: monitoring knowledge and surveillance/tracking, and monitoring knowledge and attachment security. Also, two negative correlations were of medium effect size: monitoring knowledge and normative beliefs legitimizing antisocial behaviour, and attachment security and normative beliefs legitimizing antisocial behaviour.

If intercorrelations among predictors are too high, multicollinearity occurs, which causes problems because the error term becomes so high that none of the coefficients is

significant (Tabachnick & Fidell, 2001). Correlation coefficients of approximately .70 or higher may cause multicollinearity problems (Tabachnick & Fidell, 2001; University of Massachusetts, 2004). In the current study, none of the coefficients approached this level. The highest intercorrelation among any of the predictors was .44, between surveillance/tracking and monitoring knowledge. This correlation is high enough to suggest that the two variables are moderately related, but low enough to allow for the assumption that the two measures used in the current study were assessing largely different constructs.

Multiple Regression Analysis

Overview

The fourteen hypotheses were tested by means of a simultaneous/hierarchical multiple regression analysis. The outcome upon which all of the predictor variables were regressed was normative beliefs legitimizing antisocial behaviour. The purpose of the analysis was to determine the proportion of variance in normative beliefs legitimizing antisocial behaviour accounted for, both by all of the predictors as a group, and uniquely by each individual variable and interaction term after the variance shared with other study variables has been partialled out. The order of entry for the demographic and independent variables involved in the multiple regression analysis is shown in Table 14.

Two demographic factors that previous research has suggested may be important in the development of antisocial beliefs and behaviour – age and gender – were included as study variables in the current study. With respect to other demographic factors, Gray and Steinberg (1999) cited a number of papers by developmental scientists cautioning against excessive statistical control of demographic variables in nonexperimental studies wherein participants have not been randomly assigned to treatment groups. They

Table 14

Combined simultaneous/hierarchical multiple regression analysis predicting normative beliefs legitimizing antisocial behaviour from age, gender, parenting, temperament, and their interactions

Variables Entered by Step	β^{\dagger}	p	sr^2	$R^2\Delta$	F change	df	Sig F change
1. Main Effects				.236	314.140**	7, 7127	.000
Age	-.004	.694	<.001				
Gen	-.117**	<.001	.013 ⁰				
MK	-.265**	<.001	.049 ⁰				
S/T	-.049**	<.001	.002				
Att	-.173**	<.001	.023 ⁰				
ActLev	.114**	<.001	.012 ⁰				
Appr	-.098**	<.001	.009				
2. Two-Way Interactions				.009	10.568**	8, 7119	.000
S/T ²	.047*	.003	.001				
S/T X Att	-.041*	.001	.001				
MK X ActLev	-.034*	.001	.001				
MK X Appr	.016	.163	<.001				
Att X Appr	.010	.397	<.001				
Gen X MK	.004	.699	<.001				
Gen X Att	.062**	<.001	.003				
Age X MK	.233**	<.001	.002				
3. Three-Way Interaction				.000	1.762	1, 7118	.184
S/T ² X Att	-.026	.184	<.000				

* $p < .01$. ** $p < .001$, two-tailed. ⁰ $sr^2 \geq .01$.

[†] The β value shown here is the value at the point at which the predictor was entered into the equation.

Note. Gen = gender; MK = monitoring knowledge; S/T = surveillance/tracking; Att = attachment security; ActLev = activity level; Appr = approach

recommended that, instead, researchers simply acknowledge potential confounds that may inhere in their samples, rather than introducing a new set of potential demographic confounds into the equation whose effects are unknown. In light of this suggestion, no other demographic variables were included in the current analysis (see Table 9 for demographic data for the participants in the current study).

Two demographic factors that previous research has suggested may be important in the development of antisocial beliefs and behaviour – age and gender – were included as study variables in the current study. With respect to other demographic factors, Gray and Steinberg (1999) cited a number of papers by developmental scientists cautioning against excessive statistical control of demographic variables in nonexperimental studies wherein participants have not been randomly assigned to treatment groups. They recommended that, instead, researchers simply acknowledge potential confounds that may inhere in their samples, rather than introducing a new set of potential demographic confounds into the equation whose effects are unknown. In light of this suggestion, no other demographic variables were included in the current analysis (see Table 9 for demographic data for the participants in the current study).

In the combined simultaneous/hierarchical regression, all of the main effects were entered on the first step, all two-way interaction terms on the second step, and the three-way interaction term on the third step, as recommended by Cohen & Cohen (1983). The test for curvilinearity (often conceptualized as a variable “interacting with itself”) in the surveillance/tracking and normative beliefs legitimizing antisocial behaviour relationship (ST X ST) was entered in step 2, along with the other two-way interaction terms. This was to control for the surveillance/tracking lower-order term (ST), which was entered in

step 1 to determine its independent contribution. The two gender interaction terms, and the age interaction term, were also included with the other two-way interactions in the second step. Finally, the three-way interaction term, representing the interaction between the curvilinear surveillance/tracking term and attachment security, was entered alone on the third step. As recommended by Aiken & West (1991), each of the variables and interaction terms was centered to eliminate potential problems resulting from multicollinearity between interaction terms and the main effects terms of which they are comprised.

Significance Level and Effect Size

When the sample size is large, as in the current study, and when there are many hypotheses being tested, the likelihood of committing a type I error (rejecting the null hypothesis when it is true) increases (Tabachnick & Fidell, 2001). In addition, the EM procedure for imputing missing values may underestimate the standard errors and the p-values (Gold, Bentler, & Kim, 2003). Therefore, to decrease the likelihood of spuriously significant results in the current study, the predictors were only considered statistically significant if $p < .01$.

However, with large sample sizes, even a statistically significant relationship may account for only a small proportion of variance in the criterion variable, and this proportion may not be of sufficient magnitude to be of any practical significance in understanding the phenomena (Cohen & Cohen, 1983; Cohen et al., 2003). In the current study the point of reference above which a relationship was considered to be of meaningful magnitude was based on squared semi-partial (sr^2), which indicate the proportion of variance in the outcome variable that is uniquely accounted for by a given

predictor (Cohen & Cohen, 1983). Cohen (1988) suggested a rule of thumb whereby $sr^2 = .01$ (meaning the given variable uniquely accounts for 1% of the variance in the criterion variable) constitutes a small effect size, $sr^2 = .09$ a medium effect size, and $sr^2 = .25$ a large effect size. These guidelines were followed in the current study, and only variables accounting for at least 1% of the variance in normative beliefs legitimizing antisocial behaviour ($sr^2 > .01$) were considered to have accounted for enough variance to be of practical significance. Variables that were significant at the $p < .01$ level, but that accounted for less than 1% of the variance ($sr^2 < .01$), were assessed on an exploratory basis only.

Overall Results of the Regression Analysis

The results of the regression analysis are shown in Table 14. The model that included main effects and 2-way interactions, without the 3-way interaction, was significant, accounting for 24.5% of the variance in the outcome, normative beliefs legitimizing antisocial behaviour. The 3-way interaction entered on the third step (ST X ST X ATT) did not account for a significant amount of variance beyond that already accounted for in steps 1 and 2, so step 3 was not considered any further. In step 1, six of the 7 main effects tested were significantly related to the outcome. In step 2, three of the six two-way interactions were significant, as was the curvilinear surveillance/tracking term. In what follows, each of the fourteen hypotheses will be revisited with respect to the results of the regression analysis.

Monitoring Hypotheses

Hypothesis 1: Monitoring knowledge. It was predicted that monitoring knowledge would be linearly and negatively associated with normative beliefs legitimizing antisocial

behaviour. This hypothesis was supported in the regression analysis ($p < .001$).

Monitoring knowledge was by far the strongest predictor in the current study, uniquely accounting for almost 5% of the variance in normative beliefs legitimizing antisocial behaviour ($sr^2 = .049$).

Hypothesis 2: Surveillance/tracking. It was predicted that the relationship between surveillance/tracking and normative beliefs legitimizing antisocial behaviour would be curvilinear. Specifically, it was predicted that both a low and a high degree of surveillance/ tracking would be associated with high normative beliefs legitimizing antisocial behaviour, and moderate surveillance/tracking would be associated with low normative beliefs legitimizing antisocial behaviour. The curvilinear interaction term was significant ($p = .003$), but the results were not considered large enough to be of a meaningful magnitude because less than 1% of the variance was explained ($sr^2 = .001$). The surveillance/tracking *main effects* term was also significant ($p < .001$) but, again, less than 1% of the variance was explained by this linear term ($sr^2 = .002$).

The relationship between surveillance/tracking and normative beliefs was explored further, however, on an exploratory basis. Post-hoc probing of this weak interaction (see Figure 2) did not support the hypothesized nature of the relationship as described in the previous paragraph. Instead, only *low* surveillance/tracking was associated with high normative beliefs legitimizing antisocial behaviour. Moderate surveillance/tracking was associated with lower levels of normative beliefs legitimizing antisocial behaviour than was low surveillance/tracking, and high surveillance and tracking was associated with the lowest levels of all of normative beliefs legitimizing antisocial behaviour. The slope between moderate and high surveillance/tracking was not

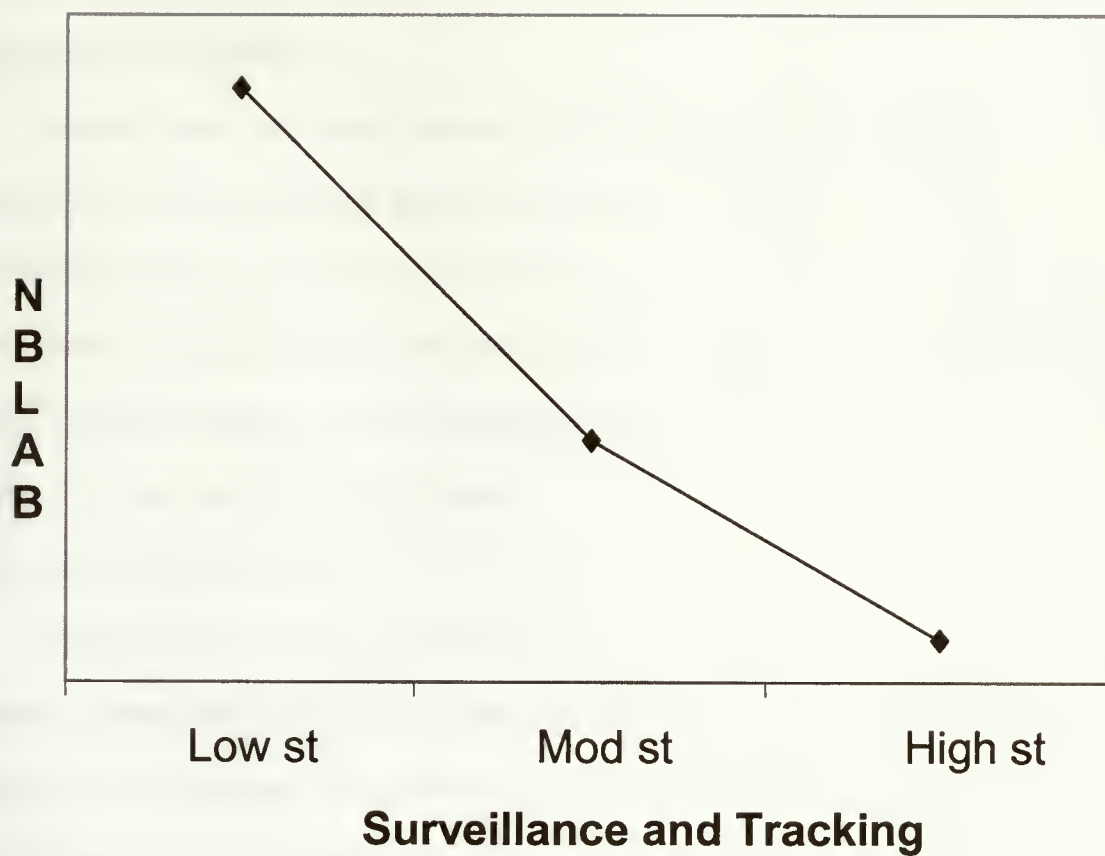


Figure 2. Plot of the curvilinear surveillance/tracking term in the prediction of normative beliefs legitimizing antisocial behaviour.

Note. NBLAB = normative beliefs legitimizing antisocial behaviour; st = surveillance and tracking; Mod = moderate

as profound as the slope between low and moderate, which is why the curvilinear term was statistically significant.

An additional post-hoc test revealed that the R^2 for the *linear* surveillance/tracking term was .0627, and for the *quadratic* (which includes the linear term) the R^2 was .0670. Because the resulting increment in R^2 was only .0043 (see Cohen & Cohen, 1983, for an in-depth discussion of the interpretation of incremental differences between the R^2 's of linear, quadratic, and cubic relationships), the curvilinear surveillance/tracking term was not explored any further.

Attachment Security Hypothesis

Hypothesis 3: Attachment security. It was predicted that attachment security would be linearly and negatively associated with normative beliefs legitimizing antisocial behaviour. This hypothesis was supported in the regression analysis ($p < .001$). Although not as strong a predictor of normative beliefs as was monitoring knowledge, attachment security still uniquely accounted for 2.3% of the variance in the criterion ($sr^2 = .023$).

Parenting Interaction Hypothesis

Hypothesis 4: Surveillance/tracking² by attachment security. It was predicted that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between surveillance/tracking and attachment security. Specifically, I predicted that for adolescents who were low in attachment security the relationship between surveillance/tracking and normative beliefs legitimizing antisocial behaviour would be curvilinear as was described in Hypothesis 2, in which both low and high levels of surveillance/tracking predicted high normative beliefs legitimizing antisocial behaviour, and intermediate levels of surveillance/tracking predicted low levels of normative beliefs legitimizing

antisocial behaviour. For adolescents who were high in attachment security, however, the relationship between surveillance/tracking and normative beliefs was predicted to be linear and negative. This interaction hypothesis was not supported in the regression analysis ($p = .184$). The fact that this interaction was not significant was not surprising, given the linearity of the main effect relationship between surveillance/tracking and normative beliefs as described above for hypothesis 2. In fact, the unsquared surveillance/tracking by attachment security interaction term was significant ($p = .001$). However, since less than 1% of the variance was explained by this interaction term ($sr^2 = .001$), these results were not considered to be of a meaningful magnitude.

The relationship between surveillance/tracking and attachment security in the prediction of normative beliefs was explored further, however, on an exploratory basis. To determine the nature of the interaction, it was plotted (see Figure 3), and a simple slopes analysis was carried out as suggested by Aiken and West (1991) and by Holmbeck (2002). The simple slopes test for the relationship between surveillance/tracking and normative beliefs was significantly different from zero at both high ($\beta = -.102$, $sr^2 = .002$, $p = .000$) and low attachment security ($\beta = -.053$, $sr^2 = .001$, $p = .015$). As can be seen from the plot of the interaction in Figure 3, surveillance/tracking appeared to have a stronger effect for adolescents who were high in attachment security than for those who were low. The foregoing, however, must be interpreted with the very small effect size in mind.

