**The Relationship Between Negative Developmental Factors and Antisocial
Cognition and Behaviour Among Adolescents**

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Abstract

The existing literature has overlooked the potential influence of family variables on the development of antisocial cognition, specifically criminal attitudes and hostility. Such research is important in that it provides information on possible directions for the effective treatment of adolescents presenting with behavioural problems or delinquency. This study investigated the relationships between family background factors, antisocial cognition and antisocial behaviour using a retrospective design. Data was obtained from an archival database consisting of 507 adolescents from correctional, clinical and non-clinical populations. Adolescents completed a battery of self-report attitudinal measures and provided social demographic information. Results suggested that negative *functional* family factors, particularly poor parent-child relations, played a significant and more direct role in the development of antisocial cognition than *structural* family factors (e.g., family structure, family deviance). Also, higher levels of antisocial cognition were significantly related to antisocial behaviour. Finally, early adverse family experiences were significantly related to both juvenile delinquency and interpersonal violence. Implications of these findings for intervention with behaviourally disturbed adolescents are discussed.

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With greater knowledge, I begin to see the wisdom in
leaning not on my own understanding.

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The Relationship Between Negative Developmental Factors and Antisocial Cognition and Behaviour Among Adolescents

Theory and research suggest that events and circumstances early in life can shape cognition, emotion and behaviour. In fact, it is the early experiences and relational dynamics that individuals are subjected to in childhood that may explain the important differences in the ways in which they interact with others and perceive their world later on (e.g., Dodge, 1993; Thoresen & Pattillo, 1988). One area that has attracted considerable attention from academics, practitioners and the general public is the influence and resulting behaviours that negative childhood experiences and family background variables can have on an individual. Both theory and research support the link between early experiences, such as abuse or parental neglect (see discussion in Rutter, Giller, & Hagell, 1998), exposure to aggressive models (Bandura, 1973) and insecure attachment relationships (Sroufe, 1983), and later negative outcomes, including antisocial, aggressive or delinquent behaviour. Indeed, such behaviours are the result of an interacting, comprehensive set of influences; however, cognition and, more specifically, attitudes may play a vital role.

Research has investigated causal models of the development of a variety of negative outcomes (e.g., Dodge, 1993; Weiss, Dodge, Bates, & Pettit, 1992). These models suggest that early experiences, such as abusive parental behaviour, lead to the development of a maladaptive style of processing social information, such as hostile attribution of intent, which, in turn, is related to the development of antisocial behaviours, such as aggression.

One missing piece of this puzzle, however, is an examination of the development of antisocial cognition, specifically criminal attitudes and hostility, using specialized assessment instruments. Following from this, the purpose of this study was to explore the relationship between early negative family experiences and antisocial cognition and behaviour among adolescents.

A review of the relevant literature regarding negative developmental factors, antisocial cognition and behaviour is provided. First, theory and research on family factors and negative outcomes will be presented, highlighting also the distinction between structural and functional family variables. Following will be a discussion of antisocial cognition, including criminal attitudes and hostility. Theories and research supporting a link between attitudes and behaviour will be presented, focusing primarily on criminal attitudes, juvenile delinquency and the assessment of the criminal attitude construct. Further, a discussion of hostility and hostile attribution of intent in relation to familial influences and negative outcomes, such as aggression, will be presented. Finally, the assessment of the hostility construct will also be reviewed.

Developmental Factors and Negative Outcomes

Over the years, the family, an individual's earliest social influence, has been represented in a vast amount of theoretical and empirical literature on negative outcomes, such as antisocial behaviour in adolescents (Rutter, Giller, & Hagell, 1998). Indeed, there has been an increased recognition that the behaviour problems of children and adolescents are quite often related to dysfunctional family and parental factors (Henggeler, 1982).

The role of the family in the etiology of juvenile delinquency was highlighted by Sheldon and Eleanor Glueck in their *Unraveling Juvenile Delinquency* (1950). This seminal study introduced the importance of considering a broad range of individual, environmental and situational factors when investigating delinquent behaviour, including antisocial attitudes and a variety of family and parenting variables. Their “tentative causal formula” is considered to be one of the best validated of all predictive models of criminal behaviour, and their 1950 study is the most notable piece of cross-sectional research in this area (Andrews & Bonta, 1998). This classic study involved a matched sample of 500 official delinquents and 500 officially defined nondelinquents. Data from this study showed that delinquents and nondelinquents differed on such things as defiant attitudes (50% vs. 12%, respectively) and hostility (80% vs. 56%, respectively), and having experienced out-of-home placements (71% vs. 9%, respectively). In terms of parental supervision, only 7% of the delinquent cases evidenced suitable supervision by the mother compared to 65% of nondelinquent cases. Following from such findings, the Gluecks’ work is widely recognized as the foundation for much of the current literature on family and criminal behaviour.

Family Variables as Risk Factors for Juvenile Delinquency

Parental and family variables have emerged consistently throughout the empirical and theoretical literature as significant predictors and/or correlates of antisocial or criminal behaviour, albeit their more indirect link in comparison to other more criminogenic variables, such as criminal attitudes (e.g., Gendreau, Little, & Goggin, 1996). Although several meta-analyses have considered the predictors of criminal recidivism in adults (e.g., Bonta, Law, & Hanson, 1998; Hanson & Bussière, 1998), there

exist only two meta-analytic studies that have specifically investigated the risk factors for juvenile delinquency and reoffending. First, Simourd and Andrews (1994) reviewed 60 studies on the correlates of delinquency for males and females, considering eight general risk categories: lower social class, family structure or parental problems, personal distress, minor personality variables, poor parent-child relations, educational difficulties, temperament or misconduct problems, and antisocial peers or attitudes. Their review found that the general risk factors that were important for female youths were also important for male youths, and that no risk factor was more important for a particular gender. With respect to the family factors, poor parent-child relations, which included attachment and supervision, was among the most important risk factors for both females and males ($r = .20$ and $r = .22$, respectively), whereas family structure or parental problems, which included broken home and marital problems, was not strongly related to delinquency (females, $r = .07$; males, $r = .09$).

More recently, Cottle, Lee, and Heilbrun (2001) conducted a meta-analysis on 23 studies to identify risk factors that best predict juvenile recidivism. Overall, the domain of family and social factors was consistently associated with juvenile recidivism. More specifically, the overall weighted effect sizes (Z_r) showed that juveniles with a history of having been physically or sexually abused ($Z_r = .11$), raised in a single-parent home ($Z_r = .07$), having a greater number of out-of-home placements ($Z_r = .18$) or significant family problems (e.g., poor relationships within the family) ($Z_r = .23$) were at increased risk of recidivism. Cottle et al. (2001) further distinguish between static variables, such as a history of physical or sexual abuse, being raised in a single-parent home and having a greater number of out-of-home placements and dynamic variables, such as family

instability and problematic interactions. They highlight that both types of variables are useful in the assessment and identification of juvenile recidivists, and that the dynamic variables, with a potential for change, have implications for the rehabilitation of juvenile offenders and should be targets for risk-reduction intervention planning. In fact, the family variables identified are consistent with the increasing amount of evidence suggesting that multisystemic approaches to treatment, delivered in a family context, are most effective in reducing juvenile recidivism (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998).

Family Factors and Negative Outcomes: Conceptual Issues

There is more than sufficient cross-sectional and predictive research available indicating the importance of family factors in the development of, or relationship to, negative outcomes (e.g., Alfaro, 1981; Blaske, Borduin, Henggeler, & Mann, 1989; Patterson & Stouthamer-Loeber, 1984; Rutter & Giller, 1984; Snyder & Patterson, 1987; Stouthamer-Loeber, Loeber, Farrington, Zhang, van Kammen, & Maguin, 1993; Van Voorhis, Cullen, Mathers, & Garner, 1988; West & Farrington, 1973). Furthermore, concurrent and longitudinal studies of family factors and behavioural problems and delinquency have been summarized by Loeber and Stouthamer-Loeber (1986) in one of the most comprehensive reviews to date. In an attempt to organize our understanding, they identified four paradigms of family functioning – neglect, conflict, deviancy and disruption. The neglect paradigm considers the lack of both parental and child involvement and parental supervision, whereas the conflict paradigm refers to conflict and rejection between parent and child and inadequate discipline. The deviant behaviours and attitudes paradigm considers the direct influence of parental criminality

and/or deviant attitudes, values and beliefs on the child, whereas the disruption paradigm refers to marital conflict and parental absence. The results of this meta-analysis showed all four areas to be related to juvenile delinquency, aggression and other behavioural problems. More specifically, Loeber and Stouthamer-Loeber's (1986) findings show that socialization variables, such as lack of parental supervision and parent-child involvement, were among the strongest predictors of juvenile conduct problems and delinquency. Weaker predictors included variables such as parents' marital relations and parental absence. For example, the median RIOC (Relative Improvement Over Chance) for predictive studies was 31.0 percent for poor parent-child involvement and 36.4 percent for poor supervision, whereas the median RIOC was 28.0 for marital relations and 12.2 for parental absence. Furthermore, the analyses of concurrent studies comparing delinquents with nondelinquents and aggressive children with nonaggressive children largely support these findings. Particularly noteworthy about the Loeber and Stouthamer-Loeber (1986) review is the general consistency of the findings across such a wide range of studies (Laub & Sampson, 1988).

Structural and functional family variables. The relative importance of an exhaustive set of family variables for the explanation of behavioural problems and delinquency has become quite clear (see Loeber & Stouthamer-Loeber, 1986). In an attempt to better understand the influence of family variables on the development of later behavioural problems and delinquency researchers have distinguished between structural and functional family factors (e.g., Cernkovich & Giordano, 1987; Fagan & Wexler, 1987; Laub & Sampson, 1988; Van Voorhis et al., 1988), and between direct and indirect

controls (e.g., Hill & Atkinson, 1988; Rankin & Wells, 1990), and have investigated their respective associations with offending and adolescent delinquency.

It has been argued that investigating the effects of family structure on delinquent behaviour in the absence of functional factors reflects a lack of conceptual and empirical depth (Van Voorhis et al., 1988). In fact, most widely accepted theories of family factors and delinquency consider structural factors as indirect, not immediate, causes of delinquency. It has been suggested that the importance of structural factors, such as broken homes, is in predisposing the family to more direct functional influences, including lack of affection, poor supervision and child maltreatment (e.g., Van Voorhis et al., 1988).

Such conceptualizations are derived in part from social control theories, such as that of Travis Hirschi (1969), which maintain that delinquency is influenced by the commitments or attachments children develop toward parental figures. In short, children with strong attachments are more likely to develop an internalized set of values that direct their behaviour in the absence of parents. From another perspective, social learning models underline the importance of parents as reinforcers and models of socially appropriate behaviour. The effectiveness of their modeling and reinforcement tactics is very much dependent on parental availability, supervision and affection. Within this context, child maltreatment and family conflict are also very relevant in that they diminish the overall effect of parental reinforcement and model unacceptable aggressive behaviours (Patterson, 1982). From this perspective, it is the functional, family process factors that are important to this model rather than family structure factors per se.