Temperament Hypotheses

Hypothesis 5: Activity level. It was anticipated that activity level would be linearly and positively associated with normative beliefs legitimizing antisocial behaviour. This

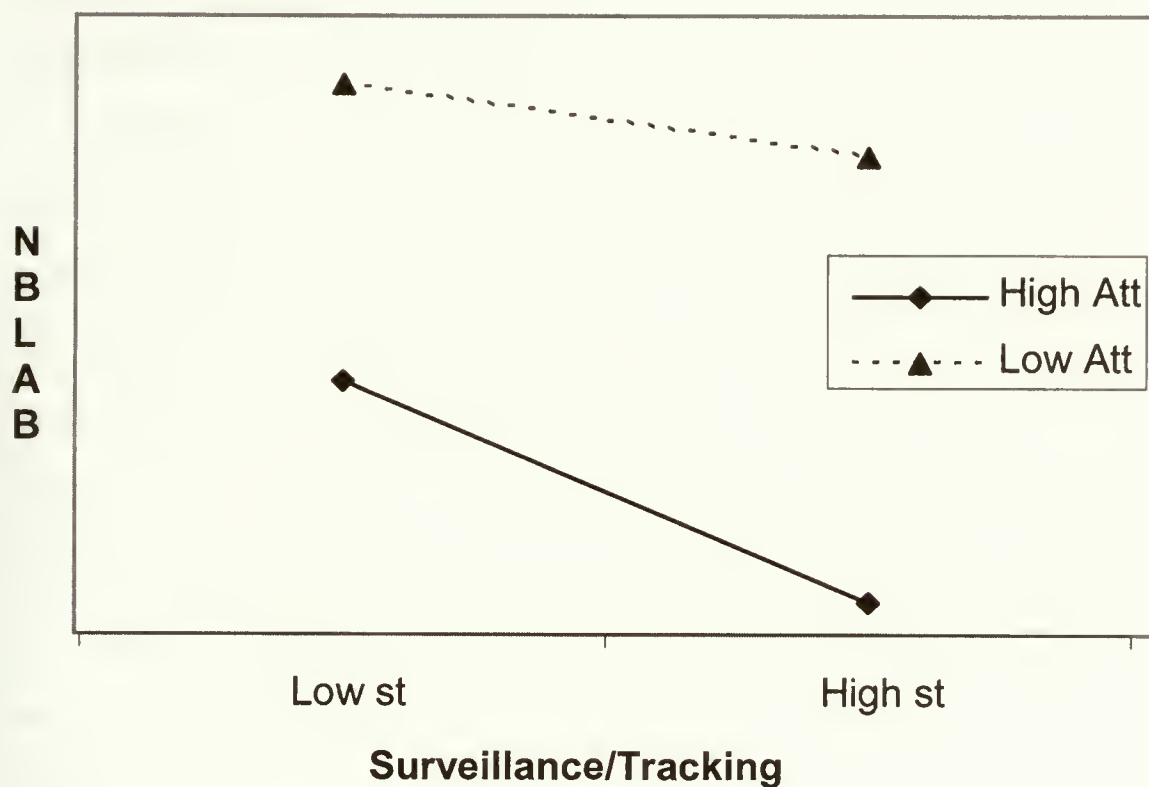


Figure 3. Plot of the surveillance/tracking by attachment security interaction term in the prediction of normative beliefs legitimizing antisocial behaviour.

Note. NBLAB = normative beliefs legitimizing antisocial behaviour; st = surveillance/tracking; Att = attachment security

hypothesis was supported ($p < .001$). In addition, activity level accounted for greater than 1% of the variance in normative beliefs ($sr^2 = .012$)

Hypothesis 6: Approach. It was anticipated that approach would be linearly and positively associated with normative beliefs legitimizing antisocial behaviour. This hypothesis was not supported. In fact, approach was significantly *negatively* associated with normative beliefs ($p < .001$). However, since less than 1% of the variance in normative beliefs was explained by approach ($sr^2 = .009$), the relationship was not explored further.

Parenting/Temperament Interaction Hypotheses

Hypothesis 7: Monitoring knowledge by activity level. It was predicted that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between monitoring knowledge and temperamental activity level. Specifically, I predicted that monitoring knowledge would be linearly and negatively associated with normative beliefs legitimizing antisocial behaviour for adolescents high in activity level, but not for those low in activity level. The regression analysis supported the hypothesis in that the interaction between the two variables was significant ($p = .001$). However, since less than 1% of the variance was explained by this interaction term ($sr^2 = .001$), these results were not considered to be of a meaningful magnitude.

The relationship between monitoring knowledge and activity level in the prediction of normative beliefs was explored further, however, on an exploratory basis. To determine the nature of the monitoring knowledge by activity level interaction, the interaction was plotted (see Figure 4), and a simple slopes analysis was carried out as suggested by Aiken and West (1991) and by Holmbeck (2002). The simple slopes test for

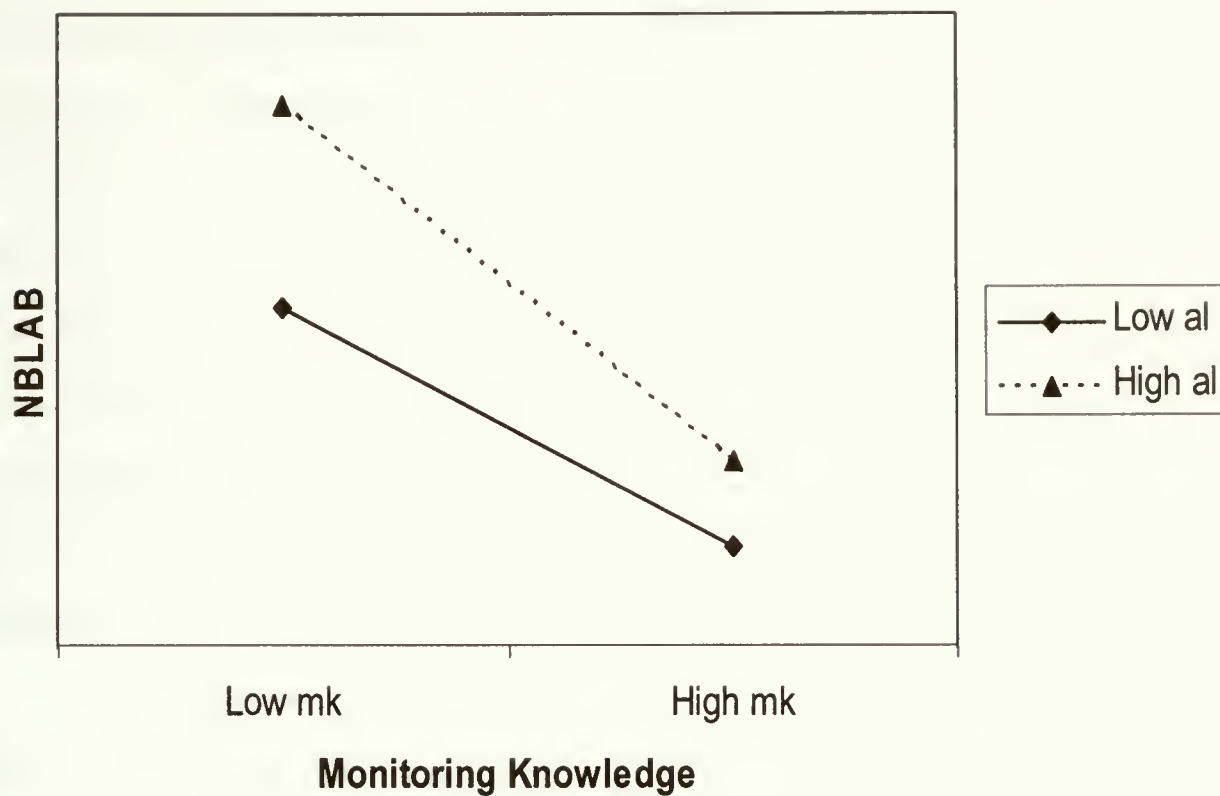


Figure 4. Plot of the monitoring knowledge by activity level interaction term in the prediction of normative beliefs legitimizing antisocial behaviour.

Note. NBLAB = normative beliefs legitimizing antisocial behaviour; mk = monitoring knowledge; al = activity level

the relationship between monitoring knowledge and normative beliefs was significantly different from zero at both high ($\beta = -.294, sr^2 = .04, p = .000$) and low activity level ($\beta = -.225, sr^2 = .02, p = .000$). As can be seen from the plot of the interaction in Figure 4, the nature of the relationship between the monitoring knowledge by activity level interaction term and normative beliefs was as hypothesized – high monitoring knowledge had a stronger relation with normative beliefs when activity level was high. Although the slope was much steeper for the high activity level children, they remained higher overall in normative beliefs at all levels of monitoring knowledge. The foregoing, however, must be interpreted with the very small effect size in mind.

Hypothesis 8: Monitoring knowledge by approach. It was predicted that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between monitoring knowledge and temperamental approach. Specifically, I predicted that monitoring knowledge would be linearly and negatively associated with normative beliefs legitimizing antisocial behaviour for adolescents high in approach, but not for those low in approach. This hypothesis was not supported in the regression analysis ($p = .163$).

Hypothesis 9: Attachment security by approach. It was predicted that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between attachment security and temperamental approach. Specifically, I predicted that attachment security would be linearly and negatively associated with normative beliefs legitimizing antisocial behaviour for adolescents high in approach, but not for those low in approach. This hypothesis was not supported in the regression analysis ($p = .397$).

Gender Hypotheses

Hypothesis 10: Gender. It was predicted that males would be significantly higher than females in normative beliefs legitimizing antisocial behaviour. This was supported in the regression analysis ($p < .001$). In addition, gender accounted for greater than 1% of the variance in normative beliefs ($sr^2 = .013$).

Hypothesis 11: Gender by monitoring knowledge. It was hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between gender and monitoring knowledge. Specifically, I predicted that at low levels of monitoring knowledge males would be higher than females in normative beliefs legitimizing antisocial behaviour, and that monitoring knowledge would have a stronger effect on males' than on females' beliefs. This hypothesis was not supported in the regression analysis ($p = .699$). In other words, low monitoring was equally detrimental and high monitoring was equally beneficial, for both boys and girls. Further analysis determined that the relationship between gender and surveillance/tracking was, likewise, not significant ($p = .620$).

Hypothesis 12: Gender by attachment. It was hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by an interaction between gender and attachment security. Specifically, I predicted that the relationship between attachment security and normative beliefs would be linear and negative, and that this relationship would be stronger for males than for females. The interaction between gender and attachment security was significant ($p < .001$). However, this result was not considered to be meaningful because the interaction term explained less than 1% of the variance in normative beliefs ($sr^2 = .003$).

The relationship was examined on an exploratory basis only. To determine the nature of the interaction, the interaction was plotted (see Figure 5), and a simple slopes analysis was carried out as suggested by Aiken and West (1991) and by Holmbeck (2002). These procedures lent support to the prediction made about the gender by attachment security interaction in the prediction of normative beliefs legitimizing antisocial behaviour. The simple slopes test for the relationship between attachment security and normative beliefs was significantly different from zero for both males ($\beta = -.255, sr^2 = .02, p < .001$) and females ($\beta = -.126, sr^2 = .01, p < .001$). Analysis of the interaction plot revealed that females were lower than males in normative beliefs at all levels of attachment security, but especially at the lowest levels of attachment security, suggesting that attachment security may be more important for males than for females. The foregoing, however, must be interpreted cautiously because of the very small effect size.

Age Hypotheses

Hypothesis 13: Age. I hypothesized that age would be associated linearly and positively with normative beliefs legitimizing antisocial behaviour. This was not supported in the regression analysis because age was not significantly related to normative beliefs legitimizing antisocial behaviour ($p = .694$).

Hypothesis 14: Age by monitoring knowledge. I hypothesized that age and monitoring knowledge would interact in the prediction of normative beliefs. Specifically, I predicted that age would be linearly and positively related to normative beliefs legitimizing antisocial behaviour for adolescents who rated their parents low in monitoring knowledge, but not for those who rated their parents high in monitoring

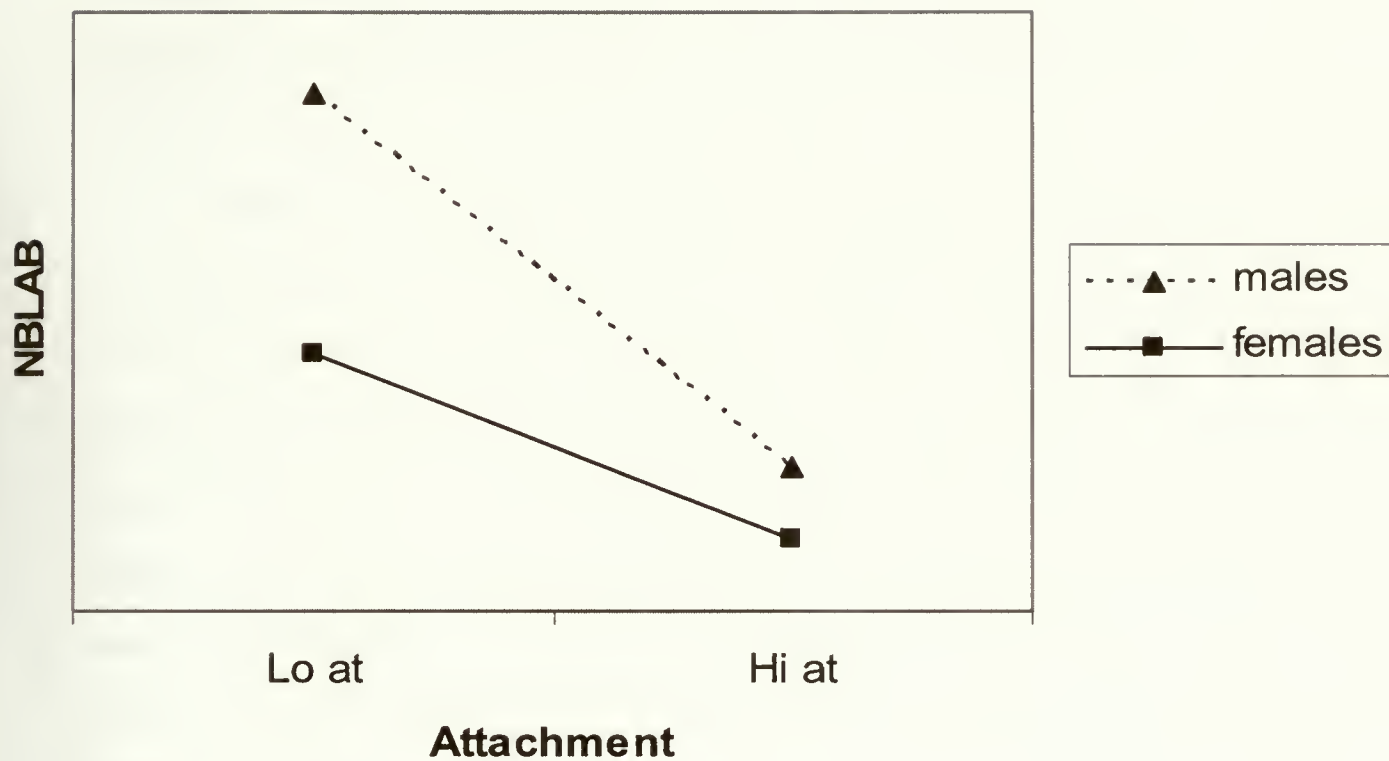


Figure 5. Plot of the gender by attachment security interaction in the prediction of normative beliefs legitimizing antisocial behaviour.

Note. NBLAB = normative beliefs legitimizing antisocial behaviour; at = attachment.

knowledge. The interaction was significant ($p < .001$). However, this result was not considered to be of a meaningful magnitude because the interaction term explained less than 1% of the variance in normative beliefs ($sr^2 = .002$).

The relationship was examined on an exploratory basis only. To determine the nature of the interaction, the interaction was plotted (see Figure 6), and a simple slopes analysis was carried out as suggested by Aiken and West (1991) and by Holmbeck (2002). These procedures lent support to the prediction made about the age by monitoring knowledge interaction in the prediction of normative beliefs legitimizing antisocial behaviour. The simple slopes test for the relationship between monitoring knowledge and normative beliefs was significantly different from zero for both younger ($\beta = -.210$, $sr^2 = .02$, $p < .001$) and older adolescents ($\beta = -.306$, $sr^2 = .04$, $p < .001$). Analysis of the interaction plot revealed that younger adolescents were lower than older adolescents in normative beliefs at all levels of monitoring knowledge, but especially at the lowest levels of monitoring knowledge, suggesting that monitoring knowledge may be more important for older than for younger adolescents. The foregoing, however, must be interpreted cautiously because of the very small effect size.

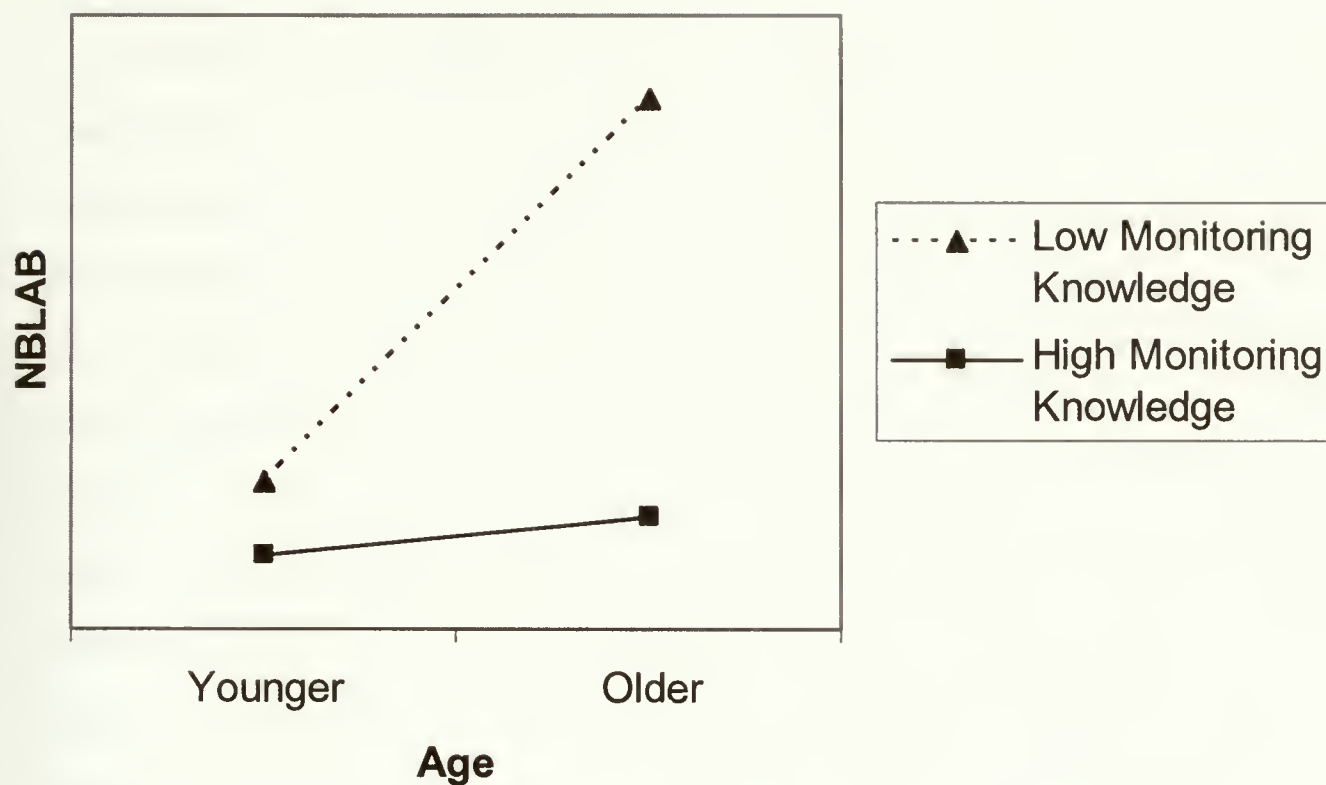


Figure 6. Plot of the age by monitoring knowledge interaction term in the prediction of normative beliefs legitimizing antisocial behaviour.

Note. NBLAB = normative beliefs legitimizing antisocial behaviour

Discussion

The present study represented an attempt to move beyond risk and protective factors for antisocial behaviour, and to understand the manner in which low parental monitoring knowledge and insecure attachment increase the likelihood of the development of antisocial normative beliefs in adolescents of different temperaments. In terms of main effects, six of the seven predictors – gender, monitoring knowledge, surveillance/tracking, attachment, activity level, and approach -- were statistically significant ($p < .001$). However, due to the fact that with large sample sizes even statistically significant relationships may uniquely account for only a tiny fraction of the variance in the outcome variable and may therefore be of little or no practical significance in understanding the phenomena, effect sizes of $sr^2 \geq .01$ were considered to be meaningful. Using this more conservative approach, wherein only variables accounting for at least 1% of the variance were considered to be of a meaningful magnitude, gender, monitoring knowledge, attachment, and activity level had a large enough effect size to be considered meaningful. Notably, both of the parenting dimensions that have consistently been identified in research over the past 50 years – parental control and the parent-child emotional relationship – were meaningfully and uniquely related in the current study to normative beliefs legitimizing antisocial behaviour.

Monitoring knowledge, representing the adolescents' view of what the parents actually *knew* about his/her whereabouts, activities, and peer affiliations, was clearly differentiated from surveillance/tracking, a measure reflecting parental *efforts* to know about their children's behaviours. The former was the best predictor by far of normative

beliefs, uniquely accounting for almost 5% of the variance in normative beliefs, while the latter uniquely accounted for less than 1% of the variance for both its linear and its curvilinear terms. Other research has confirmed the importance of taking the adolescents' perceptions of the effectiveness of parental monitoring into account when attempting to predict adjustment (Cottrell et al., 2003). Contrary to previous research, no negative outcomes were found for high surveillance/tracking in the current study, and neither low surveillance/ tracking nor low monitoring knowledge was more detrimental for boys than for girls.

Attachment was the second best predictor of normative beliefs, uniquely accounting for 2.3% of the variance in normative beliefs. Two other variables, gender and activity level, also uniquely accounted for over 1% each of the variance in normative beliefs legitimizing antisocial behaviour. All three of these relationships were in the expected direction. Temperamental approach, curiously, significantly predicted normative beliefs in the reverse direction from what has been found in previous research. However, this variable had an effect size of less than 1%, and therefore this result should be interpreted with caution. Aside from the surveillance/tracking curvilinear term, four other interactions were statistically significant. However, all five of these results also should be interpreted with caution because all had an effect size of less than 1%.

Main Effects

In the next few pages, the results of this study will be discussed in more detail. The first step of the regression analysis involved a test for main effects relationships in the prediction of normative beliefs. Six of the seven hypothesized main effects relationships were significant. The first part of this subsection is comprised of a

discussion of each of the main effects tested in the current study, and the implications of the results.

Monitoring

Monitoring knowledge. The monitoring *knowledge* variable accounted for a large amount of variance in normative beliefs above and beyond temperament (4.9%) compared to all the other study variables and, of particular note, compared to surveillance/tracking (.2%). The relationship was linear and negative: low monitoring knowledge predicted higher antisocial beliefs, and high monitoring knowledge predicted lower antisocial beliefs. This is in line with previous research linking low monitoring with antisocial beliefs and behaviour (Borawski et al., 2003; Colder et al., 1997; Dishion & McMahon, 1998), and the current study is among the first to find this relationship while explicitly measuring parental *knowledge* (see also Kerr & Stattin, 2000; Laird, Pettit, Bates et al., 2003).

Surveillance/tracking. The hypothesized curvilinear relationship for surveillance/tracking, whereby both low and high levels of surveillance/tracking were predicted to be related to high levels of normative beliefs legitimizing antisocial behaviour, but moderate surveillance/tracking was expected to be related to low levels of normative beliefs, was not found. Although the interaction term was significant ($p = .003$), subsequent plotting of the interaction (Figure 2) revealed only a slightly curvilinear relationship; in reality, only low surveillance/tracking was associated with high normative beliefs legitimizing antisocial behaviour, moderate surveillance/tracking was associated with lower levels of normative beliefs legitimizing antisocial behaviour than was low surveillance/tracking, and high surveillance and tracking was associated with the lowest levels of all of

normative beliefs legitimizing antisocial behaviour. It was concluded that the relationship between surveillance/tracking and normative beliefs was largely linear and negative, with a slight decrease in the slope at the higher levels of surveillance/tracking. This was confirmed by additional post-hoc comparisons of the R^2 for the linear, quadratic, and cubic interaction terms, as discussed above in the *Results* section. At any rate, both the linear and quadratic terms accounted for less than 1% each of the variance in normative beliefs ($sr^2 = .002$ & $sr^2 < .001$ respectively).

Monitoring knowledge versus surveillance/tracking. To the current author's knowledge, only two studies – the present study, and Kerr & Stattin (2000) – included and contrasted *both* aspects of parental monitoring (monitoring knowledge and surveillance/tracking). Kerr and Stattin's study examined 14-year-old students, while the current study used 14, 15, 16, 17, and 18-year-olds. As it turned out in the current study, the relationship between surveillance/tracking and normative beliefs was very similar in nature, but greatly reduced in strength, to the relationship between monitoring knowledge and normative beliefs – largely linear and negative. The major difference was in the magnitude of the effect. Surveillance/tracking only accounted for .2% of the variance in normative beliefs legitimizing antisocial behaviour, while monitoring knowledge predicted a comparatively large 4.9%.

These latter figures lend strong support to the contention of Kerr and Stattin (2000) that these are two different constructs and that they must be treated as such. Monitoring knowledge seemed to be more important in the current study than the parents' asking, and this suggests that there may be other, more effective ways for parents to obtain monitoring-related information than asking. In Kerr and Stattin's case,

adolescents' spontaneous disclosure was the best predictor of a large number of positive outcomes, including low delinquency, fewer school problems, and better teacher relations. The current study only measured the adolescents' perceptions of their parents' monitoring-related knowledge, but did not measure how the parents obtained this knowledge.

Both high surveillance/tracking and high monitoring knowledge were linked with *positive* adjustment outcomes, which contradicts some other research with respect to high surveillance/tracking (see Cummings et al., 2000, and Grusec, 2002, for reviews). However, in the current study, parental *knowledge* of their adolescent's whereabouts, activities, and peer relationships was by far the most powerful predictor of adolescent adjustment outcomes, replicating the findings of Kerr and Stattin (2000). Among all study variables, the nearest competitor in terms of variance accounted for was attachment security, which accounted for less than half as much variance (2.3%) in the criterion variable as did monitoring knowledge.

While it is possible that the mechanisms suggested earlier, such as changes associated with adolescence leading to less direct parental control, less opportunity for parental use of appropriate reinforcement/punishment contingencies, and greater likelihood of peer deviancy training, may have had an influence on the development of normative beliefs, none of these mechanisms were tested directly in the current study. Other yet-to-be-discovered mechanisms may exist that were responsible for the relationships among the variables. Future research will need to test the current and other plausible mechanisms directly, using mediation and moderation models (see Baron & Kenny, 1986; and Holmbeck, 1997, for a full explanation of these procedures) to assess

the extent to which their operation affects the development of antisocial beliefs. For example, the researchers may use a questionnaire to ask the adolescents about their perceptions of the reinforcement/punishment contingencies employed by their parents (Gaylord et al., 2003; Grusec & Goodnow, 1994), or observational techniques to obtain a direct measure of the extent of peer deviancy training (Dishion et al., 1996). Both of these mechanisms may mediate the relationship between parental monitoring and antisocial beliefs.

In sum, because of the fact that the adolescents in this sample clearly perceived a difference between what the parents actually *knew* (monitoring knowledge) and parental monitoring *efforts* (asking, or surveillance/tracking), it appears as though frequently asking an adolescent for information about his/her whereabouts, activities, and peer relations may not be particularly efficient. Although high levels of surveillance/tracking were associated with lower, not higher, antisocial beliefs, the surveillance/tracking and normative beliefs relationship was small in magnitude. Based on the current study at least, parents should neither rely exclusively on high surveillance/tracking nor be overly concerned about its possible negative effects as a means of parental control. However, parents should consider using other means to obtain monitoring-related information other than asking, such as encouraging self-disclosure.

Attachment Security

I hypothesized that normative beliefs legitimizing antisocial behaviour would be predicted by attachment security. Specifically, I predicted that attachment security would be linearly and negatively associated with normative beliefs. This hypothesis was confirmed in the current study, replicating the results of some previous research

(Kochanska, 1997; Silverberg, et al., 1998). This supports the suggestion that adolescents, while becoming more autonomous and spending greater amounts of time away from their parents, may still desire, and benefit from, continued close emotional relationships with their parents (Ainsworth, 1991; Allen & Land, 1999; Collins et al., 1997; Rice & Cummins, 1996; Larson et al., 1996; Steinberg & Silk, 2002).

As a group, the specific dimensions of secure attachment assessed in the current study were effective in the prediction of antisocial beliefs, supporting the findings of Armsden and Greenberg (1987), on whose work with adolescents the current attachment scale was based. The findings from the current study are also in line with more recent research that has confirmed the roles of trust (Bridges, 2003; Mikulincer, 1998b), communication (Etzion-Carasso & Oppenheim, 2000; Feeney et al., 1998), and alienation (Mikulincer, 1998a; Muris, Meesters, Morren, & Moorman, 2004; Rholes et al., 1999) in adolescent and adult attachment and the prediction of adjustment outcomes.

As mentioned above with respect to monitoring mechanisms, the attachment mechanisms suggested earlier (e.g. factors related to secure attachment increasing adolescents' motivation for acceptance of parental moral messages, and the role of attachment in the development of adequate social skills as a possible buffer against peer rejection and subsequent association with deviant peers) were not tested directly, and future researchers will need to test the current and other yet-to-be-discovered plausible mechanisms using mediation and moderation models (see Baron & Kenny, 1986; and Holmbeck, 1997, for a full explanation of these procedures). For example, the researchers may test for a possible mediational role for deviant peer associations in the relationship

between attachment security and normative beliefs (Allen & Land, 1999; Dishion et al., 1996; Patterson, Cohn, & Kao, 1989; Patterson, DeBaryshe, et al., 1989).

The amount of variance uniquely accounted for by attachment security was relatively large when compared with all of the other study variables, with the exception of monitoring knowledge. These two variables were the strongest predictors of normative beliefs, uniquely accounting for 4.9% and 2.3% respectively of the variance in normative beliefs. The finding of meaningful relationships with normative beliefs for both monitoring knowledge and attachment security suggests that there may be an additive effect involving both major dimensions of parenting, in that monitoring knowledge and attachment security each were uniquely related to normative beliefs above and beyond temperament.

Temperament

Activity level. It was hypothesized that activity level would be positively associated with normative beliefs legitimizing antisocial behaviour, and the results were consistent with this expectation. This finding is in line with previous research linking high activity level with externalizing behaviour (Hagekull, 1994; Karp et al., 2004; Wills et al., 1998).

Several mechanisms that may possibly be behind the activity level/antisocial beliefs relationship were suggested in the *Temperament Mechanisms* subsection. These factors were related to evocative gene-environment correlations, wherein a person's genetic characteristics evoke particular responses from other people in his/her social environment (see Rutter, 1997, and Scarr & McCartney, 1983, for thorough reviews of this concept). For example, it may be that an active person may have an annoying effect

on peers, leading to peer rejection, and perhaps in turn to association with deviant peers (see Rubin et al., 1998, for a discussion of the relations between temperament and peer relationships). A related mechanism may be that high activity level could influence attachment security, which may lead to impaired social skills, subsequent peer rejection and, again, association with deviant peers. Moreover, on the basis of the relationship between activity level and normative beliefs identified in the current study, it may be advisable for parents to tailor their parenting practices to fit each child's unique disposition (Thomas & Chess, 1977), and to be aware that adolescents high in activity level may be more difficult to socialize than less active adolescents.

As mentioned above with respect to monitoring and attachment mechanisms, the activity level mechanisms were not tested directly, and future researchers will need to test the current and other yet-to-be-discovered plausible mechanisms using mediation and moderation models (see Baron & Kenny, 1986; and Holmbeck, 1997, for a full explanation of these procedures). For example, the researchers may test for a possible mediational role for attachment security in the relationships between activity level and social skills (DiTomasso et al., 2003; Rothbart & Bates, 1998; Seifer & Schiller, 1995), deviant peer associations, and antisocial beliefs (Dishion et al., 1996; Patterson, DeBaryshe, et al., 1989).

Approach. It was anticipated that approach would be *positively* associated with normative beliefs legitimizing antisocial behaviour, because it was expected that persons high in approach would be more likely to engage in high-risk, peer-related activities than would low approach persons, whose passivity would partially buffer them from these activities. This proposed mechanism, like the one proposed for activity level, was based

on the concept of gene-environment correlations. This time, however, the mechanism was called an active gene-environment correlation, in which people actively choose their preferred environments and activities (see Rutter, 1997, and Scarr & McCartney, 1983, for thorough reviews of this concept). Although the approach/normative beliefs relationship was statistically significant, the variable accounted for less than 1% of the variance in the outcome. As a result, the relationship was examined on an exploratory basis and will be addressed only briefly here.

The results of the current study were the exact opposite of what was expected. Approach was significantly *negatively* related to normative beliefs, uniquely accounting for .9% of the variance. Only a limited number of studies have found temperamental approach and antisocial behaviour to be related at all, but the research that does find a significant link tends to suggest a *positive* relationship (Rothbart, Ahadi, et al., 2000; and see Rothbart & Bates, 1998, for a thorough review of research involving temperament/adjustment relationships).