Such distinctions provide a more organized approach to the investigation of the influence of family factors despite the fact that the constructs used in the research have differed somewhat in terms of their operational definitions. In short, *structural family factors* refer to the overall organization and generally static characteristics of the family. These factors may include the socioeconomic status of the family, family status or parental criminality. On the other hand, *functional family factors* typically involve dynamic, family processes and quality, such as parental involvement, attachment relationships, supervision and discipline. Again, a conclusion from the literature is that functional factors, or family processes, are intervening variables between the indirect influence of structural factors and the behaviours themselves.

Family Factors and Negative Outcomes: Behavioural Criteria

Laub and Sampson (1988) reanalyzed data from the Glueck and Glueck (1950) study in order to replicate the major results and to address several criticisms of the original study. Laub and Sampson (1988) proposed a causal model of structural background factors, family processes and delinquency, focusing on variables relating to family characteristics of 500 delinquents and 500 nondelinquents between the ages of 11 and 17. This model suggests that the mediating constructs of family processes, or functional factors, have the strongest effects on delinquency and that structural background factors influence delinquency mainly through their effects on family process. That is, the effects of functional family process factors should mediate the indirect effects of structural background factors.

Consistent with this, the regression estimates from the multivariate analyses suggest that mother's supervision ($b = -.25$), parental styles of discipline (mother's, $b =$

.17; father's, $b = .16$), parental rejection of the child ($b = .14$) and parental attachment ($b = -.11$) are the most important predictors of serious and persistent delinquency. On the other hand, background factors, such as parental criminality and alcoholism, and broken homes, have weak or no direct effect on delinquency, but instead function through the family process variables. In fact, family process mediated some 80% of the effect of structural background factors on delinquency. In short, Laub and Sampson (1988) explain that structural background factors, such as parental deviance, strongly disrupt family processes of social control, which then increases delinquency.

Van Voorhis, Cullen, Mathers, and Garner (1988) further investigated the family structure versus family function issue. They conducted analyses of the comparative effects of family structure and family quality measures (including supervision, affection, conflict, child maltreatment, and overall home quality) on self-reported delinquency with a sample of 152 high school students, ranging in age from 14 to 19. Furthermore, they investigated the possibility of differential effects of family factors across types of delinquency with separate analyses for property offenses, violent behaviours, status offenses, substance abuse and overall delinquency. With the exception of status offenses, there were no significant relationships between family structure (broken home or single parent) and the various forms of delinquency. In contrast, all measures of family quality were significantly related to overall delinquency and to status offenses. The family factors most strongly related to delinquency were affection ($r = .25$), supervision ($r = .24$) and overall home quality ($r = .31$).

LeBlanc's (1992) research on family dynamics and delinquency provides support for a dynamic system family control model using a sample of 458 male adolescents

between the ages of 12 and 16 years. This proposed model depicts the causal mechanisms involved in adolescent delinquency and postulates, overall, that while structural and family environmental factors, such as socioeconomic status and parental deviance models, are indirectly related to delinquent behaviour, they directly determine the quality of family bonding, such as attachment and involvement. These indirect controls, or bonding, are indirectly related to offending through constraints, such as discipline, regulations and supervision. Finally, the inappropriateness of these direct controls (constraints) directly result in deviant or offending behaviour (LeBlanc, 1992).

Finally, Hoge, Andrews, and Leschied's (1994) study was designed to investigate several hypotheses related to the links between youthful offending and family, peer and attitudinal variables, and the potential interactions among these variables within an integrated model. Their sample consisted of 338 youths, 270 males and 68 females, ranging in age from 12 to 17 years. Consistent with LeBlanc's (1992) distinction between direct and indirect controls, Hoge et al. (1994) investigated two separate dimensions of parent-child interactions, or family processes. The first involved a relationship dimension, which included attachment, rejection, acceptance and hostility (e.g., Blaske et al., 1989; Hanson, Henggeler, Haefele, & Rodick, 1984; Tolan, 1988). The second was a parental structuring dimension, which involved monitoring, supervision, discipline and control (e.g., Patterson & Stouthamer-Loeber, 1984; Snyder & Patterson, 1987; Van Voorhis et al., 1988). In the context of the previous research in the area, both of these family process dimensions reflect *functional* variables. Hoge and colleagues (1994) suggested that these two dimensions may be linked in an interactive way to offending behaviour, whereby the degree of parent-child attachment will, to some

extent, have an effect on the impact of controls on the child. They hypothesized that the highest levels of antisocial behaviour would result where poor parent-child attachment was combined with poor supervision and monitoring.

Overall, the correlational results support the link between the four risk factors (negative peer associations, antisocial attitudes, family relationship, and family structuring) and criminal behaviour, with the magnitudes of the correlations ranging from .15 to .33. Furthermore, the finding that the correlates of criminal behaviour were essentially the same for girls and boys is consistent with other research and reviews (e.g., Simourd & Andrews, 1994). On the other hand, the results failed to show an interaction between the family relationship and parental control dimensions (see also Rankin & Wells, 1990), although both family dimensions were related to negative outcomes when considered separately, with the family structuring dimension being the stronger predictor overall.

This study also explored the interaction between peer associations and family relationship variables, whereby it was suggested that poor relationships with parents combined with association with delinquent peers will lead to increased levels of risk of delinquency (Elliott, Huizinga, & Ageton, 1985). Contrary to past research (e.g., Elliott et al., 1985), their results did not support this hypothesis. It was suggested that this finding may be due to the high levels of risk in both areas for this particular sample of juvenile offenders (Hoge et al., 1994). Finally, the unique contribution of attitudes, independent of the family and peer variables, to the prediction of youthful offending was investigated. Specifically, it was hypothesized that an attitudinal variable that represents support for criminal values (and rejection of conventional values) would make a

significant contribution to the prediction of criminal behaviour independent of family and peer variables. Consistent with both theory and research (Andrews & Bonta, 1998; Glueck & Glueck, 1950; Guerra, 1989), the results of this study support the unique contribution of attitudes to the prediction of criminal behaviour and emphasize the role of antisocial or antiauthority attitudes, values and beliefs in the development and persistence of delinquent behaviour.

Although Hoge and colleagues (1994) considered attitudes independent of family and peer variables, they did not investigate the possible causes of these attitudes that link so strongly to youthful offending. That is, the potential influence of family variables on the development of such attitudes was, and consistently has been, overlooked. In short, there is an obvious need for further research on this issue in order to refine our understanding of the mediators between early experiences and later negative outcomes.

Attitudes in Social Psychology

Over the years, many different definitions for the concept of attitudes have been proposed. The concept of attitudes, regardless of the exact definition of choice, refers overall to a positive or negative opinion about a person, object or event (Eagly & Chaiken, 1993). More than 60 years ago, Allport (1935) described the construct of attitude as the major “building block in the edifice of social psychology” (p. 798). Indeed, psychology’s aim is to explain and predict human behaviour, and attitudes appeared to provide a means for doing so. Since then, an extensive amount of theoretical and empirical support for the link between attitudes and behaviour has emerged, yet debate still exists over the causal mechanisms involved.

Theories of Reasoned Action and Planned Behaviour

One of the most influential theoretical approaches to the understanding of this relationship is that of Ajzen and Fishbein (1980) who proposed the theory of reasoned action and its extension, the theory of planned behavior (Ajzen, 1988), in an attempt to conceptualize the attitude-behaviour relationship (see Figure 1).

Figure 1. Theory of planned behavior. Source: I. Ajzen (1988). *Attitudes, Personality, and Behavior*. Illinois: Dorsey Press.

Based on the assumption that people are rational, information-processing beings who typically consider the implications of their actions before deciding whether or not to engage in a given behaviour, the theory of reasoned action suggests that the immediate determinant of behaviour is an individual's *intention* to perform or not to perform this behaviour. That is, when dealing with willful, or volitional, behaviour "people can be expected to do what they intend to do" (Ajzen, 1988, p. 113).

According to the theory of reasoned action, behavioural intentions are, in turn, determined by the individual's *attitude toward the behavior* and the perceived desires of his or her social influences (*subjective norm*). The concept of attitude refers to the individual's positive or negative evaluation of performing a particular behaviour, and subjective norm relates to the individual's sense of social pressure to perform or not perform the behaviour. That is, intention is formed based on certain social influences and on the individual's attitude toward the behaviour itself.

In order to provide a conceptual framework that considers the problem of behavioural control, Azjen (1988) extended the original model and proposed the theory of planned behavior. This theory includes a third determinant of intention, *perceived behavioral control*. Since personal deficiencies and external obstacles can interfere with the performance of a behaviour, this additional factor considers the individual's perception of how easy or difficult it will be to perform the behaviour in question.

The basic assumption, then, is that individuals form intentions based on favourable attitudes of performing the behaviour, perceptions that important others expect them to engage in the behaviour and beliefs that the behaviour is one that is possible for them to perform.

Empirical Link Between Attitudes and Behaviour

Such theories of the attitude-behaviour relationship have been extensively supported by empirical evidence. For instance, Azjen (1988) provides a review of findings from several studies including those of Fishbein, Thomas, and Jaccard (1976) who investigated this relationship during the 1974 general election in Great Britain. The

results of this study found that voters' attitudes toward voting for or against each candidate and actual voting choice were strongly related ($r = .85$).

A review of the empirical literature on attitudes and the prediction of behaviour (Kraus, 1995) further supports this effect. Kraus' (1995) meta-analysis of 88 attitude-behaviour studies on various topics, such as voting behaviour, church attendance, minority groups and contraceptive use found that attitudes significantly predict future behaviour (mean $r = .38$). This review also considered the practical magnitude of attitude-behaviour correlations, arguing against the percentage of variance interpretation of correlations, which, in this case, would suggest that attitudes account for only 14% of the behavioural variance. Kraus (1995) argues that this form of interpretation is often a misleading indicator of effect size and suggests, instead, other methods for assessing the practical magnitude of correlations, such as the Binomial Effect Size Display (BESD; Rosenthal & Rubin, 1982). In terms of BESD, if the correlation between attitude and behaviour is $r = .38$, then knowledge of a subject's attitude will allow for the correct prediction of behaviour 69% of the time. This level of predictability clearly suggests a significant and practically important relationship. Indeed, given the substantial body of evidence (see Azjen, 1988; Kraus, 1995), the fact that there exists a strong link between attitudes and behaviours seems undeniable.

Criminal Attitudes and Criminal Behaviour

The relationship between attitudes and behaviour has also been widely accepted and supported in correctional theories and research on criminal behaviour and delinquency. Although the terms used in reference to the criminal attitude construct range from "antisocial attitudes" (Andrews & Bonta, 1998) to "social cognition"

(Blackburn, 1993), the underlying conceptual constructs seem to be similar. The term *criminal attitude*, which broadly encompasses the attitudes, values, beliefs and rationalizations supportive of criminal behaviour, has been well established in the literature (Simourd, 1996; Simourd & Olver, 2002) and was, therefore, used in this study.

Theoretical Perspectives of Criminal Attitudes

Criminal attitudes are a fundamental construct in almost all traditional criminological theories (Nettler, 1978), such as strain (Cloward, 1959), control (Hirschi, 1969) and differential association (Sutherland, 1947) theories. For instance, Sutherland's (1947) theory of differential association explains that criminal behaviour is learned through various interactions with peers, or within intimate social groups. This learning includes the practices, motivations, rationalizations and attitudes underlying criminal conduct. Furthermore, Andrews and Bonta's (1998) general personality and social psychology perspective suggests that several influences contribute to an individual's deviant behaviour; attitude is considered to be one of the "big four" risk factors, having a strong influence during the "psychological moment" of criminal behaviour, which involves the combination of temptations, inhibitions and stressors that guide behaviour at any given moment.

Within the context of Ajzen and Fishbein's (1980; Ajzen, 1988) theories of reasoned action and planned behavior, criminal attitudes may be functionally represented as the *attitude toward behavior*, *subjective norm*, and *perceived behavioral control* components of the model. That is, criminal attitudes represent the combination of an individual's favourable or unfavourable attitude toward performing a given criminal act, his or her perception of the relevant social influences to perform or not perform the

behaviour, and his or her perception of the ease or difficulty of achieving the behaviour goal (e.g., Simourd, 1997).

Criminal Attitude Research

In terms of theory, then, the possibility for the relationship between criminal attitudes and deviant behaviour has been clearly established. However, an understanding of the empirical link between criminal attitudes and behaviour provides even stronger support. Literature reviews, designed to provide a summary of the research on a particular topic, are very useful for reinforcing the argument for an attitude-behaviour relationship. Meta-analytic reviews are preferred over traditional narrative reviews in this respect, because they summarize large bodies of literature on the subject of interest. In short, meta-analyses provide the standardized difference between two comparison groups for each study included and these differences are then aggregated into a quantitative index of the degree of association (effect size) between, for example, criminal behaviour and a particular risk factor.

Several meta-analyses of the predictors and/or correlates of criminal behaviour highlight the importance of criminal attitudes, thus strengthening the support for a criminal attitude-behaviour relationship. In an investigation of the predictors of adult recidivism, Gendreau, Little, and Goggin (1996) reviewed 131 studies between 1970 and 1994 and found that "criminogenic need" (which combined measures of criminal peers and criminal attitudes) was the strongest predictor of recidivism ($r = .17$), having a greater effect size than criminal history ($r = .16$), social achievement ($r = .15$), family factors ($r = .12$), intelligence ($r = .07$), substance abuse ($r = .14$), personal distress ($r = .06$) and socioeconomic status ($r = .06$). In a meta-analysis of 39 studies on the

predictors of prison misconduct, Gendreau, Goggin, and Law (1997) found that criminal attitudes and behaviour ($r = .13$) were the strongest predictors, along with age ($r = -.14$) and criminal history ($r = .13$).

In terms of juvenile delinquency, meta-analyses have revealed a similar pattern of results. Simourd and Andrews (1994) reviewed 60 studies on the correlates of delinquency. The risk factors under investigation were grouped into several distinct domains: social class, family or parental factors, personal distress, educational/vocational achievement, parent-child relations, minor personality variables, temperament and antisocial peers or attitudes. The greatest effect size was found for the antisocial peers or attitudes domain (females, $r = .39$; males, $r = .40$). Also noteworthy is the fact that this review found no gender differences on either the ranking or magnitude of the effects of the risk factors across domains.

Cottle and colleagues (2001) reviewed 23 studies on risk factors associated with juvenile delinquent recidivism and found that juveniles with “delinquent peers” ($Z_r = .20$) were at increased risk of recidivism (a specific criminal attitude variable was not considered). This proxy criminal attitudes variable was included in the family and social factors domain, the second strongest group of predictors behind criminal history.

Overall, these meta-analyses provide strong support for the inherent importance of criminal attitudes in the understanding and prediction of a range of criminal behaviours.

Assessment of Criminal Attitudes

Unfortunately, the criminal attitude construct, although both theoretically and empirically supported, has been overlooked in the standard assessment and treatment of individuals displaying antisocial or criminal behaviours. For this reason, researchers

have made encouraging attempts to expand our knowledge of the dimensions underlying the criminal attitude construct (Kroner & Mills, 1998; Simourd, 1996; Simourd, 1997; Simourd & Olver, 2002). Two popular assessment instruments to have emerged from such research are the Criminal Sentiments Scale-Modified (CSS-M) and the Pride in Delinquency scale (PID).

The CSS-M (Shields & Simourd, 1991) is a modified version of the original Criminal Sentiments Scale (CSS; Gendreau, Grant, Leipziger, & Collins, 1979). It is a 41-item self-report inventory that measures antisocial attitudes, values and beliefs directly related to criminal behaviour. These 41 items yield 5 subscales: Attitudes Toward the Law (Law; e.g., "Pretty well all laws deserve our respect"), Court (Court; e.g., "Almost any jury can be fixed"), Police (Police; e.g., "The police are honest"), Tolerance for Law Violations (TLV; e.g., "A hungry man has the right to steal") and Identification with Criminal Others (ICO; e.g., "People who have broken the law have the same sorts of ideas about life as me"). The first three subscales combine to form the Law-Court-Police (LCP) subscale, which considers respect for the law and criminal justice system. The TLV subscale follows Sykes and Matza's (1957) theory of the concept of neutralization, which refers to specific justifications for criminal behaviour. Finally, the Identification with Criminal Others (ICO) subscale assesses personal evaluations or judgements that individuals make with reference to law violators. This subscale may reflect a type of "criminal subculture", whereby there exists a common value system (criminal values) among individuals and these values (e.g., aggression, hostility) deviate from generally accepted social norms or expectations (Cochrane, 1974).

The CSS has been used in many studies with varying populations, including probationers, provincial prisoners, federal inmates, young offenders, forensic prisoners, university students and community volunteers (Wormith & Andrews, 1995). Simourd (1997) explored the utility of the CSS-M among a sample of 114 Canadian federally incarcerated offenders. This study examined the psychometric properties and construct validity of the measure. The results showed acceptable levels of internal reliability ($\alpha = .73$) and modest correlations among the subscales. Also, the CSS-M's convergent validity was supported with several well-established criminal risk measures, including the Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995). Finally, the relationship between the CSS-M and various offense-based criteria was not strongly supported, with the exception of institutional misconducts (CSS-M total score, $r = .27$; LCP subscale, $r = .23$; ICO subscale, $r = .33$). Simourd (1997) suggests one reason for this last result may relate to the measurement difficulties inherent in attempts at disentangling the functional mechanisms involved in all attitude-behaviour relationships. In short, stronger links between attitude measures and criminal conduct criteria may result with the additional use of measures of intention, which is often considered to be more directly related to behaviour (Ajzen & Fishbein, 1980).

In 1999, Simourd and van de Ven further investigated the criterion-related validity of the CSS-M with a sample of 141 federally incarcerated male offenders. This study reported reasonable internal reliability for the total sample ($\alpha = .75$), and separately for violent ($\alpha = .73$) and nonviolent ($\alpha = .75$) offenders. The results also showed that the CSS-M was most strongly related to criminal behaviour, primarily total number of incarcerations (CSS-M total score, $r = .22$; ICO subscale, $r = .30$) and institutional

misconducts (CSS-M total score, $r = .25$; LCP subscale, $r = .23$; ICO subscale, $r = .35$), among violent offenders. Finally, the CSS-M significantly predicted recidivism among violent offenders ($\beta = .30$).

Simourd and Olver's (2002) investigation of the underlying dimensions of the criminal attitude construct uncovered four factors which were all linked to criminal conduct: generic criminal attitudes, specific attitudes about the law, generic rationalizations consistent with criminal subcultures and criminally oriented self-views (i.e., a criminal self-concept). These four factors were the result of exploratory factor analyses on the subscales of the Criminal Sentiments Scale-Modified (CSS-M: Shields & Simourd, 1991) among a sample of 381 violent male offenders. The results of this study are encouraging in that they provide direction as to the more significant dimensions of the criminal attitude construct, which has been established both theoretically and empirically as an important and relevant assessment area among offenders.

The Pride in Delinquency scale (PID; Shields & Whitehall, 1991) was developed to complement the CSS in the assessment of criminal attitudes. The PID is a 10-item self-report instrument that measures an individual's degree of pride or shame in committing certain criminal behaviours. This measure was originally designed to augment the CSS-M in the measurement of criminal attitudes among young offenders, but has now been extended to adult populations. Factor analytic research with adult offenders (Simourd, 1997) has shown that the items of the PID yield two factors, one reflecting attitudes toward criminal offenses and the other representing attitudes characteristic of a criminal subculture. This study also reported acceptable internal consistency ($\alpha = .75$) and modest to strong correlations between factors. Furthermore,

the PID showed strong convergent validity with several well-established criminal risk measures and the PID total score showed significant low-moderate correlations with a variety of criminal conduct criteria, including total number of convictions ($r = .24$) and number of different offenses ($r = .22$).

Simourd and van de Ven (1999) extended the research on the PID scale by investigating the criterion-related validity of this criminal attitude measure among serious violent and nonviolent offenders ($N = 141$). Estimates of internal reliability for the PID were at acceptable levels for the total sample ($\alpha = .76$), and separately for violent and nonviolent offenders ($\alpha = .76$ and $\alpha = .75$, respectively). Overall, this study found that the PID was significantly related to criminal behaviour (e.g., total number of different offences, $r = .41$, and total number of incarcerations, $r = .37$) and predicted recidivism among nonviolent offenders ($\beta = .44$). Interestingly, Simourd and van de Ven (1999) note that, although evidence of the construct validity of this measure is limited, the PID appears to assess more of a criminal subcultural construct rather than attitudes toward the criminal behaviour itself. This idea of a criminal subculture construct reconfirms the aforementioned theories on deviant values, such as impulsivity and hostility (Cochrane, 1974), and speaks to the 'criminal values' component inherent in the broad conceptualization of "criminal attitudes" as attitudes, values, beliefs and rationalizations supportive of criminal behaviour.