The reason for the reversal of direction in the current study is unclear. One possibility relates to the items themselves. Of the four approach items, three relate to approach to novel *objects* (I'm interested in new objects, I like trying new things, I'm interested in anything new), and only one refers to unfamiliar *people* (I like meeting new people). Perhaps for adolescents the focus for approach items should be on *social* situations rather than novel *objects*, since an adolescent is unlikely to avoid novel objects in the way an infant, toddler, or preschooler often is. It could even be argued that a low approach adolescent would be *more* likely to be interested in "things" to play with as a way of warding off the boredom that may ensue from possibly limited social

interaction. Future researchers, therefore, may need more items dealing with approach to people, rather than things, when examining this construct in adolescence.

Gender

As expected, and similar to what has been found many times with respect to antisocial behaviour (Crick & Grotpeter, 1995; Salmivalli et al., 2000), males were significantly higher than females in normative beliefs legitimizing antisocial behaviour. This replicates Huessmann and Guerra's (1997) finding that males were more likely than females to hold normative beliefs supportive of aggression, and suggests that it may be advisable for parents to be cautioned of the increased risk of the development of antisocial beliefs/behaviour for their male relative to their female children.

Leaper (2002) suggested that gender differences such as these may be related to interactions among other variables that differ by gender, including two factors that are important in the current study: parenting and temperament. The gender interactions examined in the current study will be discussed below, in the *Interactions* section.

Age

A wealth of research has demonstrated that the incidence of antisocial behaviour increases throughout adolescence, peaking at approximately age 18, and decreasing sharply thereafter (Moffitt, 1993; Nagin et al., 1995; Stouthamer-Loeber et al., 2002). On the basis of this research, I hypothesized that age would be associated linearly and positively with normative beliefs legitimizing antisocial behaviour. In the current study, however, age was not significantly related to normative beliefs ($p = .694$). In light of the fact that the outcome variable in the current study was normative beliefs legitimizing antisocial behaviour, rather than antisocial behaviour itself, it is possible that what one

believes about the rightness or wrongness of committing antisocial acts remains relatively constant during the adolescent years, even if violation of these beliefs by engaging in these behaviours increases. It is important to note here that the beliefs-behaviour correlation found by other researchers, while consistently significant, is in the moderate (Guerra et al., 1995; Vitaro et al., 2000) to large range (Jessor et al., 1995; McMahon & Watts, 2002), which suggests that it is possible for antisocial beliefs to remain relatively stable throughout adolescence while antisocial behaviour increases. It is also possible that some adolescents who engage in antisocial behaviours share similar belief systems with non-antisocial adolescents, but those beliefs do not have a strong enough impact to deter them from engaging in antisocial behaviour. Landsheer and Hart (2000) suggested that some of the adolescents in their sample may have been subscribers to conventional norms without being committed to them.

The above possibility notwithstanding, an alternative, more parsimonious explanation also exists for the lack of age-related changes in normative beliefs in the current, school-based sample. At age 16, students begin to drop out of school. It is possible that those who dropped out were higher in normative beliefs legitimizing antisocial behaviour than those who remained in school, and that those who quit took a large share of these antisocial beliefs with them.

Comment on Main Effects

A noteworthy finding from the current study was the fact that parenting and temperament had independent effects on normative beliefs. This finding is consistent with the literature suggesting that the association between parenting and adjustment is not due solely to the influence of child factors like temperament on parenting (Collins et al.,

2000). As stated above, both of the parenting dimensions that have consistently been identified in research over the past 50 years – parental control and the parent-child emotional relationship – were meaningfully related in the current study to normative beliefs legitimizing antisocial behaviour. Given the changes during adolescence in terms of greater autonomy and more time spent out of the home and in the company of peers, with peers possibly providing increasing instrumental and social support, these findings emphasize the need for parents to maintain a supportive relationship and stay informed about their adolescents' activities during these years. In so doing, parents may play a positive role in shaping adolescents' beliefs.

On the basis of the relationship between temperamental activity level and normative beliefs identified in the current study, it may be advisable for parents to alter their parenting practices to match the temperamental characteristics of their adolescent children (Thomas & Chess, 1977) and to be aware that adolescents high in activity level may be more difficult to socialize than less active adolescents. In addition to the foregoing associations between normative beliefs legitimizing antisocial behaviour and monitoring knowledge, attachment security, and temperament, it may be advisable for parents also to be cautioned of the increased risk of the development of antisocial beliefs/behaviour for their male relative to their female children.

Interactions

The second step of the regression analysis involved interactions among parenting and temperament variables in the prediction of normative beliefs legitimizing antisocial behaviour, as recommended recently by numerous researchers (Bates et al., 1998; Bronfenbrenner & Morris, 1998; Cummings et al., 2000; Dodge and Pettit, 2003;

Eisenberg & Valiente, 2002; Gallagher, 2002; Magnusson & Cairns, 1996; Putnam et al., 2002; Sanson & Rothbart, 1995; Wachs & Plomin, 1991). What follows is a review of the significant parenting, temperament, gender, and age interactions.

Parenting/Temperament Interaction: Monitoring Knowledge by Activity Level

Three hypotheses were put forward in the current study regarding interactions involving parenting and temperament in the prediction of normative beliefs legitimizing antisocial behaviour, but only one, monitoring knowledge by activity level, was significant at the .01 level. However, because this interaction uniquely accounted for less than 1% of the variance in normative beliefs, the effect size was not considered to be meaningful and the monitoring knowledge by activity level interaction was examined on an exploratory basis only (the two nonsignificant interactions were not subjected to any post-hoc tests, nor were they plotted).

It was predicted that high monitoring knowledge would have a stronger effect when activity level was high than when it was low, and this hypothesis was confirmed in the current study. As can be seen from the plot of the interaction in Figure 4, the nature of the relationship between the monitoring knowledge by activity level interaction term and normative beliefs was as hypothesized – high monitoring knowledge had a stronger effect when activity level was high. Although the slope was much steeper for the high activity level children, they remained higher overall in normative beliefs at all levels of monitoring knowledge. The foregoing must be interpreted with the very small effect size in mind. However, if future research identifies a stronger relationship between this interaction term and normative beliefs legitimizing antisocial behaviour, parents of high-activity-level children would be well advised to ensure that they have very accurate

information about their adolescents' whereabouts, activities, and peer associations, although it is not yet clear how parents can best obtain this type of monitoring-related information.

Gender Interaction: Gender by Attachment Security

Two hypotheses were put forward in the current study regarding interactions involving gender in the prediction of normative beliefs legitimizing antisocial behaviour, and one of these interactions – gender by attachment security – was significant. In an attempt to extend previous research findings involving children (Cohn, 1990; DeMulder et al., 2000; Kerns & Barth, 1995; Renken et al., 1989) to include adolescents, it was anticipated that at low levels of attachment males would be higher than females in normative beliefs legitimizing antisocial behaviour, and that attachment security would have a greater effect on males than on females. The interaction between gender and attachment in the current study, while statistically significant, accounted for less than 1% of the variance. Because this effect size was below the cutoff established earlier for meaningfulness, these relationships were probed on an exploratory basis only. Analysis of the interaction plot (see Figure 5) reveals that females were lower than males in normative beliefs at all levels of attachment, but especially at the lowest levels of attachment, suggesting that attachment may be more important for males than for females.

If this is the case, Leaper (2002) offers several possible explanations. One explanation relates to temperament differences by gender, wherein a tendency has been found for boys to be higher than girls in negative emotionality and reactivity (Blackford & Walden, 1998). This temperament attribute may come strongly into play in cases of

low-quality parent-child relationships, where an insecurely attached male who is high in negative emotionality may be more likely to seek attention by externalizing. A similar explanation offered by Leaper was that attachment may predict different outcomes, albeit both negative, depending on the child's gender. For example, some research has found that insecure boys may become more aggressive and disruptive, whereas insecure girls may become more dependent and compliant (Turner, 1991). In sum, because of the combined findings that males were higher overall than females in normative beliefs legitimizing antisocial behaviour, and attachment may be more important for males than for females, efforts should be redoubled to focus research and interventions on the possible protective functions of secure attachment for male children.

Age Interaction: Age by Monitoring Knowledge

Only one interaction that involved age was hypothesized in the current study – age by monitoring knowledge – and it was significant. I predicted that age would be linearly and positively related to normative beliefs legitimizing antisocial behaviour for adolescents who rated their parents low in monitoring knowledge, but not for those who rated their parents high in monitoring knowledge. Although the interaction was significant, this result was not considered to be meaningful because the interaction term explained less than 1% of the variance in normative beliefs.

When the relationship was examined on an exploratory basis, the result was in line with the hypothesis (see figure 6). It may be that those adolescents whose parents are not knowledgeable about their children's activities and whereabouts are more susceptible to normative adolescent increases in antisocial behaviour. If future research confirms the above relationship, and accounts for a more meaningful amount of the variance in

normative beliefs legitimizing antisocial behaviour, it would be essential that parents understand both the normative increases in their adolescents' antisocial behaviour that may occur over time, and the importance of monitoring knowledge in minimizing the degree to which the adolescents adopt age-related antisocial beliefs/behaviour.

Comment on Interactions

Although many recent articles have called for a move away from simple main effects analyses and toward examinations of interactions among predictors of antisocial behaviour (Cummings et al., 2000; Gallagher, 2002; Putnam, et al., 2002), only three of the seven hypothesized interactions in the current study were statistically significant at the .01 level, and even these ones were not considered to be of a meaningful magnitude because each one uniquely accounted for less than 1% of the variance in normative beliefs. There are many factors that may have contributed to the lack of meaningful effect sizes among the interactions tested in the current study. These are discussed below in the *Methodological Considerations* section.

Strengths of Current Study

There were a number of notable strengths in the current study, some of which were mentioned in the *New Directions Taken in the Current Study* section of the *Introduction*. The sample was large and accurately represented a good cross-section (both male and female; and urban, suburban, and rural) of the adolescent population in a combined working and middle class region in Canada. The participants were older adolescents, aged 14-18, extending the findings from previous research that has been based largely on infants, toddlers, preschoolers, and school-aged children (Borawski et al., 2003; Colder et al., 1997; Kerr & Stattin, 2000). It is important to study these

relationships in later adolescence because this period may be markedly different from previous periods for several reasons. First, as mentioned above, adolescents may be becoming increasingly independent from their parents and spending more time outside of the home in the company of peers (Larson et al., 1996; Steinberg & Silk, 2002). Second, their parents during this time period may be attempting to find a balance between allowing greater autonomy and, at the same time, maintaining adequate parental control and preserving emotional bonds (Collins et al., 1997).

The measures were based on adolescent self-reports of their current status, rather than maternal reports of either current or past events, in part because of research suggesting discrepancies between the perceptions of parents and their adolescent children regarding such things as parental behaviour (Dunn & Plomin, 1990; Gaylord et al., 2003), attachment security (Rice & Cummins, 1966; Simons, Paternite, & Shore, 2001), and antisocial behaviour (Simons et al., 2001). Adolescent self-reports may yield more accurate information than other methods because, using monitoring knowledge as an example, behaviour may be more influenced by the adolescents' own perceptions of their parents monitoring knowledge than by their parents' actual, objective level of knowledge (Caprara, Pastorelli, Regalia, Scabini, & Bandura, 2005; Laird, Pettit, Bates, et al., 1997).

Much of the research into antisocial behaviour has focused on boys. One reason for the emphasis on males may be that, because they appear to be much more likely to be involved in the more overt types of antisocial activities (Crick & Grotpeter, 1995; Salmivalli et al., 2000), the infractions are both more easily identifiable and seen to be more of a problem. One of the strengths of the present study was that antisocial beliefs and behaviour were examined in both male and female students, which allowed for an

examination of whether the relations between monitoring, attachment, temperament, and normative beliefs were consistent or different for males and females.

In keeping with the admonitions of many contemporary researchers, all six variables in the current study were measured using a dimensional rather than a typological approach, which lends itself well to regression analyses (Fraley & Spieker, 2003; Repinski & Shonk, 2002; Seifer & Schiller, 1995).

The measures were carefully constructed with reference to both recent research findings and contemporary theorizing. For example, with respect to recent research findings, the questionnaire allowed for clarity in differentiation between monitoring knowledge and surveillance/tracking. With respect to contemporary theorizing, the measures lent themselves to testing of possible relationships that would be expected on the basis of, for example, peer and family deviance training mechanisms. As mentioned above in the *Introduction*, normative beliefs legitimizing antisocial behaviour was conceptualized as the outcome variable rather than serving its usual role as a predictor of antisocial behaviour (Guerra et al., 1995; Jessor et al., 1995; Landsheer & Hart, 2000). In addition, normative beliefs legitimizing antisocial behaviour was measured relatively directly rather than merely being inferred on the basis of observable behaviours (for reviews of studies based on less direct measures, see Collins et al., 1997; & Grusec, 2002). Finally, in recognition of the complexity of the development of antisocial beliefs/behaviour and of parent/temperament interactions, the hypotheses were devised such that possible parenting/temperament interactions in the prediction of normative beliefs could be examined.

Methodological Considerations

Although many of the hypotheses were supported by statistically significant results, some of the effect sizes were not considered to be of a meaningful magnitude. However, these effect sizes were small, in part, because of the nature of multivariate analyses, and were not too far out of line with effect sizes found in previous research (Lansford, Criss, Pettitt, Dodge, & Bates, 2003). Some other factors that may be partially responsible for the small effect sizes are discussed in the sections that follow.

Measurement and Design

The current study relied exclusively on adolescent self-reports for all measures. Some research has suggested that individuals may not always be accurate in reporting on their own beliefs and behaviours (Greenwald, Banaji, Rudman, Farnham, Nosek, & Mellott, 2002; Henry, Moffitt, Caspi, Langley, & Silva, 1994), and the results of studies involving adolescent self-reports may need to be interpreted cautiously due to possible social desirability bias and shared method variance. However, it is difficult to conceive of a more straightforward method for measuring adolescent perceptions of such things as normative beliefs. Gray and Steinberg (1999) reported that adolescent perceptions were meaningful predictors of their adjustment (see also Caprara et al., 2005). Using parenting and adjustment as an example, they concluded that it is the adolescents' subjective experience of the parenting they receive, and not the actual parenting, that is related to adjustment. Rice and Cummins (1996) reported that, in the prediction of self-esteem and social self-efficacy, parental reports of attachment security to their adolescent accounted for no further variance in these outcomes than that already accounted for by the adolescents' own self-reports of attachment security. Moreover, the adolescent self-report

methodology has been used extensively in this area of research, and it appears to yield reliable, valid, and informative results that are comparable to peer reports (Crick & Bigbee, 1998; Murray & Perry, 1987).

Also on the topic of the use of adolescent self-reports, it is doubtful that the distinction between monitoring knowledge and surveillance/tracking would have been so apparent if parental reports had been used for these two variables. It would be of great interest in the future to obtain parental reports on these two measures to determine if the parents consider the two variables to be as distinct as the adolescents in the current study seemed to (for an example of the use of both adolescent and parent reports of the parents' monitoring as predictors of adolescent risk behaviour, see Cottrell et al., 2003).

The current study analyzed the adolescents' attachment to their mothers only, and not to their fathers. This was done, in part, because most previous research has suggested that the mother's influence is the most strongly related to attachment, and that her role is a better predictor than the father's of adaptive or maladaptive outcomes (Main & Weston, 1981; Youngblade & Belsky, 1992; and see Thompson, 1998 for a review). In addition to this, some research has suggested that outcomes predicted by father/child attachment security differ from those predicted by mother/child attachment security (Kerns & Stevens, 1996; Paterson, Field, & Pryor, 1994). Other research, however, has suggested that a secure attachment to both parents is optimal (Belsky, Garduque, & Hrncir, 1984; Main & Weston, 1981). If this is the case, it is possible that, in the current study, an attachment security measure that considered attachment to both parents would have resulted in a stronger association between attachment security and normative beliefs.