Hostility

Hostility and Negative Outcomes

Along with criminal attitudes, hostility has emerged as an important cognitive construct in the understanding of deviant and offending behaviours. In fact,

anger/hostility is one construct that has been linked to a variety of negative outcomes. The results of several reviews have shown a significant relationship between anger/hostility and several negative physical, emotional and behavioural outcomes. For instance, Booth-Kewley and Friedman's (1987) meta-analysis of 83 studies on psychological variables that best predict coronary heart disease found that measures of anger/hostility ($r = .14$) were the third strongest personality-type predictor following depression ($r = .21$) and Type A behaviour pattern ($r = .14$). Furthermore, when anger and hostility were considered separately, hostility ($r = .16$) had a greater effect size than anger ($r = .08$). A more recent meta-analytic review of research on hostility and physical health (Miller, Smith, Turner, Guijarro, & Hallet, 1996) extended and reconfirmed the results of previous reviews (e.g., Booth-Kewley & Friedman, 1987). Overall, the results of Miller et al.'s (1996) review of 45 cross-sectional and prospective studies confirm the relationship between various measures of hostility and physical health, with hostility being a robust and independent risk factor for the development of coronary heart disease (CHD) and premature mortality.

Gendreau et al. (1996) investigated the predictors of adult offender recidivism and found that anger/hostility is linked to offending behaviour as evidenced by the weighted effect size of a proxy hostility variable, "interpersonal conflict" ($r = .12$). This anger/hostility variable emerged behind the more dominant predictors of recidivism, such as antisocial peers ($r = .21$), antisocial personality ($r = .18$) and the broader domain of antisocial attitudes ($r = .18$).

Hostility: Conceptual Distinctions

Early research (Buss & Durkee, 1957) attempted to assess the various aspects of hostility, but failed to distinguish between hostility and other related, but clearly distinct, processes. For example, Buss and Durkee (1957) conceptualized hostility as a general construct with several different components, including, but not limited to, Assault and Irritability. The Assault subscale refers to physical violence against others, and the Irritability subscale is defined as “a readiness to explode with negative affect at the slightest provocation” (Buss & Durkee, 1957, p. 343). In this instance, the researchers have conceptualized hostility by referring to the related behavioural and emotional or affective states, but have neglected to focus on the underlying mechanisms of hostility, itself. On the other hand, the fact that the Hostility inventory (Buss & Durkee, 1957) is divided into seven scales (Assault, Indirect Aggression, Irritability, Negativism, Resentment, Suspicion and Verbal Aggression) allows researchers to investigate not only aggressiveness of individuals but also how the aggression is manifested.

Buss and Perry (1992) acknowledged the limitations of this original study and extended the research on aggression and hostility with the development of a new aggression questionnaire. The development of the Aggression Questionnaire (Buss & Perry, 1992) involved factor analyses which yielded four scales: Physical and Verbal Aggression, which involve hurting or harming others, and correspond to the instrumental or motor component of behaviour; Anger, which includes physiological arousal and reflects the emotional or affective component of behaviour; and finally, Hostility (a combination of Resentment and Suspicion), which involves feelings of animosity and injustice, and represents the cognitive or attitudinal component.

Furthermore, the results of Buss and Perry's (1992) research suggest that anger is the link between physical and verbal aggression and hostility. Specifically, Verbal and Physical Aggression were closely related but only moderately correlated with Hostility ($r = .25$ and $r = .28$, respectively), whereas Anger correlated strongly with Hostility, Physical and Verbal Aggression ($r = .45$, $r = .48$ and $r = .48$, respectively). Furthermore, when Anger was partialled out, the correlations between Hostility and both Physical and Verbal Aggression were severely attenuated ($r = .08$ and $r = .05$, respectively).

Consistent with this, clearer conceptual and empirical distinctions have been made between hostility and the related emotional, cognitive and behavioural processes. For instance, anger/hostility is one psychological variable that has been consistently linked to aggression, with anger being conceptualized as the emotional arousal of irritability and hostility as the complex set of attitudes that motivates aggressive behaviour (Spielberger, Johnson, Russell, Crane, Jacobs, & Worden, 1985). That is, anger is emotional, hostility is cognitive and aggression is the ensuing behaviour. Although such clear conceptual distinctions now exist, there is no doubt that these constructs are also strongly related and often co-occur (Buss, 1961).

It has been further suggested that, as an emotion, anger arousal may be a more stable and enduring (i.e., static) personality trait, whereas hostility is a more dynamic and changeable attitudinal construct (Simourd & Mamuza, 2000). Consistent with this, Gustavsson, Pedersen, Asberg, and Schalling (1996) investigated the possibility that anger and hostility could be hereditary. They found an individual's proneness to anger to be attributed to inheritance, or genetic factors, whereas hostility was attributable to early and later life environmental factors.

Family and Hostility

Indeed, family and early environmental factors have emerged in the literature as key determinants of hostility. There exist several theoretical frameworks for understanding the relationship between parental behaviour and the development of hostility (Thoresen & Pattillo, 1988), including Bowlby's (1969, 1973, 1980) theory of attachment, which suggests that an individual's experiences during early childhood influence the ways in which they function later in life. That is, early parent-child attachment relationships influence the development of *internal working models of self and others*, or mental representations and expectations. In turn, these working models influence an individual's expectations and beliefs about themselves (self-concept) and developing view of the social world.

Consistent with this theory, research has proposed that the development of hostility begins in childhood in the form of feelings of insecurity and negative attitudes toward others, which develop in response to a variety of family and parental factors, including lack of acceptance, overly strict, critical, and demanding of conformity, and inconsistent disciplinary treatment (Houston & Vavak, 1991).

In fact, it has been suggested that the well-known risk factors for the development of aggressive behaviour problems, such as abusive parental behaviour, predispose children to hostility. For example, Weiss, Dodge, Bates and Pettit (1992) investigated the relationship between early harsh discipline and later aggression in a longitudinal study with two separate cohorts of children ($N = 526$). Results showed that the effect of harsh discipline on child aggression was mediated in part by maladaptive social information processing patterns that develop as a consequence of the parental abuse.

Theories of Aggression

Aggression, as the behavioural manifestation of anger and hostility (Speilberger et al., 1985), has attracted considerable theoretical, empirical and clinical attention. Moreover, anger and hostility have emerged as fundamental psychological determinants of aggression and, as such, have been included in several theories on the development of aggression. According to Dollard, Doob, Miller, Mowrer and Sears' (1939) classic theory of the frustration-aggression hypothesis, people become irritable when their goals are impeded, which subsequently leads to aggression. Bandura's (1973) social learning theory suggests that aggressive behaviour is learned directly or vicariously through observation from environmental experiences that provide either reinforcement or punishment for a particular behaviour.

More recent theories have extended the role of antecedents and consequences of behaviour by emphasizing the cognitive and emotional factors involved. For instance, Bandura's (1986) expanded social learning theory of aggression explains that cognitive evaluations of environmental stimuli and emotional appraisals of perceived responses (self-efficacy) play a significant role in behaviour. In the same respect, Huesmann (1988) suggests that social behaviour is reflective of learned response patterns to social stimuli, which he refers to as cognitive scripts.

Most current studies of the social cognition elements involved in aggressive behaviour are based on Dodge's model of social information processing (Dodge, 1986) and a reformulation of this model by Crick and Dodge (1994). The models suggest that social information must be processed in a particular way for an individual to react appropriately to social situations. That is, defective cognitive processing results in

misinterpretations of other people's intentions, or biased attributions of intent (Dodge, 1980). In short, information processing is said to begin with the social information, or cues, being encoded accurately and the encoded information being correctly represented and interpreted. An interaction goal is then specified and response alternatives generated. These response alternatives have to be evaluated and an optimal response has to be selected from these. Finally, the selected response is carried out. According to Dodge (1986), deficits and biases in processing social information at any or all of these steps may result in aggressive behaviour.

Anderson and Bushman (2002) have proposed another model that identifies hostile attribution bias as a significant determinant of aggression. This general aggression model (GAM) is a theoretical framework, designed to integrate the existing domain-specific theories into a more general theory of human aggression. Overall, this model suggests that various person and situational input variables lead to aggressive (or nonaggressive) behaviour by influencing cognition, affect and arousal. For instance, certain input variables may increase the likelihood of hostile cognitions (e.g., hostile attribution bias) or anger, which would then have an impact on decisions to respond with aggression.

Hostile Attribution of Intent

Indeed, through the work of Dodge and colleagues, hostile attribution bias (Nasby, Hayden, & DePaulo, 1979) has become a dominant perspective in theoretical explanations of the development of aggressive and antisocial behaviour and, as such, provides another theoretically relevant framework for understanding hostility. According to Dodge (1980), the hostile attribution of intent, or hostile attribution bias, of aggressive

children is one of the reasons for their aggressive behaviour. That is, aggressive children's representations of social information (i.e., other people's intentions) are biased such that they are 50% more likely than other children to attribute hostile intentions to others and interpret ambiguous social situations as provocative (Dodge, 1980; Dodge & Newman, 1981; Waas, 1988). Accordingly, aggressive children with these hostile attributional tendencies are more apt to experience behavioural difficulties in social interactions.

These initial findings have been extensively supported (e.g., Dodge, 1980; Dodge & Frame, 1982; Dodge, Murphy, & Buchsbaum, 1984; Dodge, Pettit, McClaskey, & Brown, 1986) and research has further demonstrated hostile attribution bias among psychiatrically disordered aggressive children and adolescents (Milich & Dodge, 1984), adults (Epps & Kendall, 1995), juvenile offenders (Dodge, Price, Bachorowski, & Newman, 1990; Slaby & Guerra, 1988) and adult offenders (Copello & Tata, 1990).

In the most recent meta-analysis, Orobio de Castro, Veerman, Koops, Bosch, and Monshouwer (2002) reviewed 41 studies and found a robust significant association between hostile attribution of intent to peers and children's aggressive behaviour ($r = .17$). They note that this effect size should be interpreted cautiously, because effects differed considerably between studies, ranging from $r = -.29$ to $r = .65$, and further established that the large differences in effect sizes between studies were due to variations in study characteristics (e.g., staging of actual social interactions was associated with larger effects than video, picture or audio presentation). Orobio et al. (2002) also propose that, in theory, a number of child characteristics may be expected to influence the strength of this relationship. Thus, they investigated potential moderators

of the overall relation between hostile attribution of intent and aggressive behaviour and found, for example, that larger effects were associated with more severe aggressive behaviour. That is, results showed the relation between hostile attribution of intent and aggressive behaviour to be stronger with larger differences between children in terms of severity of aggressive behaviour problems.

Particularly relevant to the proposed study is the research with aggressive adolescents and juvenile offenders. Slaby and Guerra (1988) compared cognitive mediational patterns of antisocial aggressive juvenile offenders with those of high-aggressive and low-aggressive high school students ($N = 144$). This study found that high levels of aggression were associated with low display of problem-solving skills and with high endorsement of beliefs supporting aggression. For example, antisocial aggressive adolescents were most likely (and low-aggressive individuals were least likely) to solve social problems by defining problems in hostile ways, adopting hostile goals, and were also more likely to possess a set of beliefs supporting the use of aggression. Furthermore, across all aggression groups, males displayed less extensive skills in solving problems and were more likely to hold beliefs supporting the use of aggression as a legitimate response than were females. On the other hand, females were more likely than males to hold the belief that victims deserve to be victimized.

Dodge, Price, Bachorowski and Newman's (1990) research on hostile attributional biases in severely aggressive adolescents further improved our understanding of the relationship between hostility and aggression. This study distinguished between several forms of aggressive behaviour in a sample of 128 male juvenile offenders and found that hostile attributional biases, having been associated with

interpersonal conflict and aggression, were significantly related to undersocialized aggressive conduct disorder, to reactive-aggressive behaviour and to the number of interpersonally violent crimes committed. On the other hand, hostile attributional biases did not relate to nonviolent crimes or to socialized aggressive behaviour disorder. In short, these findings support the idea that hostile attributional tendencies mediate angry, reactive (interpersonally hostile) aggressive behaviours, but that this mediating role is less significant for nonangry, proactive (instrumental) aggression.

From another perspective, Hanson, Henggeler, Haefele, and Rodick's (1984) conclusions suggest that socialized aggressive adolescents are "socialized" in terms of their loyalty to and strong involvement in a delinquent peer group. Furthermore, they underline that the peer group is important to psychosocial development because it provides adolescents with such things as emotional support and behavioural norms (Panella, Cooper, & Henggeler, 1982); the group behavioural norms within peer groups of delinquent adolescents typically conflict with societal norms. For adolescents with some form of socialized aggression, the aggressive behaviour often serves an adaptive function because it is common among deviant peers and thus elicits peer support and acceptance (Hanson et al., 1984). As noted earlier, the underlying cognitive aspects of aggression, such as hostility, will also conflict with generally accepted social norms (Cochrane, 1974) and will likely be common within the delinquent peer group. Finally, research findings suggest that family and parental factors, such as poor parental discipline and supervision (e.g., McCord, 1979), might encourage the adolescent's early identification and involvement with delinquent peers.

It should be noted that, although these results are useful in terms of understanding the relation between hostile attributional biases and interpersonal aggression, we cannot overlook the fact that social information-processing theories of interpersonal behaviour (e.g., Dodge et al., 1986; McFall, 1982; Nasby et al., 1979) consider several possible mechanisms for behavioural responses. Further, both theory and research suggest a complex and interacting set of physical, psychological and environmental determinants of interpersonal aggression and antisocial behaviour. The assessment of constructs such as hostility will allow for a better understanding and will further the research in this area.

Assessment of Hostility

While several assessment inventories exist that measure anger/hostility, few were developed from a guiding theoretical framework. Following from this, more recent research on the assessment of hostile interpretations has introduced an alternative anger/hostility instrument, which is theoretically based on both social information-processing perspectives and hostile attribution bias (Nasby et al., 1979). The Hostile Interpretations Questionnaire (HIQ; Mamuza & Simourd, 1997; Simourd & Mamuza, 2002) is a vignette-style inventory designed to measure overall level of hostile interpretations, the social situations in which such interpretations occur and the different characteristics of the hostility. The HIQ consists of a total score and nine subscales. The HIQ Total score measures the overall level of hostile interpretations. Five subscales are used to measure hostile interpretations in different social situations (i.e., sources of hostility), including: authority relationships (hostility toward authority figures), intimate/family relationships (hostility in close interpersonal relationships), acquaintance relationships (hostility in distant interpersonal relationships), work relationships (hostility

in work relationships) and anonymous relationships (hostility in stranger interactions). There are also four subscales used to assess hostility subcomponents (i.e., thinking errors of hostility), including: overgeneralization (pervasive hostility attributed to others based on limited information), attribution of hostility (degree to which respondent attributes hostility to others in interactions and across a variety of social situations), hostile reaction (likelihood of responding in a hostile manner) and external blame (degree of blame toward others for own hostility).

The purpose of using vignettes for the HIQ was to disguise the content of the instrument in order to minimize response bias. Furthermore, the social situations outlined in the vignettes were based on clinical experience of common social situations for offenders (Simourd & Mamuza, 2000).

Simourd and Mamuza's (2000) research on the assessment of anger/hostility in a sample of 146 violent offenders found that the Hostile Interpretations Questionnaire (HIQ) had acceptable internal reliability ($\alpha = .86$) and there were modest correlations between subscales. Also, the HIQ demonstrated construct validity with relevant anger/hostility measures, including the Aggression Questionnaire (AQ; Buss & Perry, 1992) and the Novaco Anger Scale (NAS; Novaco, 1994). Finally, this study investigated the relationship between hostility, as measured by the HIQ, and various criminal conduct-outcome criteria. Overall, the HIQ was uncorrelated with offense conviction and misconduct variables. Simourd and Mamuza (2000) suggest that this weak relationship was expected, given the complexities of criminal behaviour and the various psychological and environmental risk factors involved. Furthermore, research findings have consistently failed to support a link between anger/hostility and distal

criminal conduct criteria (i.e., long-term recidivism, previous criminal convictions). On the other hand, there is evidence (Welsh & Gordon, 1991; Zamble & Quinsey, 1997) for a strong relationship between anger/hostility and proximal aggressive and/or criminal behaviour. In other words, anger/hostility demonstrates stronger short-term versus long-term predictive accuracy, which is consistent with the idea that anger/hostility is both complex and dynamic (Simourd & Mamuza, 2000).

Salekin, Ogloff, Ley and Salekin (2002) considered the earlier work of Megargee (1966), who distinguished between overcontrolled and undercontrolled personalities among extremely aggressive individuals. Megargee developed a typology that describes overcontrolled individuals as having an extremely strong defense system against the expression of aggressive impulses. It is suggested that this overcontrol is maintained until the limits of such defenses are significantly strained or exceeded. On the other hand, undercontrolled individuals are described as lacking aggressive impulse control. Unable to adequately control aggressive impulses, these individuals typically have an extensive history of violent, assaultive behaviour. Based on this typology, Megargee, Cook, and Mendelson (1967) developed the Overcontrolled Hostility scale (O-H scale), which identifies the overcontrolled individual and has been validated by numerous studies (Blackburn, 1968; Verona & Carbonell, 2000).

Salekin and colleagues (2002) reasoned that the underlying personality and coping strategies of an overcontrolled individual are likely to originate in childhood and should, therefore, also be evident during adolescence at cognitive, emotional and behavioural levels. Thus, they extended the existing research on overcontrolled hostility in adolescents by examining the validity of Megargee's Overcontrolled Hostility Scale

for use with a delinquent and violent adolescent population. The sample consisted of 72 adolescent males in the following four different groups: (a) 18 adolescents convicted of murder, (b) 18 violent adolescents not convicted of murder but convicted of assault, (c) 18 adolescents convicted of property offenses (with no history of assaultive behaviour) and (d) 18 adolescent nonoffenders. Although the results of this study were statistically nonsignificant due, perhaps, to small sample size, moderate to large effect sizes were found between adolescent murderers and all other adolescent groups on the O-H scale (murderers and violent offenders, $d = .76$; murderers and property offenders, $d = .49$; murderers and nonoffenders, $d = .70$). The results of this study are consistent with Megargee's (1966) earlier research findings that adolescent murderers were less hostile, less aggressive, and more controlled in comparison to other adolescent criminal groups. Such findings have important implications and suggest that the use of the O-H scale and other hostility assessment instruments may be both appropriate and useful in adolescent populations.

Summary

In short, theory and research have established a relationship between family background factors, both structural and functional, and later behavioural problems and criminal offending, although this link does not appear to be as direct as some have suggested. Furthermore, criminal attitudes show strong links, both theoretically and empirically, to criminal behaviour, although the precise causal mechanisms involved in this attitude-behaviour relationship remain unclear. Finally, it appears as though family environment and parental variables predispose children to maladaptive social information processing patterns, such as hostile attribution tendencies, which, in turn, are related to

behavioural problems, such as aggression. Thus, antisocial cognition may be a significant factor in the development and persistence of maladaptive, aggressive and antisocial behaviour over time. In fact, it may be the case that the development of criminal attitudes and/or hostility plays a mediating role in the relationship between family background variables and later behavioural problems and delinquency. In other words, it may be the development of antisocial cognition that supports and maintains this behaviour. For instance, an individual might desist from criminal behaviour due to a lack of antisocial cognition despite the fact that their family environment or background was abusive or dysfunctional. Understanding the intermediate influence or moderating effect of criminal attitudes and the etiological factors that give rise to hostility will allow for a better understanding of the link between early childhood experiences and later negative outcomes.

Purpose of this Study and Research Hypotheses

This study investigated the relationships between negative developmental factors, antisocial cognition and antisocial behaviour among adolescents using a retrospective design. This study extended the existing research on structural and functional family factors, hostility, criminal attitudes and antisocial behaviour by empirically investigating whether family background factors influence an adolescent's level of hostility and criminal attitudes. Furthermore, this study examined the influence of antisocial cognition on antisocial behaviour, including juvenile delinquency and interpersonal violence. Finally, this study explored the relationships between family background factors and antisocial behaviour in an attempt to provide a better overall understanding of the

development of antisocial cognition and behaviour. Based on the existing theory and research, the following predictions were made:

- Hypothesis 1: There will be a positive relationship between the number of negative background factors and the level of antisocial cognition. That is, adolescents who report a greater number of negative background factors (e.g., abuse, lack of supervision) will have higher levels of antisocial cognition.
- Hypothesis 2: There will be a stronger relationship between negative *functional* family variables and antisocial cognition than between negative *structural* family variables and antisocial cognition. That is, adolescents who report a greater number of negative *functional* family variables (e.g., poor parent-child relations) will have higher levels of antisocial cognition than adolescents who report only negative *structural* family variables (e.g., low socioeconomic status).
- Hypothesis 3: Adolescents with a higher level of antisocial cognition will report engaging in more antisocial behaviour, including interpersonal violence and delinquency.
- Hypothesis 4: There will be a stronger relationship between hostility and interpersonal violence as compared to criminal attitudes.
- Hypothesis 5: There will be a stronger relationship between criminal attitudes and juvenile delinquency as compared to hostility. Furthermore, there will be a positive relationship between the level of criminal attitudes and the diversity of juvenile delinquency. That is, adolescents endorsing higher

levels of criminal attitudes will report committing a greater variety of delinquent acts.