Data used in this study were cross-sectional and correlational. Therefore, it is impossible to be certain of the direction of causality in any of the significant relationships among the variables. For example, Hypothesis 1 was based on the assumption that parental knowledge resulted in the adolescent being less likely to hold antisocial beliefs or to engage in antisocial behaviour. While the analysis supported this assumption, it is also equally possible that the direction of causality in this relationship was the reverse, and that parents were less likely to be able to obtain knowledge about the whereabouts, activities, and peer relations of adolescents who were high in antisocial beliefs and behaviours.

It is also possible, and perhaps even likely, that these relationships are bi-directional. Eisenberg and Murphy (1995) suggested that children influence the way that others treat them, due to differences in the children's own characteristics and behaviours (evocative gene-environment correlations). Using Hypothesis 1 as an example, it may be that parents who have children with antisocial tendencies initially attempt to monitor their children's activities. Over time, however, such children may learn to do things in such a way as to escape their parents' notice. The parents may simultaneously be developing other strategies for controlling these children. This may result in rebellion on the part of the children, and the cycle may continue to escalate. Such cycles have been reported in the parenting literature (Patterson, DeBaryshe, et al., 1989), although it is also possible that through the adoption of alternative strategies the parents will experience some success in reining in their children's behaviour.

Although the design was cross-sectional, the use of adolescents aged 14-18 years made it possible to examine age-related changes in the levels of the study variables, as

explained above. This was especially advantageous for hypothesis 13, in which the reported age-related increase in antisocial behaviour among adolescents was investigated. In the current study, age was not significantly related to antisocial normative beliefs. However, as can be seen in Table 9, as the years go by and students drop out there are fewer students in the higher than in the lower grades. It is possible that those who dropped out differ from those who remained in school (not just in normative beliefs, as mentioned above, but in any or all of the study variables).

Surveys

With respect to the use of questionnaires, it is possible that bias was introduced into the results by three means. First, those who refused to participate at the outset, or who could not participate due to absence, may differ systematically from those who did choose to participate. For example, they may differ in terms of temperament (e.g. less cooperative) or in terms of physical health, which may be related to other factors that would have been reflected in their responses. However, overall there was a high rate of participation in the current study, largely due to the use of the passive consent procedure, which research has shown not only increases the participation rate but also may reduce sample bias attributable to reduced participation rates by poorly-functioning adolescents (see Gray & Steinberg, 1999 for a discussion of this issue). Second, those who did not complete all of the items may differ systematically from those who did. For example, they may be less temperamentally conscientious, which may affect how they would respond to the items. Finally, the survey was long and may have become tiresome for some students, who may have either skipped items or else answered in a haphazard manner in an attempt to get the process over with. As mentioned above, there was

relatively more missing data for the two variables that appeared nearer to the end of the questionnaire – attachment and normative beliefs – than for the other variables. However, the amount of missing data in the current study was not large, and was well within acceptable limits for the use of the EM procedure (Cohen et al., 2003; Schafer & Graham, 2002; Tabachnick & Fidell, 2001).

Implications

The findings from the current study carry important implications for researchers, clinicians, school personnel, parents, and others who deal with the antecedents and outcomes of antisocial beliefs and behaviours. The results support the notion that normative beliefs legitimizing antisocial behaviour are multiply determined. Gender, monitoring, attachment, and temperament all accounted for significant independent proportions of the variance in normative beliefs legitimizing antisocial behaviour, and the current results at least suggest the possibility that some of these variables may interact with other variables in the prediction of normative beliefs. The proposed mechanisms, as discussed earlier, require examination and direct testing.

The results also carry important implications for parents of adolescents, suggesting that there is a need for them to maintain a relationship that is high in trust and communication and low in alienation, and at the same time maintain behavioural control over their adolescent through monitoring knowledge. These findings may be especially important for parents of male adolescents, or for parents of adolescents of either gender who are high in activity level.

Suggestions for Future Research

The findings from the current study, although small in magnitude, are important and more research is needed to replicate and extend these findings. More robust results may be found if the issues raised in the *Methodological Considerations* section are considered. Several, more specific recommendations for future researchers are provided in this section.

Design and Measurement Issues

Longitudinal studies of the variables, relationships, and mechanisms proposed in the current study would be useful in determining possible directions of causality and developmental changes in the relationships. The second wave of YLC-CURA data, the database used in the current study, is now available for analysis, and the current author is likely to use the longitudinal data to test further the development of antisocial beliefs and behaviour.

In future, other types of measurement of the study variables in addition to adolescent self-report, such as peer reports, court and police records, and observational techniques, would increase confidence in the results.

Mechanisms

The hypotheses and predictions in the current study were based on a number of recently proposed theoretical mechanisms. Although some of the results were in line with the predictions made by these mechanisms, it is impossible to be certain whether or not the mechanisms were in operation at all, and it is quite possible that some as yet unknown mechanisms were responsible for the relationships, because none of these processes were tested directly. As mentioned earlier, future researchers will need to test the current and

other plausible mechanisms directly, using mediation and moderation models (see Baron & Kenny, 1986; and Holmbeck, 1997, for a full explanation of these procedures) to assess the extent to which their operation affects the development of antisocial beliefs. Some of the mechanisms proposed in the current study have been tested directly in other research, although the quantity of such studies is limited (for examples, see Krevan & Gibbs, 1996; Patterson, 1995; Patterson, DeBaryshe, et al., 1989)

The Variables

Along with gender and age, the current study examined monitoring knowledge, surveillance/ tracking, attachment, activity level, and approach, and their interactions, in the prediction of normative beliefs legitimizing antisocial behaviour. However, other aspects of parenting (e.g. psychological autonomy granting versus psychological control) and temperament (e.g. mood, positive affect, attention, or compliance) are in need of examination to increase understanding of the development of normative beliefs. In addition to parenting and temperament, other variables could also be reasonably assumed to play a role. Some variables that should be examined in future research for their contributions, either independently or in interaction with other variables, to the prediction of normative beliefs include peer relations, neighbourhood characteristics, parental beliefs, religious commitment, socioeconomic factors, cognitive characteristics, and neuropsychological factors.

Gender Issues

The current study found, like so much prior research, that males were significantly higher than females in antisocial beliefs/behaviours. The obvious but yet unanswered question is why? Future research must continue to address this question from

many different angles. Where do these beliefs come from (for example, genetics, modeling, over-reinforcement for showing assertiveness in individualistic societies, or rewards in some societies for males who engage in aggressive behaviours)? Since preschool and elementary school males appear to be more debilitated than females by low attachment security (Cohn, 1990; DeMulder et al., 2000; Kerns & Barth, 1995; Renken et al., 1989), and since there was a trend in this study suggesting that this finding may need to be extended to include adolescents, what role does attachment play?

General Conclusions

As mentioned earlier, the present study represented an attempt to move beyond risk and protective factors for antisocial behaviour and to understand the manner in which adverse parental experiences increase the likelihood of the development of antisocial normative beliefs in adolescents of different temperaments. Four main effects predictors of normative beliefs – gender, monitoring knowledge, attachment, and activity level – were considered to be of a meaningful magnitude according to the effect size criterion. As was expected, males were higher than females in normative beliefs legitimizing antisocial behaviour. One of the most important findings was that monitoring knowledge and surveillance/tracking differed markedly. The adolescents completing the items on the questionnaire clearly recognized the considerable difference between what the parents actually knew about their adolescents' whereabouts, activities, and peer relationships (monitoring knowledge), and parental *efforts* to gain this monitoring-related information (surveillance/tracking). In line with previous research (Kerr & Stattin, 2000; Laird, Pettit, Bates, et al., 2003), monitoring knowledge was by far the strongest predictor of antisocial outcomes. Attachment was the second strongest predictor of normative beliefs, although

it predicted less than half the amount of variance that monitoring knowledge did. Gender and high temperamental activity level also predicted enough variance in normative beliefs to be considered meaningful in the current study (1.3% & 1.2% respectively).

It was expected that interactions among parenting and temperament variables would not only be statistically significant but would also account for enough of the variance in the outcome, normative beliefs legitimizing antisocial behaviour, to be of a meaningful magnitude. None of the effect sizes of any of the interactions were large enough to meet the criterion of $sr^2 \geq .01$. This was an important finding, especially given the size and representativeness of the sample, the history and reliability of the measures, and the previous research and theory surrounding the constructs.

Several plausible relationships were not supported in the current study. These can be tested in other samples in different ways, such as with different measurement techniques or scales. Alternatively, different parenting, temperament, or other variables may be tested, both in terms of main effects and interactions, and based on different research foundations and theoretical mechanisms. Finally, the relationships among the predictor variables may account for more of the variance in normative beliefs if a longitudinal design is employed. In summary, the current study represented an important contribution to researchers' attempts to arrange the vast but consistent array of small-magnitude main effects findings into a coherent model to explain the emergence of normative beliefs legitimizing antisocial behaviour.

References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Ainsworth, M. D. S. (1991). Attachments and other affectional bonds across the life cycle. In C. M. Parkes, J. Stevenson-Hinde, & P. Marris (Eds.), *Attachment across the life cycle* (pp. 33-51). New York: Tavistock/Routledge.
- Ainsworth, M. D. S., & Bell, S. M. (1970). Attachment, exploration, and separation: Illustrated by the behaviour of one-year-olds in a strange situation. *Child Development*, 41, 49-67.
- Ainsworth, M. D. S., Blehar, M., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Erlbaum.
- Aksan, N., Goldsmith, H. H., Smider, N. A., Essex, M. J., Clark, R., Hyde, J. S., et al. (1999). Derivation and prediction of temperamental types among preschoolers. *Developmental Psychology*, 35, 958-971.
- Allen, J. P., & Land, D. (1999). Attachment in adolescence. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 319-335). New York: Guilford.
- Allen, J. P., Moore, C., Kuperminc, G., & Bell, K. (1998). Attachment and adolescent psychosocial functioning. *Child Development*, 69, 1406-1419.
- Allport, G. W. (1961). *Pattern and Growth in Personality*. New York: Holt, Rinehart and Winston.
- Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence*, 16, 427-454.
- Arsenio, W. F., & Lemerise, E. A. (2004). Aggression & moral development: Integrating social information processing and moral domain models. *Child Development*, 75, 987-1002.
- Barber, B. K. (1996). Parental psychological control: Revisiting a neglected construct. *Child Development*, 67, 3296-3319.
- Barber, B. K., Olsen, J. E., & Shagle, S. C. (1994). Associations between parental psychological and behavioural control and youth internalized and externalized behavior. *Child Development*, 65, 1120-1136.

- Barnett, D., Kidwell, S. L., & Leung, K. H. (1998). Parenting and preschooler attachment among low-income urban African American families. *Child Development, 69*, 1657-1671.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology, 61*, 226-244.
- Bartusch, D. R. J., Lynam, D. R., Moffitt, T. E., & Silva, P. A. (1997). Is age important? Testing a general versus a developmental theory of antisocial behavior. *Criminology, 35*, 13-48.
- Bates, J. E. (1989). Concepts and measures of temperament. In G. A. Kohnstamm, J. E. Bates, & M. Rothbart (Eds.), *Temperament in childhood* (pp.3-26). Chichester, NY: Wiley.
- Bates, J. E., Maslin, C. A., & Frankel, K. A. (1985). Attachment security, mother-child interaction, and temperament as predictors of behavior-problem ratings at age three years. *Monographs of the Society for Research in Child Development, 50*, 167-193.
- Bates, J. E., Pettit, G. S., Dodge, K. A., & Ridge, B. (1998). Interaction of temperamental resistance to control and restrictive parenting in the development of externalizing behaviour. *Developmental Psychology, 34*, 982-995.
- Baumrind, D. (1966). Effects of authoritative control on child behaviour. *Child Development, 37*, 887-907.
- Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology Monograph, 4*, 1-103.
- Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance use. *Journal of Early Adolescence, 11*, 56-95.
- Becker, W. C. (1964). Consequences of different kinds of parental discipline. In M. L. Hoffman & L. W. Hoffman (Eds.), *Review of child development research* (vol. 1, pp. 169-208). New York: Russell Sage.
- Belsky, J. (1999). Interactional and contextual determinants of attachment security. In J. Cassidy & P.R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 249-264). New York: Guilford.

- Belsky, J., Garduque, L., & Hrnecir, E. (1984). Assessing performance, competence, and executive capacity in infant play: Relations to home environment and security of attachment. *Developmental Psychology*, 20, 406-417.
- Belsky, J., Fish, M., & Isabella, R. (1991). Continuity and discontinuity in infant negative and positive emotionality: Family antecedents and attachment consequences. *Developmental Psychology*, 27, 421-431.
- Belsky, J., Hsieh, K., & Crnic, K. (1998). Mothering, fathering, and infant negativity as antecedents of boys' externalizing problems and inhibition at age 3 years: Differential susceptibility to rearing experience. *Development and Psychopathology*, 10, 301-319.
- Berndt, T. J. (1999). Friends' influence on students' adjustment to school. *Educational Psychologist*, 34, 15-21.
- Bjorkqvist, K., & Osterman, K. (1999). Social intelligence – empathy = aggression? *Aggression and violent behavior*, 5, 191-200.
- Black, D. W., Baumgard, C. H., Bell, S. E., & Kao, C. (1996). Death Rates in 71 men with Antisocial Personality disorder: A comparison with general population mortality. *Psychosomatics: Journal of Consultation Liaison Psychiatry*, 37, 131-136.
- Blackford, J. U., & Walden, T. A. (1998). Individual differences in social referencing. *Infant Behavior and Development*, 21, 89-102.
- Blackson, T. C., Tarter, R. E., & Mezzich, A. C. (1996). Interaction between childhood temperament and parental discipline practices on behavioural adjustment in preadolescent sons of substance abuse and normal fathers. *American Journal of Drug and Alcohol Abuse*, 22, 335-348.
- Blumstein, A., Cohen, J., Roth, J. A., & Visher, C. A. (Eds.). (1986). *Criminal careers and career criminals*. Washington, DC: National Research Council, National Academy Press.
- Borawski, E. A., Ievers-Landis, C. E., Lovegreen, L. D., & Trapl, E. S. (2003). Parental monitoring, negotiated unsupervised time, and parental trust: The role of perceived parenting practices in adolescent health risk behaviours. *Journal of Adolescent Health*, 33, 60-70.
- Bowlby, J. (1969). *Attachment and Loss (Vol. 1): Attachment*. New York: Basic.
- Bowlby, J. (1973). *Attachment and Loss (Vol. 2): Separation*. New York: Basic.
- Bowlby, J. (1979). *The making and breaking of affectional bonds*. London: Tavistock.

- Bowlby, J. (1980). *Attachment and Loss (Vol. 3): Loss, sadness, and depression*. New York: Basic.
- Braungart-Rieker, J., Garwood, M. M., & Stifter, C. A. (1997). Compliance and noncompliance: The roles of maternal control and child temperament. *Journal of Applied Developmental Psychology, 18*, 411-428.
- Brendgen, M., Vitaro, F., Tremblay, R. E., & Lavoie, F. (2001). Reactive and Proactive aggression: Predictions to physical violence in different contexts and moderating effects of parental monitoring and caregiving behavior. *Journal of Abnormal Child Psychology, 29*, 293-304.
- Bretherton, I., Golby, B., & Cho, E. (1997). Attachment and the transmission of values. In J. E. Grusec & L. Kuczynski (Eds.), *Parenting and children's internalization of values: A handbook of contemporary theory* (pp. 103-134). New York: Wiley.
- Bretherton, I., & Munholland, K. A. (1999). Internal working models in attachment relationships. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 89-111). New York: Guilford.
- Bridges, L. J. (2003). Trust, attachment, and relatedness. In M. H. Bornstein, L. Davidson, C. Keyes, K. A. Moore, & The Center for Child Well-Being (Eds.), *Well-being: Positive development across the life course* (pp. 177-189). Mahwah, NJ: Erlbaum.
- Broidy, L. M., Nagin, D. S., Tremblay, R. E., Bates, J. E., Brame, B., Dodge, K. A., et al. (2003). Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: A six-site, cross-national study. *Developmental Psychology, 39*, 222-245.
- Bronfenbrenner, U., & Morris, P. (1998). The ecology of developmental processes. In W. Damon (Series Ed.), and R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (pp. 993-1028). New York: Wiley.
- Brown, B. B., Mounts, N., Lamborn, S. D., & Steinberg, L. (1993). Parenting practices and peer group affiliation in adolescence. *Child Development, 64*, 467-482.
- Burgess, K. B., Marshall, P. J., Rubin, K. H., & Fox, N. A. (2003). Infant attachment and temperament as predictors of subsequent externalizing problems and cardiac physiology. *Journal of Child Psychology and Psychiatry, 44*, 819-831.
- Buss, A. H., & Plomin, R. (1984). *Temperament: Early developing personality traits*. Hillsdale, NJ: Erlbaum.