Methods

Sample

Data for this study was obtained from an archival database consisting of 507 adolescents from correctional, clinical and non-clinical populations who were assessed by a child-adolescent research agency in Santa Barbara, California. The different groups of adolescents were not identified in the database; therefore, the sample could not be subdivided for specific analyses. Within the sample, 49.3% of the adolescents were male ($n = 250$), 39.8% were female ($n = 202$) and 10.8% did not specify their gender ($n = 55$). The mean age of the total sample was 15 years ($SD = 1.31$), with a mean age of 15.15 ($SD = 1.34$) for males and 14.80 ($SD = 1.23$) for females.

In terms of educational level, 58.4% ($n = 296$) of the adolescents were in the 9th grade, 9.5% ($n = 48$) were in the 10th grade, 11.4% ($n = 58$) were in the 11th grade, 10.3% ($n = 52$) were in the 12th grade, 0.6% ($n = 3$) were in an ungraded class and 9.9% ($n = 50$) did not specify a grade level. With respect to learning disorder diagnosis, only 6.7% ($n = 34$) of the adolescents reported having a learning disorder, with 4.3% ($n = 22$) reporting Attention Deficit Disorder (ADD), 1.6% ($n = 8$) Dyslexia, 0.2% ($n = 1$) Hyperactivity and 0.6% ($n = 3$) Other.

Materials

Psychosocial history information. The Adolescent Demographic – Background Information self-report questionnaire included questions pertaining to the age, gender and educational level of the participants. Furthermore, family and background information

was obtained, such as history of abuse, foster care and parental variables. Finally, behavioural information was obtained, such as history of interpersonal violence and juvenile delinquency (see Appendix A).

Family background variables

For the purposes of the present study, the family background variables have been classified as either *structural* or *functional*. The items comprising the family background variables are outlined in Appendix B. Following from the literature previously reviewed, the *structural* variables reflect the overall organization of the family and family environment, including: family structure, socioeconomic status and family deviance.

All of these combine dichotomous/quantitative indicators coded as dummy variables for which 1 indexes the presence of the characteristic or circumstance and a 0 its absence. Specifically, the family structure variable is based on information pertaining to the adolescent's living situation prior to 16 years of age. This variable measures whether or not the adolescent was raised in a home in which one or both biological parents were absent (range = 0-1), was adopted (range = 0-1) or was placed in a foster home before age 16 (range = 0-1). In addition, the frequency (number) of foster home placements is included.

The socioeconomic status variable considers the adolescent's history of living conditions and indicates whether or not the adolescent has a history of low income living conditions (range = 0-1), including: whether the adolescent has ever been homeless, has ever lived in a housing project or has ever lived in a trailer park. In addition, socioeconomic status considers parental unemployment status (range = 0-1).

Finally, family deviance indicates a family history of behavioural or emotional problems, substance abuse (alcohol or drugs), suicidal behaviour (attempt and commit) and violent behaviour (range = 0-5).

The *functional* variables refer to family processes and quality, and include: parental involvement and supervision, parent-child relations, abuse and/or neglect and family violence. In order to extend the existing research on the unique influences of mothers and fathers, the parental involvement and supervision and parent-child relations variables were measured separately for mothers and fathers. Again, all of these combine dichotomous indicators coded as dummy variables for which 1 indexes the presence of the characteristic or circumstance and a 0 its absence.

Parental involvement and supervision (overall range = 0-8; mother, range = 0-4 and father, range = 0-4) assess whether or not the parents monitor the adolescent's school performance, location/activities and friends. Furthermore, this variable measures parental approval of the adolescent's friends. Parent-child relations (overall range = 0-6; mother, range = 0-3 and father, range = 0-3) are measured based on the adolescent's perception of whether or not their mother/father is a person that they could go to for information or advice, for help with a problem or trouble at home, or to talk with if involved in serious trouble. The abuse and/or neglect variable (range = 0-2) measures whether or not the adolescent was ever abused as a child and also considers whether or not the adolescent reports experiencing verbal/emotional abuse or neglect, physical abuse or neglect and/or sexual abuse. An additional question relating to whether or not the adolescent has been a victim of violence by a family member specifically is also used as an indicator of abuse. Finally, family violence (range = 0-1) is measured by whether or not the adolescent has

ever witnessed violence in the home and if the adolescent reports the type of violence witnessed.

Behavioural outcome variables

The items comprising the behavioural outcome variables are displayed in Appendix B. The behavioural outcome variables reflect the adolescent's history of interpersonal violence and juvenile delinquency. A proxy measure of interpersonal violence was used to measure interpersonally violent and nonviolent outcome (0-1). This variable considers whether the adolescent has ever been violent toward a friend or someone they cared about and if they report having committed any acts of interpersonal violence (e.g., beat someone up, knifed someone). This variable also includes whether the adolescent reports having committed specific interpersonally violent offences (e.g., aggravated assault, homicide, rape).

The juvenile delinquency outcome considers whether the adolescent has ever been arrested (including number of arrests). In addition, there is a diversity of juvenile delinquency outcome variable, which examines the number and diversity of antisocial acts or offences committed.

Antisocial cognition measures. The Criminal Sentiments Scale-Modified (CSS-M; Shields & Simourd, 1991) is a 41-item self-report instrument that measures attitudes, values and beliefs related to criminal behaviour. This measure yields a total score and three subscale scores labelled law-court-police (LCP), tolerance for law violations (TLV) and identification with criminal others (ICO). In scoring the CSS-M, agreement with an antisocial statement (or rejection of a prosocial statement) yields 2 points, whereas rejection of an antisocial statement (or acceptance of a prosocial statement) results in a

score of 0. Undecided responses are scored as 1. Higher scores, therefore, reflect greater criminal attitudes. Research (Shields & Simourd, 1991; Simourd, 1997; Simourd & Olver, 2002; Simourd & van de Ven, 1999) suggests that the CSS-M is a reliable and valid measure of criminal attitudes and can be used to predict criminal behaviour among serious violent adult offenders. Simourd and colleagues (Simourd & Olver, 2002; Simourd & van de Ven, 1999) have reported internal consistency estimates (Cronbach Alpha) ranging from 0.75 to 0.91 (see Appendix C).

The Pride in Delinquency scale (PID; Shields & Whitehall, 1991) is a 10-item inventory that assesses the degree of pride or shame in committing hypothetical behaviours. Ratings are scored on a 21-point Likert-type scale from -10 to +10 with negative numbers (-1 to -10) reflecting shame in committing the behaviour and positive numbers (+1 to +10) reflecting pride in committing the behaviour. Scores of 0 indicate the respondent is undecided. Item scores are summed and added to a constant of 100 so that all total scores are positive. Thus, higher scores indicate greater criminal attitudes. Previous factor analytic research (Simourd, 1997) among violent offenders has shown that the PID consists of two factors, with Factor 1 being an Attitude Toward Offenses factor and Factor 2 a Criminal Subculture factor. Consistent with other research (e.g., Simourd & van de Ven, 1999), this factor structure was used for the purposes of the present study. Research among young offenders (Shields & Whitehall, 1991) and serious adult violent and nonviolent offenders (Simourd, 1997; Simourd & van de Ven, 1999) has found the PID to possess acceptable psychometric properties and construct validity, with alpha coefficients ranging from 0.75 to 0.76 (see Appendix D).

The Hostile Interpretations Questionnaire (HIQ; Mamuza & Simourd, 1997; Simourd & Mamuza, 2002) is a 28-item self-report inventory consisting of seven vignettes representing a broad range of common social situations (e.g., "Fred goes to his mother's house for dinner one night and all his brothers and sisters are there. They ask Fred a lot of questions about what he has been up to lately."). There are four questions for each vignette, which are scored on a 5-point Likert-type scale (e.g., "How likely do you think it is that his family is always on Fred's case."). The HIQ consists of a total score and nine subscales. Item scores are aggregated to obtain an overall measure of hostility, a measure of hostility for each social situation and a measure of four different components of hostility. Higher scores indicate greater hostility. In terms of the psychometric properties of the HIQ, Simourd and Mamuza (2000, 2002) have reported acceptable internal consistency estimates (Cronbach Alpha) ranging from 0.86 to 0.90 and construct validity with relevant anger/hostility measures among adult offender populations (see Appendix E).

Procedure

Permission was granted from the research agency for completion of this research. Upon involvement of youth with the agency, both youth and/or guardian are informed that any information collected may be used for research purposes.

The researcher examined the data of each adolescent. As outlined above, the information used for the purposes of the present study included demographic (e.g., age, gender and education), family background and behavioural variables, obtained from the self-report psychosocial history information questionnaire. Information on antisocial cognition was obtained from the CSS-M and PID measures of criminal attitudes and the

HIQ measure of hostility. Adolescents were asked to complete a psychological test battery, including several unrelated measures that were not used in the present study. Each of the measures in the assessment battery is completed by youth over the duration of involvement with the research agency.

Results

The results of this study will be presented in several sections. First, the descriptive statistics for the family background factors, criminal attitudes and hostility measures, and behavioural outcome variables will be presented. The psychometric properties (internal consistency estimates) of the criminal attitudes and hostility scales will also be examined.

Relations between the family background, criminal attitudes and hostility measures, and behavioural outcome variables were examined in two ways. First, relations were examined using correlational analyses. Second, relations were examined through a series of regression analyses.

As is common in applied research, data were missing for some cases. There is no simple solution for the common problem of missing data in research with archival databases and self-report measures. Stevens (2002) notes that, although the most widely used statistical packages have various ways of handling missing data, "the default option is to delete the case if there is missing data on any variable for the subject" (p. 33). Following from this, the present study excluded cases with missing values for any of the variables involved in the current analysis. It should be noted that this approach to dealing with missing data did not affect statistical power considerations due to the large sample size involved.

Descriptive Statistics: Family Background Variables

Descriptive statistics were obtained for the family background variables. Table 1 presents the means, standard deviations and group comparisons on the structural and functional family factor composite scores for the total sample, and male and female adolescents. There were no significant gender differences on mean scores across the family background variables, with the exception of males reporting significantly lower mother involvement and supervision than females. This difference was non-significant when a statistical correction (Bonferroni) was applied.