- Byng-Hall, J. (1999). Family therapy and couple therapy: Toward greater security. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 625-645). New York: Guilford.
- Calkins, S. (2002). Does aversive behavior during toddlerhood matter? The effects of difficult temperament on maternal perceptions and behavior. *Infant Mental Health Journal*, 23, 381-402.
- Capaldi, D. M., & Rothbart, M. K. (1992). Development and validation of an early adolescent temperament measure. *Journal of Early Adolescence*, 12, 153-173.
- Caprara, G. V., Pastorelli, C., Regalia, C., Scabini, E., & Bandura, A. (2005). Impact of adolescents' filial self-efficacy on quality of family functioning and satisfaction. *Journal of Research on Adolescence*, 15, 71-97.
- Carlo, G., Roesch, S. C., & Melby, J., (1998). The multiplicative relations of parenting and temperament to prosocial and antisocial behaviors in adolescence. *Journal of Early Adolescence*, 18, 266-290.
- Carlson, E. B., & Dutton, M. A. (2003). Assessing experiences and responses of crime victims. *Journal of Traumatic Stress*, 16, 133-148.
- Caspi, A. (2000). The child is father of the man: Personality continuities from childhood to adulthood. *Journal of Personality and Social Psychology*, 78, 158-172.
- Caspi, A., Harrington, H., Milne, B., Amell, J. W., Theodore, R. F. & Moffitt, T. E. (2003). Children's behavioural styles at age 3 are linked to their adult personality traits at age 26. *Journal of Personality*, 71, 495-515.
- Caspi, A., Henry, B., McGee, R. O., Moffitt, T. E., & Silva, P. A. (1995). Temperamental origins of child and adolescent behavior problems: From age three to age fifteen. *Child Development*, 66, 55-68.
- Caspi, A., Lynam, D., Moffitt, T. E., & Silva, P. A. (1993). Unraveling girls' delinquency: Biological, dispositional, and contextual contributions to adolescent misbehavior. *Developmental Psychology*, 29, 19-30.
- Chang, L., Schwartz, D., Dodge, K. A., & McBride-Chang, C. (2003). Harsh parenting in relation to child emotion regulation and aggression. *Journal of Family Psychology*, 17, 598-606.
- Clark, L. A., Kochanska, G., & Ready, R. (2002). Mothers' personality and its interaction with child temperament as predictors of parenting behavior. *Journal of Personality and Social Psychology*, 79, 274-285.

- Cohen, J. (1988). *Statistical power analysis for the behavioural sciences*. Hillsdale, NJ: Erlbaum.
- Cohen, M. A. (1998). The monetary value of saving a high-risk youth. *Journal of Quantitative Criminology*, 14, 5-33.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation for the behavioural sciences*. Mahwah, NJ: Erlbaum.
- Cohn, D. (1990). Child-mother attachment of six-year-olds and social competence at school. *Child Development*, 61, 152-162.
- Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behavior. In W. Damon (Ed.), *Handbook of child psychology*, (5th Edition, Vol.3, pp. 779-862). New York: Wiley.
- Coie, J. D., Dodge, K. A., Terry, R., & Wright, V. (1991). The role of aggression in peer relations: An analysis of aggression episodes in boys' play groups. *Child Development*, 62, 812-826.
- Colder, C. R. (2004, March). *Beliefs about smoking in childhood and adolescence*. Paper presented at the Brock Research Institute for Youth Studies Colloquium Series, Brock University, St. Catharines, ON, Canada.
- Colder, C. R., Lochman, J. E., & Wells, K. C. (1997). The moderating effects of children's fear and activity level on relations between parenting practices and childhood symptomatology. *Journal of Abnormal Child Psychology*, 25, 251-263.
- Collins, A., Gleason, T., & Sesma, A. (1997). Internalization, autonomy, and relationships: Development during adolescence. In J. E. Grusec & L. Kuczynski (Eds.), *Parenting and children's internalization of values* (pp. 78-99). Toronto: Wiley.
- Collins, W. A., Maccoby, E. E., Steinberg, L., Hetherington, E. M., & Bornstein, M. H. (2000). Contemporary research on parenting: The case for nature and nurture. *American Psychologist*, 55, 218-232.
- Conduct Problems Prevention Research Group. (1999). Initial impact of the fast track prevention trial for conduct problems: I. The high-risk sample. *Journal of Consulting and Clinical Psychology*, 67, 631-647.
- Costa, F. M., Jessor, R., & Turbin, M. S. (1999). Transition into adolescent problem drinking: The role of psychosocial risk and protective factors. *Journal of Studies on Alcohol*, 60, 480-490.

- Cottrell, L., Li, X., Harris, C., D'Alessandri, D., Atkins, M., Richardson, B., & Stanton, B. (2003). Parent and adolescent perceptions of parental monitoring and adolescent risk involvement. *Parenting: Science & Practice*, 3, 179-195.
- Crick, N. R., & Bigbee, M. (1998). Relational and overt forms of peer victimization: A multi-informant approach. *Journal of Consulting and Clinical Psychology*, 66, 337-347.
- Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*, 115, 74-101.
- Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development*, 66, 710-722.
- Crockenberg, S. C. (2003). Rescuing the baby from the bathwater: How gender and temperament (may) influence how child care affects child development. *Child Development*, 74, 1034-1038.
- Crockenberg, S., & Smith, P. (2002). Antecedents of mother-infant interaction and infant irritability in the first three months of life. *Infant Behavior and Development*, 25, 2-15.
- Crouter, A. C., McHale, S. M., & Bartko, W. T. (1993). Gender as an organizing feature in parent-child relationships. *Journal of Social Issues*, 49, 161-174.
- Crowell, J. A., Fraley, R. C., & Shaver, P. R. (1999). Measurement of individual differences in adolescent and adult attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 434-465). New York: Guilford.
- Cummings, M. E., Davies, P. T., & Campbell, S. B. (2000). *Developmental psychopathology and family process: Theory, Research, and Clinical Applications*. New York: Guilford.
- Damon, W. (1999). The moral development of children. *Scientific American*, 281, 72-79.
- Davis, R. C., Lurigio, A. J., & Skogan, W. D. (Eds.). (1997). *Victims of crime* (2nd Ed.). Thousand Oaks, CA: Sage.
- DeMulder, E. K., Denham, S., Schmidt, M., & Mitchell, J. (2000). Q-sort assessment of attachment security during the preschool years: Links from home to school. *Developmental Psychology*, 36, 274-282.

- Dishion, T. J., & McMahon, R. J. (1998). Parental monitoring and the prevention of child and adolescent problem behaviour: A conceptual and empirical formulation. *Clinical Child and Family Psychology Review*, 1, 61-75.
- Dishion, T. J., Spracklen, K. M., Andrews, D. W., & Patterson, G. R. (1996). Deviancy training in male adolescent friendships. *Behavior Therapy*, 27, 373-390.
- Ditommaso, E., Brannen-McNulty, C., Ross, L., & Burgess, M. (2003). Attachment styles, social skills and loneliness in young adults. *Personality and Individual Differences*, 35, 303-312.
- Dodge, K. A., & Pettit, G. S. (2003). A biopsychosocial model of the development of chronic conduct problems in adolescence. *Developmental Psychology*, 39, 349-371.
- Dodge, K. A., & Rabiner, D. L. (2004). Returning to roots: On social information processing and moral development. *Child Development*, 75, 1003-1008.
- Dunn, J., & Plomin, R., (1990). *Separate lives: Why siblings are so different*. New York: Basic Books.
- Early, D. M., Rimm-Kaufman, S. E., Cox, M. J., Saluja, G., Pianta, R. C., Bradley, R. H., et al. (2002). Maternal sensitivity and child wariness in the transition to kindergarten. *Parenting: Science and Practice*, 2, 355-377.
- Easterbrooks, M. A., Davidson, C. E., & Chazan, R. (1993). Psychosocial risk, attachment, and behavior problems among school-aged children. *Development & Psychopathology*, 5, 389-402.
- Eisenberg, N., & Murphy, B. (1995). Parenting and children's moral development. In M. H. Bornstein (Ed.), *Handbook of parenting, Vol. 4: Applied and practical parenting* (pp. 227-257). Hillsdale, NJ: Erlbaum
- Eisenberg, N., & Valiente, C. (2002). Parenting and children's prosocial and moral development. In M. H. Bornstein (Ed.), *Handbook of parenting: Practical issues in parenting* (2nd ed., vol. 5, pp. 111-142. Mahwah, NJ: Erlbaum.
- Enders, C. K. (2001). The performance of the full information maximum likelihood estimator in multiple regression models with missing data. *Educational and Psychological Measurement*, 61, 713-740.
- Erdley, C. A., & Asher, S. R. (1998). Linkages between children's beliefs about the legitimacy of aggression and their behavior. *Social Development*, 7, 321-339.

- Erickson, M. F., Sroufe, L. A., & Egeland, B. (1985). The relationship between quality of attachment and behavior problems in preschool in a high-risk sample. *Monographs of the Society for Research in Child Development*, 50, 147-166.
- Etzion-Carasso, A., & Oppenheim, D. (2000). Open mother – pre-schooler communication: Relations with early secure attachment. *Attachment and Human Development*, 2, 347-370.
- Fauber, R., Forehand, R., McCombs Thomas, A., & Wierson, M. (1990). A mediational model of the impact of marital conflict on adolescent adjustment in intact and divorced families: The role of disrupted parenting. *Child Development*, 61, 1112-1123.
- Feeney, J. A., Noller, P., & Roberts, N. (1998). Emotion, attachment, and satisfaction in close relationships. In P. A. Andersen & L. K. Guerrero (Eds.), *Handbook of communication and emotion: Research, theory, applications, and contexts* (pp. 473-505). San Diego: Academic.
- Fishbein, M. (1979). A theory of reasoned action: Some applications and implications. *Nebraska Symposium on Motivation*, Vol. 27 (pp. 65-116). Lincoln, NB: University of Nebraska.
- Forehand, R., McCombs Thomas, A., Wierson, M., Brody, G., & Fauber, R. (1990). Role of maternal functioning and parenting skills in adolescent functioning following parental divorce. *Journal of Abnormal Psychology*, 99, 278-283.
- Forehand, R., Miller, K. S., Dutra, R., & Watts Chance, M. (1997). Role of parenting in adolescent deviant behavior: Replication across and within two ethnic groups. *Journal of Consulting and Clinical Psychology*, 65, 1036-1041.
- Fox, N. A., & Henderson, H. (2000). Does infancy matter? Predicting social behavior from infant temperament. *Infant Behavior and Development*, 22, 445-455.
- Fraley, R. C., & Spieker, S. J. (2003). Are infant attachment patterns continuously or categorically distributed? A taxometric analysis of strange situation behaviour. *Developmental Psychology*, 39, 387-404.
- Freeman, H. , & Brown, B. B. (2001). Primary attachment to parents and peers during adolescence: Differences by attachment style. *Journal of Youth and Adolescence*, 30, 653-674.
- Gallagher, K. C. (2002). Does child temperament moderate the influence of parenting on adjustment? *Developmental Review*, 22, 623-643.

- Gauze, C., Bukowski, W. M., Aquan-Assee, J., & Sippola, L. K. (1996). Interactions between family environment and friendship and associations with self-perceived well-being during early adolescence. *Child Development*, 2201-2216.
- Gaylord, N. K., Kitzman, K. M., & Coleman, J. K. (2003). Parents' and children's perceptions of parental behavior: Associations with children's psychosocial adjustment in the classroom. *Parenting: Science and Practice*, 3, 23-47.
- George, D., & Mallery, P. (2003). *SPSS for windows step by step: A simple guide and reference*. Boston: Allyn & Bacon.
- Gold, M. S., Bentler, P. M., & Kim, K. H. (2003). A comparison of maximum likelihood and asymptotically distribution-free methods of treating incomplete nonnormal data. *Structural Equation Modeling*, 10, 47-79.
- Goldsmith, H. H., Buss, A. H., Plomin, R., Rothbart, M. K., Thomas, A., Chess, S., et al. (1987). Roundtable: What is Temperament? Four Approaches. *Child Development*, 58, 505-529.
- Gorman-Smith, D., Tolan, P. H., Zelli, A., & Huesmann, L. R. (1996). The relation of family functioning to violence among inner-city minority youths. *Journal of Family Psychology*, 10, 115-129.
- Gottfredson, M., & Hirschi, T. (1990). *A general theory of crime*. Stanford, CA: Stanford University Press.
- Gray, M.R., & Steinberg, L. (1999). Unpacking authoritative parenting: Reassessing a multidimensional construct. *Journal of Marriage and the Family*, 61, 574-587.
- Greenberg, M. T. (1999). Attachment and psychopathology in childhood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 469-496). New York: Guilford Press.
- Greene, V. (1995). The relationships among exposure to violence and crime, perceptions of vulnerability to harm or death, and risk behaviors in adolescents. *Dissertation Abstracts International: Section B: The Sciences and Engineering*. 56 (5-B), 2865.
- Greenwald, A. G., Banaji, M. R., Rudman, L. A., Farnham, S. D., Nosek, B. A., & Mellott, D. S. (2002). A unified theory of implicit attitudes, stereotypes, self-esteem, and self-concept. *Psychological Review*, 109, 3-25.
- Griffin, K. W., Botvin, G. J., Scheier, L. M., Diaz, T., & Miller, N. L. (2000). Parenting practices as predictors of substance use, delinquency, and aggression among urban minority youth: Moderating effects of family structure and gender. *Psychology of Addictive Behaviors*, 14, 174-184.

- Grolnick, W. S., Deci, E. L., & Ryan, R. M. (1997). Internalization within the family: The self-determination theory perspective. In J. E. Grusec & L. Kuczynski (Eds.), *Parenting and children's internalization of values* (pp. 78-99). Toronto: Wiley.
- Grusec, J. (2002). Parental socialization and children's acquisition of values. In M. H. Bornstein (Ed.), *Handbook of parenting: Practical issues in parenting* (2nd ed., vol. 5, pp. 143-167). Mahwah, NJ: Erlbaum.
- Grusec, J. E., & Goodnow, J. J. (1994). Impact of parental discipline methods on the child's internalization of values: A reconceptualization of current points of view. *Developmental Psychology*, 30, 4-19.
- Guerra, N. G., & Slaby, R. G. (1990). Cognitive mediators of aggression in adolescent offenders : 2. Intervention. *Developmental Psychology*, 26, 269-277.
- Guerra, N. G., Huesmann, L. R., & Hanish, L. (1995). The role of normative beliefs in children's social behavior. In N. Eisenberg (Ed.), *Social Development: Review of personality and social psychology* (Vol. 15, pp. 140-158). Thousand Oaks, CA: Sage.
- Hagekull, B. (1994). Infant temperament and early childhood functioning: Possible relations to the five-factor model. In C. F. Halverson, Jr., G. A. Kohnstamm, & R. P. Martin (Eds.), *The developing structure of temperament and personality from infancy to adulthood* (pp. 227-240). Hillsdale, NJ: Erlbaum.
- Henry, B., Moffitt, T. E., Caspi, A., Langley, J., & Silva, P. (1994). On the "remembrance of things past": A longitudinal evaluation of the retrospective method. *Psychological Assessment*, 6, 92-101.
- Herman, M. R., Dornbusch, S. M., Herron, M. C., & Herting, J. R. (1997). The influence of family regulation, connection, and psychological autonomy on six measures of adolescent functioning. *Journal of Adolescent Research, Special Issue: Adolescent socialization in context – the role of connection, regulation, and autonomy in the family, Part I*, 12, 34-67.
- Hirschi, T. (1969). *Causes of delinquency*. Berkeley: University of California Press.
- Hoffman, M. L. (1970). Conscience, personality, and socialization techniques. *Human Development*, 13, 90-126.
- Hoffman, M. L. (1994). Discipline and internalization. *Developmental Psychology*, 30, 26-28.
- Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and pediatric

psychology literatures. *Journal of Consulting and Clinical Psychology*, 65, 599-610.