Table 1*Descriptive Statistics and Gender Comparisons of Mean Family Background Variable Scores*

Variable	Group			<i>t</i>
	Total Sample (<i>N</i> = 339)	Males (<i>n</i> = 190)	Females (<i>n</i> = 144)	
Structural				
Family Factor	1.6 (1.9)	1.7 (2.1)	1.4 (1.5)	1.31 ^a
Family structure	0.5 (1.3)	0.6 (1.6)	0.4 (0.7)	1.69 ^a
Socioeconomic status	0.4 (0.6)	0.4 (0.6)	0.4 (0.6)	0.01
Family deviance	0.7 (1.0)	0.7 (1.0)	0.8 (1.0)	-0.31
Functional				
Family Factor	4.9 (4.0)	5.1 (4.1)	4.8 (3.8)	0.60
Parental involvement/supervision	2.1 (2.1)	2.2 (2.2)	1.9 (2.1)	1.21
Mother	0.8 (1.0)	0.9 (1.0)	0.6 (0.9)	2.51*
Father	1.3 (1.4)	1.3 (1.3)	1.3 (1.4)	-0.19
Parent-child relations	2.7 (2.2)	2.6 (2.2)	2.9 (2.2)	-1.11
Mother	1.2 (1.2)	1.2 (1.2)	1.2 (1.1)	-0.29
Father	1.6 (1.3)	1.5 (1.3)	1.7 (1.3)	-1.65
Abuse/neglect	0.3 (0.6)	0.3 (0.6)	0.3 (0.6)	0.04
Family violence	0.2 (0.4)	0.2 (0.4)	0.2 (0.4)	-0.05

Note. Standard deviations are in parentheses.

^a Results for equal variances not assumed due to violation of homogeneity of variance.

* $p < .05$.

For the total sample, based on the maximum number of possible negative family background variables within each composite category (see Appendix B), the functional family factors were the most prevalent; specifically, poor Father-child relations were the most prevalent, followed by poor overall Parent-child relations, poor Mother-child relations, lack of Father involvement and supervision, and lack of overall Parental involvement and supervision.

Overall, the incidence of family background risk factors was quite low. Table 2 shows that a large percent of adolescents reported in the lower range of possible negative family background factors.

Table 2

Percent of Sample with Varying Levels of Negative Family Background Factors

Variable	Level ^a		n
	None-Low	Medium-High	
Structural			
Family Factor	99.2%	0.8%	380
Family structure	99.3%	0.7%	425
Socioeconomic status	67.2%	32.8%	436
Family deviance	77.7%	22.3%	426
Functional			
Family Factor	82.8%	17.2%	339
Parental involvement/supervision	74.1%	25.9%	343
Mother	79.1%	20.9%	411
Father	61.2%	38.8%	360
Parent-child relations	48.6%	51.4%	457
Mother	65.2%	34.8%	457
Father	49.0%	51.0%	457
Abuse/neglect	73.7%	26.3%	449
Family violence	80.1%	19.9%	458

^a Levels derived from median split for each scale: Scores of 0 and below median classified as None-Low; Scores at median and above classified as Medium-High.

Descriptive Statistics and Psychometric Properties: Antisocial Cognition Measures

Descriptive statistics and internal consistency estimates were obtained for each of the antisocial cognition measures.

Antisocial Cognition and Gender

Table 3 presents the descriptive statistics and group comparisons on the CSS-M, PID and HIQ for the total sample, and male and female adolescents. There were no significant gender differences on mean scores across the antisocial cognition measures.

Table 3*Descriptive Statistics and Gender Comparisons of Mean Antisocial Cognition Measure Scores*

Antisocial Cognition Measure	Group			<i>t</i>
	Total Sample (<i>N</i> = 349)	Males (<i>n</i> = 189)	Females (<i>n</i> = 154)	
CSS-M	34.0 (12.5)	34.0 (13.1)	33.8 (11.7)	0.19
LCP	20.8 (7.9)	20.8 (8.2)	20.7 (7.6)	0.17
TLV	8.8 (4.1)	8.9 (4.2)	8.6 (4.0)	0.58
ICO	4.5 (2.2)	4.5 (2.3)	4.5 (2.2)	0.28
PID	54.7 (35.1)	53.4 (35.4)	56.0 (34.6)	-0.77
PID-Factor 1	-33.0 (19.0)	-33.5 (18.6)	-32.6 (19.6)	-0.46
PID-Factor 2	-6.3 (13.0)	-7.1 (13.2)	-5.4 (12.6)	-1.34
HIQ	82.3 (14.6)	82.2 (15.8)	82.4 (14.0)	-0.09
Authority	12.1 (2.4)	12.2 (2.6)	11.9 (2.4)	1.23
Family	12.2 (2.5)	12.1 (2.5)	12.2 (2.5)	-0.45
Acquaintance	10.7 (3.3)	11.0 (3.4)	10.6 (3.1)	1.21
Work	12.0 (3.2)	11.8 (3.4)	12.4 (3.1)	-1.91
Anonymous	11.1 (3.2)	11.0 (3.5)	11.2 (2.8)	-0.67 ^a
Overgeneralization	21.9 (4.2)	21.7 (4.5)	22.1 (3.9)	-0.82
Attribution	20.9 (4.6)	20.8 (4.9)	20.8 (4.4)	-0.03
Hostile Reaction	18.0 (4.9)	18.4 (5.1)	17.9 (4.9)	1.02
External Blame	21.5 (4.7)	21.4 (4.7)	21.7 (4.9)	-0.49

Note. Standard deviations are in parentheses. CSS-M = Criminal Sentiments Scale-Modified; LCP = Law, Courts, Police; TLV = Tolerance for Law Violations; ICO = Identification with Criminal Others; PID = Pride in Delinquency Scale; PID-Factor 1 = Pride in Delinquency Scale-Factor 1; PID-Factor 2 = Pride in Delinquency Scale-Factor 2; Attribution = Attribution of Hostility.

^a Results for equal variances not assumed due to violation of homogeneity of variance.

Criminal Attitudes Measures

The CSS-M and PID were significantly correlated among the total sample ($r = .47, p < .001$), and male ($r = .48, p < .001$) and female ($r = .46, p < .001$) adolescents.

Table 4 presents descriptive statistics and interscale correlations for the CSS-M. There were acceptable levels of internal consistency with the exception of the Identification with Criminal Others (ICO) subscale. There were modest to strong correlations among subscales. Estimates of internal consistency (Cronbach alpha) for the CSS-M total scores were also at reasonable levels for males ($\alpha = .90$) and females ($\alpha = .88$) separately.

Table 4*Interscale Correlations and Descriptive Statistics for the Criminal Sentiments Scale-Modified (N = 349)*

Attitude Measure	1	2	3	4
1. Criminal Sentiments Scale-Modified	(.89)			
2. Law, Court, Police	.93	(.84)		
3. Tolerance for Law Violations	.84	.62	(.77)	
4. Identification with Criminal Others	.72	.53	.62	(.60)
<i>M</i>	33.98	20.80	8.76	4.53
<i>SD</i>	12.47	7.89	4.14	2.24

Note. Coefficient alphas are in parentheses. All correlations were significant at $p < .001$.

Age was significantly correlated with the CSS-M for the total sample ($r = .12, p < .05$). Further analyses showed that this relationship was significant for males ($r = .19, p < .01$), whereas age was not significantly correlated with the CSS-M for females ($r = .01$). More specifically, age among male adolescents was significantly related to the LCP subscale ($r = .24, p < .001$), but not to the TLV ($r = .09$) or ICO subscales ($r = .04$).

Table 5 presents descriptive statistics and interscale correlations for the PID.

Inspection of this table shows acceptable levels of internal consistency with the exception of Factor 2, and modest to strong correlations among subscales. Estimates of internal consistency (Cronbach alpha) for the PID total scores were also at reasonable levels for males ($\alpha = .88$) and females ($\alpha = .85$) separately. In addition, age was not significantly correlated with the PID for the total sample ($r = .06$), or male ($r = .10$) and female ($r = .02$) adolescents.

Table 5

Interscale Correlations and Descriptive Statistics for the Pride in Delinquency Scale (N = 413)

Attitude Measure	1	2	3
1. Pride in Delinquency Scale	(.87)		
2. Pride in Delinquency Scale-Factor 1	.89	(.88)	
3. Pride in Delinquency Scale-Factor 2	.82	.52	(.52)
<i>M</i>	54.69	-33.04	-6.28
<i>SD</i>	35.09	19.02	12.97

Note. Coefficient alphas are in parentheses. All correlations were significant at $p < .001$.

Hostility Measure

This study also examined the psychometric properties of the Hostile Interpretations Questionnaire (HIQ). Although it is also a measure of antisocial cognition, the HIQ measures hostility rather than overall criminal attitudes and was uncorrelated with both the CSS-M and PID ($r = -.02$ and $r = .05$, respectively).

To date, there is no research available on the HIQ with adolescents or juvenile delinquents. That is, the data thus far on the HIQ is limited to adult offenders, which prompted a detailed investigation of the psychometric properties of the HIQ in this study.

Scores on the instrument ranged from 32 to 140, with a mean of 82.3 ($SD = 14.6$). Table 6 presents interscale correlations and descriptive statistics for the HIQ.

As can be seen, the internal consistency estimates (Cronbach alpha) of the HIQ total score and the Authority, Intimate/Family, Acquaintance, Work, Anonymous, Hostile Reaction and External Blame subscales were in the acceptable range. The internal consistency of the Overgeneralization and Attribution of Hostility subscales could be considered to be in the borderline range. There were no internal consistency estimates in the low range, which were common in previous research (Simourd & Mamuza, 2000, 2002). The correlations between subscales were modest.

Table 6

Interscale Correlations and Descriptive Statistics for the Hostile Interpretations Questionnaire (N = 430)

Hostility Measure	1	2	3	4	5	6	7	8	9	10
1. Hostile Interpretations Questionnaire	(.87)									
2. Authority	.77	(.68)								
3. Intimate/Family	.80	.46	(.69)							
4. Acquaintance	.77	.48	.49	(.73)						
5. Work	.69	.38	.47	.44	(.70)					
6. Anonymous	.69	.38	.39	.54	.42	(.72)				
7. Overgeneralization	.81	.64	.65	.58	.56	.54	(.65)			
8. Attribution of Hostility	.85	.69	.65	.64	.57	.59	.73	(.66)		
9. Hostile Reaction	.74	.56	.56	.64	.50	.52	.40	.48	(.77)	
10. External Blame	.76	.54	.63	.57	.55	.52	.47	.49	.43	(.72)
<i>M</i>	82.3	12.1	12.2	10.7	12.0	11.1	21.9	20.9	18.0	21.5
<i>SD</i>	14.6	2.4	2.5	3.3	3.2	3.2	4.2	4.6	4.9	4.7

Note. Coefficient alphas are in parentheses. All correlations were significant at $p < .001$.

The estimates of internal consistency (Cronbach alpha) for the HIQ total scores were at reasonable levels separately for male and female adolescents ($\alpha = .89$ and $\alpha = .87$, respectively). These reliability results are comparable to those of previous research on

this scale with adult offender populations (Simourd & Mamuza, 2000, 2002). In addition, age was not significantly correlated with the HIQ for the total sample ($r = .06$), or male ($r = .10$) and female ($r = -.02$) adolescents.