Holmbeck, G. N. (2002). Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. *Journal of Pediatric Psychology*, 27, 87-96.

Huesmann, L. R., & Guerra, N. G. (1997). Children's normative beliefs about aggression and aggressive behavior. *Journal of Personality and Social Psychology*, 72, 408-419.

Jacobson, K. C., & Crockett, L. J. (2000). Parental monitoring and adolescent adjustment: An ecological perspective. *Journal of Research on Adolescence*, 10, 65-97.

Jessor, R., Van Den Bos, J., Vanderryn, J., Costa, F. M., & Turbin, M. S. (1995). Protective factors in adolescent problem behavior: Moderator effects and developmental change. *Developmental Psychology*, 31, 923-933.

Jones, D. J., Forehand, R., & Beach, S. R. H. (2000). Maternal and paternal parenting during adolescence: Forecasting early adult psychosocial adjustment. *Adolescence*, 35, 513-530.

Kagan, J. (1998). Biology and the child. In W. Damon (Ed.), *Handbook of child psychology* (5th Edition, Vol. 3, pp. 177-235). New York: Wiley.

Karavasilis, L., Doyle, A. B., & Markiewicz, D. (2003). Associations between parenting style and attachment to mother in middle childhood and adolescence. *International Journal of Behavioral Development*, 27, 153-164.

Karp, J., Serbin, L. A., Stack, D. M., & Schwartzman, A. E. (2004). An observational measure of children's behavioural style: Evidence supporting a multi-method approach to studying temperament. *Infant and Child Development*, 13, 135-158.

Kaukiainen, A., Salmivalli, C., Lagerspetz, K., Tamminen, M., Vauras, M., Maki, H. et al. (2002). Learning difficulties, social intelligence, and self-concept: Connections to bully-victim problems. *Scandinavian Journal of Psychology*, 43, 269-278.

Kerns, K. A., Aspelmeier, J. E., Gentzler, A. L., & Grabill, C. M. (2001). Parent-child attachment and monitoring in middle childhood. *Journal of Family Psychology*, 15, 69-81.

Kerns, K. A., & Barth, J. M. (1995). Attachment and play: Convergence across components of parent-child relationships and their relations to peer competence. *Journal of Social and Personal Relationships*, 12, 243-260.

- Kerns, K. A., & Stevens, A. C. (1996). Parent-child attachment in late adolescence: Links to social relations and personality. *Journal of Youth and Adolescence*, 25, 323-342.
- Kerr, M., & Stattin, H. (2000). What parents know, how they know it, and several forms of adolescent adjustment: Further support for a reinterpretation of monitoring. *Developmental Psychology*, 36, 366-380.
- Kirkpatrick, L. A., & Davis, K. E. (1994). Attachment style, gender, and relationship stability: A longitudinal analysis. *Journal of Personality and Social Psychology*, 66, 502-512.
- Kobak, R. R., Cole, H. E., Ferenz-Gillies, R., Fleming, W. S., & Gamble, W. (1988). Attachment and emotion regulation during mother-teen problem-solving: A control theory analysis. *Child Development*, 59, 135-146.
- Kochanska, G. (1995). Children's temperament, mothers' discipline, and security of attachment: Multiple pathways to emerging internalization. *Child Development*, 66, 597-615.
- Kochanska, G. (1997). Multiple pathways to conscience for children with different temperaments: From toddlerhood to age 5. *Developmental Psychology*, 33, 228-240.
- Kochanska, G., & Aksan, N. (1995). Mother-child mutually positive affect, the quality of child compliance to requests and prohibitions, and maternal control as correlates of early internalization. *Child Development*, 66, 236-254.
- Krevans, J., & Gibbs, J. C. (1996). Parents' use of inductive discipline: Relations to children's empathy and prosocial behaviour. *Child Development*, 67, 3263-3277.
- LaCourse, E., Cote, S., Nagin, D. S., Vitaro, F., Brendgen, M., & Tremblay, R. E. (2002). A longitudinal-experimental approach to testing theories of antisocial behavior development. *Development & Psychopathology*, 14, 909-924.
- Laird, R. D., Pettit, G. S., Bates, J. E., & Dodge, K. A. (2003). Parents' monitoring-relevant knowledge and adolescents' delinquent behavior: Evidence of correlated developmental changes and reciprocal influences. *Child Development*, 74, 752-768.
- Laird, R. D., Pettit, G. S., Dodge, K. A., & Bates, J. E. (2003). Change in parents' monitoring knowledge: Links with parenting, relationship quality, adolescent beliefs, and antisocial behavior. *Social Development*, 12, 401-419.

- Lamborn, S. D., Mounts, N. S., Steinberg, L., & Dornbusch, S. M. (1991). Patterns of competence and adjustment among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Development*, 62, 1049-1065.
- Landsheer, J. A., & Hart, H. (2000). Punishments adolescents find justified: An examination of attitudes toward delinquency. *Adolescence*, 35, 683-694.
- Lansford, J. E., Criss, M. M., Pettitt, G. S., Dodge, K. A., & Bates, J. E. (2003). Friendship quality, peer group affiliation, and peer antisocial behaviour as moderators of the link between negative parenting and adolescent externalizing behaviour. *Journal of Research on Adolescence*, 13, 161-184.
- Larson, R. W., Richards, M. H., Moneta, G., Holmbeck, G., & Duckett, E. (1996). Changes in adolescents' daily interactions with their families from ages 10 to 18: Disengagement and transformation. *Developmental Psychology*, 32, 744-754.
- Leaper, C. (2002). Parenting girls and boys. In M. H. Bornstein (Ed.), *Handbook of parenting volume 1: Children and parenting* (2nd ed.) (pp. 189-225). Mahwah, NJ: Erlbaum.
- Loeber, R., Farrington, D. P., Stouthamer-Loeber, M., Moffitt, T. E., Caspi, A., & Lynam, D. (2001). Male mental health problems, psychopathy, and personality traits: Key findings from the first fourteen years of the Pittsburgh Youth Study. *Clinical Child and Family Psychology Review*, 4, 273-297.
- Loeber, R., Wung, P., Keenan, K., Giroux, B., Stouthamer-Loeber, M., van Kammen, W. B., et al. (1993). Developmental pathways in disruptive child behavior. *Development and Psychopathology*, 5, 103-133.
- Loveland-Cherry, C. J., Leech, S., Laetz, V. B., & Dielman, T. E. (1996). Correlates of alcohol use and misuse in fourth-grade children: Psychosocial, peer, parental, and family factors. *Health Education Quarterly*, 23, 497-511.
- Maccoby, E. E., & Martin, J. A. (1983). Socialization in the context of the family: Parent-child interaction. In E. M. Hetherington (Ed.) & P. H. Mussen (Series Ed.), *Handbook of child psychology: vol. 4. Socialization, personality, and social development* (pp. 1-101). New York: Wiley.
- Magnusson, D., & Cairns, R. B. (1996). Developmental science: Toward a unified framework. In R. B. Cairns, G. H. Elder, Jr., & E. J. Costello (Eds.), *Developmental science: Cambridge studies in social and emotional development* (pp. 7-30). New York: Cambridge University.
- Main, M. (1995). Recent studies in attachment: Overview, with selected implications for clinical work. In S. Goldberg, R. Muir, & J. Kerr (Eds.), *Attachment theory:*

Social, developmental, and clinical perspectives (pp. 407-474). Hillsdale, NJ: Analytic.

- Main, M., Kaplan, N., & Cassidy, J. (1985). Security of infancy, childhood, and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (Eds.), *Growing points of attachment theory and research. Monographs of the Society for Research in Child Development*, 50 (1-2, Serial No. 209), 66-106.
- Main, M., & Solomon, J. (1986). Discovery of an insecure-disorganized/disoriented attachment pattern. In T. B. Brazelton & M. W. Yogman (Eds.), *Affective development in infancy* (pp. 95-124). Westport, CT: Ablex.
- Mangelsdorf, S., Gunnar, M., Kestenbaum, R., Lang, S., & Andreas, D. (1990). Infant proneness-to-distress temperament, maternal personality, and mother-infant attachment: Associations and goodness-of-fit. *Child Development*, 61, 820-831.
- Martin, J. A. (1981). A longitudinal study of the consequences of early mother-infant interaction: A microanalytic approach. *Monographs of the Society for Research in Child Development*, 46, 1-62.
- Martin, R. P. (1989). Activity level, distractibility, and persistence: Critical characteristics in early schooling. In G. A. Kohnstamm, J. E. Bates, & M. K. Rothbart (Eds.), *Temperament in Childhood* (pp. 451-461). New York: Wiley.
- Martin, R. P., Wisenbaker, J., & Huttunen, M. (1994). Review of factor analytic studies of temperament measures based on the Thomas-Chess structural model: Implications for the Big Five. In C. F. Halverson, Jr., G. A. Kohnstamm, & R. P. Martin (Eds.), *The developing structure of temperament and personality from infancy to adulthood* (pp. 157-172). Hillsdale, NJ: Erlbaum.
- McCrae, R. R., Costa, P. T., Ostendorf, F., Angleitner, A., Hrebickova, M., Avia, M., et al. (2000). Nature over nurture: Temperament, personality, and life span development. *Journal of Personality and Social Psychology*, 78, 173-186.
- McGuire, S., Dunn, J., & Plomin, R. (1995). Maternal differential treatment of siblings and children's behavioral problems: A longitudinal study. *Development & Psychopathology*, 7, 515-528.
- McMahon, S. D., & Watts, R. J. (2002). Ethnic identity in urban African American youth: Exploring links with self-worth, aggression, and other psychosocial variables. *Journal of Community Psychology*, 30, 411-431.
- Mikulincer, M. (1998a). Adult attachment style and individual differences in functional versus dysfunctional experiences of anger. *Journal of Personality and Social Psychology*, 74, 513-524.

- Mikulincer, M. (1998b). Attachment working models and the sense of trust: An exploration of interaction goals and affect regulation. *Journal of Personality and Social Psychology*, 74, 1209-1224.
- Miyake, K., Chen, S., & Campos, J. J. (1985). Infant temperament, mother's mode of interaction, and Attachment in Japan: An interim report. *Monographs of the Society for Research in Child Development*, 50, 276-297.
- Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, 100, 674-701.
- Monnier, J., Cameron, R. P., Hobfall, S. E., & Gribble, J. R. (2000). Direct and crossover effects of prosocial and antisocial coping behaviors. *Journal of Family Psychology*, 14, 570-584.
- Mounts, N. S., & Steinberg, L. (1995). An ecological analysis of peer influence on adolescent grade point average and drug use. *Developmental Psychology*, 31, 915-922.
- Muris, P., Meesters, C., Morren, M., & Moorman, L. (2004). Anger and hostility in adolescents: Relationships with self-reported attachment style and perceived parental rearing styles. *Journal of Psychosomatic Research*, 57, 257-264.
- Murray, D., & Perry, C. (1987). The measurement of substance use among adolescents: When is the "bogus pipeline" method needed? *Addictive Behaviors*, 12, 225-233.
- Nagin, D. S., Farrington, D. P., & Moffitt, T. E. (1995). Life-course trajectories of different types of offenders. *Criminology*, 33, 111-139.
- Nagin, D. S., & Tremblay, R. E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development*, 70, 1181-1196.
- Newcomb, A. F., Bukowski, W. M., & Bagwell, C. L. (1999). Knowing the sounds: Friendship as a developmental context. In W. A. Collins & B. Laursen (Eds.), *Relationships as Developmental Context: The 29th Minnesota Symposium on Child Psychology*. Mahwah, NJ: Erlbaum.
- Nix, R. L., Pinderhughes, E. E., Dodge, K. A., Bates, J. E., Pettit, G. S., & McFadyen-Ketchum, S. A. (1999). The relation between mother's attribution tendencies and children's externalizing behavior problems: The mediating role of mother's harsh discipline practices. *Child Development*, 70, 896-909.
- Pakaslahti, L., & Keltikangas-Jarvinen, L. (2001). Peer-attributed pro-social behavior among aggressive/preferred, aggressive/non-preferred, non-aggressive/preferred

and non-aggressive/non-preferred adolescents. *Personality and Individual Differences*, 30, 903-916.

- Park, S., Belsky, J., Putnam, S., & Crnic, K. (1997). Infant emotionality, parenting, and 3-year inhibition: Exploring stability and lawful discontinuity in a male sample. *Developmental Psychology*, 33, 218-227.
- Parke, R. D., O'Neil, R., Isley, S., Spitzer, S., Welsh, M., Wang, et al. (1998). Family-peer relationships: Family, emotional, and ecological determinants. In M. Lewis & C. Feiring (Eds.), *Families, Risk, and Competence*. Mahwah, NJ: Erlbaum.
- Paterson, G., & Sanson, A. (1999). The association of behavioural adjustment to temperament, parenting and family characteristics among 5-year-old children. *Social Development*, 8, 293-309.
- Patterson, G. R. (1995). Coercion as a basis for early age of onset for arrest. In J. McCord (Ed.), *Coercion and punishment in long-term perspectives* (pp. 81-105). New York: Cambridge University Press.
- Paterson, J. E., Field, J., & Pryor, J. (1994). Adolescents' perceptions of their attachment relationships with their mothers, fathers, and friends. *Journal of Youth and Adolescence*, 23, 579-600.
- Patterson, G. R., Capaldi, D., & Blank, L. (1991). An early starter model for predicting delinquency. In D. J. Pepler and K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 139-168). Hillsdale, NJ: Erlbaum.
- Patterson, C. J., Cohn, D. A., & Kao, B. T. (1989). Maternal warmth as a protective factor against risks associated with peer rejection among children. *Development and Psychopathology*, 1, 21-38.
- Patterson, G. R., DeBaryshe, B. D., & Ramsey, E. (1989). A developmental perspective on antisocial behavior. *American Psychologist*, 44, 329-335.
- Pepler, D. J., Craig, W. M., & Roberts, W. L. (1998). Observations of aggressive and nonaggressive children on the school playground. *Merrill-Palmer Quarterly*, 44, 55-76.
- Pesonen, A., Raikkonen, K., Keskivaara, P., & Keltikangas-Jaervinen, L. (2003). Difficult temperament in childhood and adulthood: Continuity from maternal perceptions to self-ratings over 17 years. *Personality and Individual Differences*, 34, 19-31.
- Pettit, G. S., Bates, J. E., & Dodge, K. A., & Meece, D. W. (1999). The impact of after-school peer contact on early adolescent externalizing problems is moderated by

parental monitoring, perceived neighborhood safety, and prior adjustment. *Child Development*, 70, 768-778.

- Pottharst, K. (1990). The search for methods and measures. In K. Pottharst (Ed.), *Explorations in adult attachment* (pp. 9-37). New York: Peter Lang.
- Pratt, M. W., Arnold, M. L., Pratt, A. T., & Diessner, R. (1999). Predicting adolescent moral reasoning from family climate: A longitudinal study. *Journal of Early Adolescence*, 19, 148-176.
- Putnam, S. P., Sanson, A. V., & Rothbart, M. K. (2002). Child temperament and parenting. In M. H. Bornstein (Ed.), *Handbook of parenting volume 1: Children and parenting* (2nd ed.) (pp. 255-277). Mahwah, NJ: Erlbaum.
- Raine, A., Reynolds, C., Venables, P. H., Mednick, S. A., & Farrington, D. P. (1998). Fearlessness, stimulation-seeking, and large body size at age 3 years as early predispositions to childhood aggression at age 11 years. *Archives of General Psychiatry*, 55, 745-751.
- Renken, B., Egeland, B., Marvinney, D., Mangelsdorf, S., & Sroufe, L. A. (1989). Early childhood antecedents of aggression and passive-withdrawal in early elementary school. *Journal of Personality*, 57, 257-281.
- Repinski, D. J., & Shonk, S. M. (2002). Mothers' and fathers' behavior, adolescents' self-representations, and adolescents' adjustment: A mediational model. *Journal of Early Adolescence*, 22, 357-383.
- Repo-Tiihonen, E., Virkkunen, M., & Tiihonen, J. (2001). Mortality of antisocial male criminals. *The Journal of Forensic Psychiatry*, 12, 677-683.
- Rholes, W. S., Simpson, J. A., & Orina, M. M. (1999). Attachment and anger in an anxiety-provoking situation. *Journal of Personality and Social Psychology*, 76, 940-957.
- Rice, K. G., & Cummins, P. N. (1996). Late adolescent and parent perceptions of attachment: An exploratory study of personal and social well-being. *Journal of Counseling and Development*, 75, 50-57.
- Robins, L. (1966). *Deviant children grown up*. Baltimore: Williams & Wilkins.
- Rokeach, M. (1973). *The nature of human values*. New York: Free Press.
- Rothbart, M. K. (1981). Measurement of temperament in infancy. *Child Development*, 52, 569-578.

- Rothbart, M. K. (1989). Temperament and Development. In G. A. Kohnstamm, J. E. Bates, & M. Rothbart (Eds.), *Temperament in childhood* (pp.187-248). Chichester, NY: Wiley.
- Rothbart, M. K., Ahadi, S. A., & Evans, D. E. (2000). Temperament and personality: Origins and outcomes. *Journal of personality and social psychology*, 78, 122-135.
- Rothbart, M. K., & Bates, J. E. (1998). Temperament. In W. Damon (Ed.), *Handbook of child psychology* (5th Edition, Vol.3, pp. 105-176). New York: Wiley.
- Rothbart, M. K., Derryberry, D., & Hershey, K. (2000). Stability of temperament in childhood: Laboratory infant assessment to parent report at seven years. In V. J. Molfese & D. L. Molfese (Eds.), *Temperament and personality development across the life span* (pp.85-119). Mahwah, NJ: Erlbaum.
- Rothbaum, F., & Weisz, J. R. (1994). Parental caregiving and child externalizing behavior in nonclinical samples: A meta-analysis. *Psychological Bulletin*, 116, 55-74.
- Rubin, K. H., Bukowski, W., & Parker, J. G. (1998). Peer interactions, relationships, and groups. In W. Damon (Ed.), *Handbook of child psychology* (5th ed., vol. 3, pp. 619-700). New York: Wiley.
- Rubin, K. H., Burgess, K. B., & Hastings, P. D. (2002). Stability and social-behavioral consequences of toddler's inhibited temperament and parenting behaviors. *Child Development*, 73, 483-495.
- Rutter, M. (1997). Nature-nurture integration: The example of antisocial behaviour. *American Psychologist*, 52, 390-398.
- Salmivalli, C., Kaukiainen, A., & Lagerspetz, K. (2000). Aggression and sociometric status among peers: Do gender and type of aggression matter? *Scandinavian Journal of Psychology*, 41, 17-24.
- Sanson, A., & Rothbart, M. K. (1995). Child temperament and parenting. In M. E. Bornstein (Ed.), *Handbook of parenting: Applied and practical parenting* (vol. 5, pp. 299-321). Hillsdale, NJ: Erlbaum.
- Scarr, S., & McCartney, K. (1983). How people make their own environments: A theory of genotype → environment effects. *Child Development*, 54, 424-435.
- Schaefer, E. S. (1965). A configurational analysis of children's reports of parent behavior. *Journal of Consulting Psychology*, 29, 552-557.
- Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, 7, 147-177.

- Schneider, B. H. (2000). *Friends and enemies: Peer relations in childhood*. London: Arnold.
- Schneider, B. H., Atkinson, L., & Tardif, C. (2001). Child-parent attachment and children's peer relations: A quantitative review. *Developmental Psychology*, 37, 86-100.
- Schwartz, C. E., Snidman, N., & Kagan, J. (1996). Early childhood temperament as a determinant of externalizing behaviour in adolescence. *Development and Psychopathology*, 8, 527-537.
- Schwartz, J. C., Barton-Henry, M. L., & Pruzinsky, T. (1985). Assessing child-rearing behaviors: A comparison of ratings made by mother, father, child, and sibling on the CRPBI. *Child Development*, 56, 462-479.
- Seifer, R., & Schiller, M. (1995). The role of parenting sensitivity, infant temperament, and dyadic interaction in attachment theory and assessment. *Monographs of the Society for Research in Child Development*, 60, 146-174.
- Shaw, D. S., Gilliom, M., Ingoldsby, E. M., & Nagin, D. S. (2003). Trajectories leading to school-age conduct problems. *Developmental Psychology*, 39, 189-200.
- Silverberg, S. B., Vazsonyi, A. T., Schlegel, A. E., & Schmidt, S. (1998). Adolescent apprentices in Germany: Adult attachment, job expectations, and delinquency. *Journal of Adolescent Research*, 13, 254-271.
- Simons, K. J., Paternite, C. E., & Shore, C. (2001). Quality of parent/adolescent attachment and aggression in young adolescents. *Journal of Early Adolescence*, 21, 182-203.
- Simpson, J. A., Rholes, W. S., & Nelligan, J. S. (1992). Support seeking and support giving within couples in an anxiety-provoking situation: The role of attachment styles. *Journal of Personality and Social Psychology*, 62, 434-446.
- Slaby, R. G., & Guerra, N. G. (1988). Cognitive mediators of aggression in adolescent offenders: 1. Assessment. *Developmental Psychology*, 24, 580-588.
- Stackert, R. A., & Bursik, K. (2003). Why am I unsatisfied? Adult attachment style, gendered irrational relationship beliefs, and young adult romantic relationship satisfaction. *Personality and Individual Differences*, 34, 1419-1429.
- Stams, G. J. M., Juffer, F., & van IJzendoorn, M. H. (2002). Maternal sensitivity, infant attachment, and temperament in early childhood predict adjustment in middle childhood: The case of adopted children and their biologically unrelated parents. *Developmental Psychology*, 38(5), 806-821.

- Stanger, C., Achenbach, T. M., & Verhulst, F. C. (1997). Accelerated longitudinal comparisons of aggressive versus delinquent syndromes. *Development & Psychopathology*, 9, 43-58.
- Statistics Canada (2003). *Ethnocultural portrait of Canada*. Retrieved July 22, 2004, from <http://www12.statcan.ca/english/census01/products/highlight/ETO/Table1.cfm?Lang=E&T=501&GV=1&GID=0>
- Steinberg, L. (1986). Latchkey children and susceptibility to peer pressure: An ecological analysis. *Developmental Psychology*, 22, 433-439.
- Steinberg, L., & Silk, J. S. (2002). Parenting adolescents. In M. H. Bornstein (Ed.), *Handbook of parenting: Children and parenting* (2nd ed., vol. 1, pp. 103-133). Mahwah, NJ: Erlbaum.
- Stice, E., Barrera, M., & Chassin, L. (1993). Relation of parental support and control to adolescents' externalizing symptomatology and substance use: A longitudinal examination of curvilinear effects. *Journal of Abnormal Child Psychology*, 21, 609-629.
- Stice, E., & Gonzales, N. (1998). Adolescent temperament moderates the relation of parenting to antisocial behaviour and substance use. *Journal of Adolescent Research*, 13, 5-31.
- Stouthamer-Loeber, M., Loeber, R., Wei, E., Farrington, D. P., & Wikstrom, P. H. (2002). Risk and promotive effects in the explanation of persistent serious delinquency in boys. *Journal of Consulting and Clinical Psychology*, 70, 111-123.
- Tabachnick, B. G., & Fidel, L. S. (2001). *Using multivariate statistics* (4th ed.). Needham Heights, MA: Allyn & Bacon.
- Teglasi, H. (1998). Temperament constructs and measures. *School Psychology Review*, 27, 479-492.
- Thomas, A., & Chess, S. (1977). *Temperament and development*. New York: Brunner/Mazel.
- Thompson, R. A. (1998). Early sociopersonality development. In W. Damon (Ed.), *Handbook of child psychology*, (5th Edition, Vol.3, pp. 25-104). New York: Wiley.
- Thompson, R. A., & Calkins, S. D. (1996). The double-edged sword: Emotional regulation for children at risk. *Development and Psychopathology*, 8, 163-182.

- Tolan, P. (1988). Socioeconomic, family, and social stress correlates of adolescent antisocial and delinquent behaviour. *Journal of Abnormal Child Psychology*, 16, 317-331.
- Trafimow, D. (2004). Problems with change in R^2 as applied to theory of reasoned action research. *British Journal of Social Psychology*, 43, 515-530.
- Turner, P. J. (1991). Relations between attachment, gender, and behaviour with peers in preschool. *Child Development*, 62, 1475-1488.
- University of Massachusetts, Amherst, MA, Psychology Department. (2004). *Screening data for multiple regression and multivariate statistics*. Retrieved October 11, 2004, from http://www.psy.umassd.edu/psy506/screening_guide_2004.pdf
- U.S. Department of Justice: Bureau of Justice Statistics. (1994). *The costs of crime to victims* (NCJ 145865). Annapolis Junction, MD: Bureau of Justice Statistics Clearinghouse.
- van den boom, D. (1994). The influence of temperament and mothering on attachment and exploration: An experimental manipulation of sensitive responsiveness among lower-class mothers with irritable infants. *Child Development*, 65, 1457-1477.
- Vaughn, B. E., & Bost, K. K. (1999). Attachment and temperament. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 198-225). New York: Guilford.
- Vitaro, F., Brendgen, M., & Tremblay, R. E. (2000). Influence of deviant friends on delinquency: Searching for moderator variables. *Journal of Abnormal Child Psychology*, 28, 313-325.
- Vitaro, F., Tremblay, R. E., & Bukowski, W. M. (2001). *Friends, friendships, and conduct disorders*. Cambridge, UK: Cambridge University Press.
- Wachs, T. D., & Plomin, R. (1991). Overview of current models and research. In T. D. Wachs & R. Plomin (Eds.), *Conceptualization and measurement of organism-environment interaction* (pp. 1-8). Washington, DC: American Psychological Association.
- Wade, T. J., Pevalin, D. J., & Brannigan, A. (1999). The clustering of severe behavioural, health and educational deficits in Canadian children: Preliminary evidence from the National Longitudinal Survey of Children and Youth. *Canadian Journal of Public Health*, 90, 253-259.

- Walker, H. M., Shinn, M. R., O'Neill, R. E., & Ramsey, E. (1987). A longitudinal assessment of the development of antisocial behavior in boys: Rationale, methodology, and first-year results. *Remedial and Special Education, 8*, 7-16, 27.
- Waters, E., Weinfield, N. S., & Hamilton, C. E. (2000). The stability of attachment security from infancy to adolescence and early adulthood: General discussion. *Child Development, 71*, 703-706.
- Wendland-Carro, J., Piccinini, C. A., & Millar, W. S. (1999). The role of an early intervention on enhancing the quality of mother-infant interaction. *Child Development, 70*, 713-721.
- Wills, T. A., Windle, M., & Cleary, S. D. (1998). Temperament and novelty seeking in adolescent substance use: Convergence of dimensions of temperament with constructs from Cloninger's theory. *Journal of Personality and Social Psychology, 74*, 387-406.
- Windle, M., & Lerner, R. M. (1986). Reassessing the dimensions of temperamental individuality across the life span: The Revised Dimensions of Temperament Survey (DOTS-R). *Journal of Adolescent Research, 1*, 213-230.
- Wyatt, J. M., & Carlo, G. (2002). What will my parents think? Relations among adolescents' expected parental reactions, prosocial moral reasoning and prosocial and antisocial behaviors. *Journal of Adolescent Research, 17*, 646-666.
- YLC-CURA Niagara. (2001, November). *Report on Youth Lifestyle Choices in the Niagara Region: Findings from the Youth Resilience Questionnaire*. St. Catharines, ON: Author.
- Youngblade, L. M., & Belsky, J. (1992). Parent-child antecedents of 5-year-olds' close friendships: A longitudinal analysis. *Developmental Psychology, 28*, 700-713.
- Zelli, A., Dodge, K. A., Lochman, J. E., Laird, R. D., & Conduct Problems Prevention Research Group. (1999). The distinction between beliefs legitimizing aggression and deviant processing of social cues: Testing measurement validity and the hypothesis that biased processing mediates the effects of beliefs on aggression. *Journal of Personality and Social Psychology, 77*, 150-166.

Appendix A

Ethics Approval Obtained by YLC-CURA
from Brock University's Research Ethics Board



Brock University

Senate Research Ethics Board
3205/4315, Room C315

Extensions

FROM: David Butz, Chair
Senate Research Ethics Board (REB)

TO: Teena Willoughby, Child and Youth Studies

FILE: 00-116, WILLOUGHBY

The Brock University Research Ethics Board has reviewed the revised research proposal:

“Enhancement of youth resiliency and reduction of
harmful behaviours leading to healthy lifestyle choices”

The Research Ethics Board finds that your revised proposal conforms to the Brock University guidelines set out for ethical research.

*** Accepted as clarified**

Please note: Any Changes or Modifications to this approved research must be reviewed and approved by the committee. If so, please complete form #5 - *Request for Ethics Clearance of a Revision or Modification to an Ongoing application for Ethics Review of Research with Human Participants* and submit it to the Chair of the Research Ethics Board. You can download this form from the Office of Research Services or visit the web site:

<http://www.BrockU.CA/researchservices/mainethicsformpage.html>

Appendix B

Monitoring Knowledge Items

How much do your parents/guardians REALLY know...

	THEY ALWAYS KNOW	THEY USUALLY KNOW	THEY SOMETIMES OR NEVER KNOW
where you go at night?			
what you do with your free time?			
who your friends are?			
where you are most afternoons after school?			
how much time you spend on the computer or playing video games?			
what web sites you look at on the Internet?			
what video or computer games you play?			
what you watch on TV?			
what you do when you are in your room?			

Adapted from Lamborn, Mounts, Steinberg, & Dornbusch (1991)

Appendix C

Surveillance/Tracking Items

Do your parents/guardians ASK you...

	THEY OFTEN ASK	THEY SOMETIMES ASK	THEY NEVER ASK
where you go at night?	..	-	-
what you do with your free time?	..	-	-
who your friends are?	..	-	-
where you are most afternoons after school?	..	-	-
how much time you spend on the computer or playing video games?	..	-	-
what web sites you look at on the Internet?	..	-	..
what video or computer games you play?	..	-	..
what you watch on TV?	..	-	..
what you do when you are in your room?	..	-	..

Adapted from Lamborn, Mounts, Steinberg, & Dornbusch (1991)

Appendix D

Attachment Security Items

PART I Think about your mother/stepmother (female guardian) who you live with the MOST and answer these questions.

If you have NO contact with your mother/stepmother or female guardian, please SKIP to PART U.

	ALMOST ALWAYS OR ALWAYS	OFTEN	SOMETIMES	ALMOST OR NEVER
My mother trusts my judgement	1	2	3	4
My mother accepts me as I am	1	2	3	4
I like to get my mother's point of view on things I'm concerned about	1	2	3	4
My mother can tell when I'm upset about something	1	2	3	4
Talking over my problems with my mother makes me feel ashamed or foolish	1	2	3	4
My mother expects too much from me	1	2	3	4
I get upset a lot more than my mother knows about	1	2	3	4
When we discuss things, my mother cares about my point of view	1	2	3	4
My mother has her own problems, so I don't bother her with mine	1	2	3	4
I tell my mother about my problems and troubles	1	2	3	4
I feel angry with my mother	1	2	3	4
My mother understands me	1	2	3	4
I trust my mother	1	2	3	4
My mother doesn't understand what I'm going through these days	1	2	3	4
I get upset easily around my mother	1	2	3	4
I don't get much attention from my mother	1	2	3	4
I can count on my mother when I need to get something off my chest	1	2	3	4

Adapted from Armsden & Greenberg (1987)

Appendix F

Normative Beliefs Legitimizing Antisocial Behaviour Items

How WRONG do you think it is to do these things?	VERY WRONG	WRONG	A LITTLE BIT WRONG	NOT AT ALL WRONG
To take little things that don't belong to you
To give your teacher a fake excuse for being absent
To bother people in a movie theatre even if you have been asked to stop
To borrow \$5 or so from a friend without really expecting to pay it back
To cheat on a test
To skip school without a good excuse
To get into fist fights with other people
To break something that belongs to another person just to get even
To break into a place that is locked just to look around
To damage public or private property that does not belong to you just for fun
To threaten a teacher because you were angry about something at school

Adapted from Jessor, Van Den Bos, Vanderryn, Costa, & Turbin (1995)