Descriptive Statistics: Behavioural Outcome Variables

Descriptive statistics were obtained for the behavioural outcome variables for the total sample, and male and female adolescents. Table 7 presents descriptive data for each of the dichotomous behavioural outcome measures, Juvenile Delinquency and Interpersonal Violence. In terms of the Diversity of Delinquent Acts outcome variable ($n = 456$), the mean score was 0.57 ($SD = 1.43$), ranging from 0 to 10.

Table 7

Percent of Sample Engaging in Juvenile Delinquency and Interpersonal Violence

Sample	Juvenile Delinquency	Interpersonal Violence
Total	13.2% (455)	62.0% (458)
Male	20.6% (247)	71.6% (250)
Female	4.5% (202)	49.5% (202)

Note. Sample sizes are in parentheses.

The results of Chi-Square tests of independence indicated that the differences between males and females in terms of the prevalence of juvenile delinquency ($\chi^2(1, N = 449) = 25.17, p < .001$) and interpersonal violence ($\chi^2(1, N = 452) = 23.09, p < .001$) were statistically significant.

Finally, for those cases with gender reported, 85% ($n = 51$) of the juvenile delinquents were male and 15% ($n = 9$) were female. Furthermore, 64.2% ($n = 179$) of the interpersonally violent adolescents were male and 35.8% ($n = 100$) were female.

*Relations Between Family Background Variables and Antisocial Cognition Measures:**Correlational and Multiple Regression Analyses*

It was hypothesized that a positive relationship would exist between the number of negative family background variables and the level of antisocial cognition. In addition, it was hypothesized that a stronger relationship would exist between negative *functional* family variables and antisocial cognition than between negative *structural* family variables and antisocial cognition. In order to test these hypotheses, a set of correlational and multiple regression analyses was conducted between scores on the family background variables and the antisocial cognition measures.

Correlational Analyses

As illustrated in Table 8, positive relationships emerged between the family background variables and the antisocial cognition measures (range $r = .11$ to $r = .19$). In terms of the structural family variables, Socioeconomic status was positively correlated with the LCP subscale of the CSS-M. There was a significant positive correlation between the overall Structural Family Factor and the Authority subscale of the HIQ. No other correlations reached statistical significance and the magnitudes were uniformly low.

In terms of the functional family variables, Mother involvement and supervision was positively correlated with the PID Factor 1, HIQ total, Authority, Acquaintance, Hostile Reaction and External Blame scores. Father involvement and supervision was positively correlated with the Authority and External Blame scores. With regards to overall Parental involvement and supervision, positive correlations were found with the Authority, Hostile Reaction and External Blame scores.

In terms of Father-child relations, positive correlations were found with the CSS-M total, LCP and TLV scores as well as the PID total, PID Factor 1 and PID Factor 2 scores. In addition, Father-child relations was positively correlated with the HIQ total, Authority, Acquaintance, Overgeneralization, Attribution of Hostility, Hostile Reaction and External Blame scores. For overall Parent-child relations, positive correlations were found with the CSS-M total and ICO scores as well as the HIQ total, Authority, Acquaintance and Hostile Reaction scores.

Family violence was positively correlated with the Authority subscale of the HIQ. There were also significant positive correlations between the overall Functional Family Factor and the HIQ total, Authority, Acquaintance, Hostile Reaction and External Blame scores.

None of the family background variables were significantly correlated with the Intimate/Family, Work or Anonymous subscales of the HIQ. Furthermore, there were no significant correlations between the antisocial cognition measures and the Family structure, Family deviance, Mother-child relations or Abuse/neglect variables.

Table 8

Correlations for Family Background Variables and Antisocial Cognition Measures

Variable	<u>Criminal Sentiments Scale-Modified</u>				<u>Pride in Delinquency scale</u>		
	CSS-M	LCP	TLV	ICO	PID	PID Factor 1	PID Factor 2
Structural							
Family Factor	.05	.05	.06	.10	-.02	-.00	-.02
Family structure	.05	.05	.01	-.00	-.00	.01	-.01
Socioeconomic status	.10	.11*	.07	.06	.02	.02	.01
Family deviance	-.03	-.03	.02	.01	-.05	-.06	-.01
Functional							
Family Factor	.12	.12	.06	.05	.08	.10	.04
Parental involvement/ supervision	.02	.04	.01	-.02	.05	.08	.00
Mother	.07	.09	.03	.02	.08	.12*	.00
Father	-.01	.02	-.00	-.02	.01	.03	-.00
Parent-child relations	.11*	.08	.08	.10*	.08	.09	.05
Mother	.06	.02	.03	.09	.03	.05	-.01
Father	.14*	.12*	.11*	.09	.11*	.11*	.10*
Abuse/neglect	-.03	-.04	.01	-.00	.04	.05	.03
Family violence	.01	.03	.02	-.01	-.00	-.03	.05

Table 8
(continued)

Variable	HIQ	Auth	Fam	Acqu	Work	Anon	Overg	Attr	React	Blame
Structural										
Family Factor	.03	.11*	-.02	.10	-.08	.05	.00	.02	.08	.03
Family structure	-.01	.05	-.03	.07	-.10	-.03	-.02	-.02	.01	.01
Socioeconomic status	.04	.03	.00	.06	.06	.09	.10	.05	.02	.01
Family deviance	-.00	.07	-.05	.06	-.08	.04	-.04	-.02	.10	-.03
Functional										
Family Factor	.15*	.19**	.07	.15**	.02	.10	.06	.09	.16**	.15**
Parental involvement/supervision	.11	.13*	.06	.11	-.03	.09	-.01	.05	.13*	.14*
Mother	.11*	.14**	.05	.11*	-.05	.08	.02	.04	.14**	.12*
Father	.09	.12*	.07	.09	-.01	.07	-.01	.06	.08	.14*
Parent-child relations	.11*	.12*	.06	.12*	.07	.05	.09	.10	.11*	.07
Mother	.07	.08	.01	.08	.05	.02	.05	.06	.09	.01
Father	.13*	.14**	.10	.12*	.06	.07	.11*	.11*	.11*	.11*
Abuse/neglect	.04	.03	.06	.05	-.03	.02	-.02	.00	.06	.07
Family violence	.04	.14**	.02	.07	-.03	-.04	.05	.05	.06	.01

Note. $N = 252$. CSS-M = Criminal Sentiments Scale-Modified; LCP = Law, Courts, Police; TLV = Tolerance for Law Violations; ICO = Identification with Criminal Others; PID = Pride in Delinquency Scale; PID Factor 1 = Pride in Delinquency Scale-Factor 1; PID Factor 2 = Pride in Delinquency Scale-Factor 2; HIQ = Hostile Interpretations Questionnaire; Auth = Authority; Fam = Family; Acqu = Acquaintance; Anon = Anonymous; Overg = Overgeneralization; Attr = Attribution of Hostility; React = Hostile Reaction; Blame = External Blame.

* $p < .05$; ** $p < .01$.

Multiple Regression Analyses

A series of multiple regression analyses was performed as a further test for the hypothesis that there would exist a stronger relationship between negative *functional* family variables and antisocial cognition than between negative *structural* family variables and antisocial cognition.

The first series of multiple regression analyses involved the structural and functional family background variables as the independent variables and each of the criminal attitudes and hostility measures as the dependent variable. Age was included in the equations as an exploratory predictor variable and emerged as a significant predictor for the CSS-M. Subsequent analyses with the CSS-M involved controlling for the effect of age. Age failed to emerge as a significant predictor for the PID and HIQ measures, and subsequent analyses involved pooling adolescents of all ages. Analyses were also performed separately for males and females.

Data Screening

Before proceeding with the multiple regression analyses, it was necessary to test whether certain statistical assumptions were satisfied. The first assumption for a multiple regression analysis is that of independence of observations, which implies that each subject occurs in the data set only once and that subjects have responded independently of one another. This is a logical issue for which the researcher must consider whether or not observations are correlated among subjects. Given that adolescents were involved with the research agency at different periods in time and presented to the agency with different family background experiences, attitudes or cognition, and behavioural histories, there was no reason to believe that independence of observations was violated

in the present research. Furthermore, the Durbin-Watson statistic evaluates the assumption of independence, with an expected value of 2. Values well above or well below 2 would be cause to suspect dependence of errors. As further support for the assumption of independence in the present research, the Durbin-Watson statistics for the analyses with the CSS-M, PID and HIQ as the dependent variables were 1.85, 2.15 and 1.95, respectively.

A second assumption is that of normality. For each of the antisocial cognition measures, a histogram of the frequency of the standardized residuals was examined for normality. The CSS-M, PID and HIQ were normally distributed. In addition, normal probability plots were examined to further support the normality assumption for each of the antisocial cognition measures. Again, the distribution of points followed the straight line in each of the three plots, indicating normality for the CSS-M, PID and HIQ measures (see Stevens, 2002).

Next, the assumption of homoscedasticity was considered for each of the antisocial cognition measures. From the residual plots of the standardized residuals versus the standardized predicted values for each of the dependent variables, it was observed that the assumption of homoscedasticity was tenable for each. Finally, the assumption of linearity, which assumes that the relation between each of the dependent variables and the linear combination of the predictors is linear, was examined. Again, the residual plots indicated that this assumption was satisfied for the CSS-M, PID and HIQ measures.

The issue of multicollinearity was also considered. Multicollinearity refers to the problem of moderate to high intercorrelations among the predictors. There were low to

moderate intercorrelations among the family background variables. The variance inflation factor (*VIF*) statistics for the predictors did not exceed the value of 2, suggesting no problems with multicollinearity (Stevens, 2002).

Finally, outliers and influential data points were examined. Considering any standardized residual greater than 3 in absolute value as an indication of a potential outlier on the CSS-M, PID and HIQ measures, a total of 5 cases were identified. Furthermore, the hat elements (h_{ii}), also called leverage, were used to identify outliers on the set of predictors. Overall, 12 cases were identified as outliers on the set of predictor variables. Finally, Cook's distances were used to identify potential influential data points. According to Stevens (2002), "an influential data point is one that when deleted produces a substantial change in at least one of the regression coefficients. That is, the prediction equations with and without the influential point are quite different" (p. 126). Because there were no Cook's distances greater than 1, it was concluded that none of the data points, including the previously identified outliers, were influential. Thus, the decision was made to keep the identified outliers in the regressions.

Family Background Variables and Antisocial Cognition Measures

Given the low correlations between the family background variables and the antisocial cognition measures, and the relatively high intercorrelations or overlap among the family background variables, the suppression of variance in the following analyses was inevitable. An examination of the regression results confirmed the existence of suppressor variables. Suppressor variables can be useful for prediction due to the suppression of unwanted error variance in predictors, but they complicate interpretation of the unique relationships between the independent and dependent variables. Results

should, therefore, be interpreted in this context (see Pedhazur, 1997; Tabachnick and Fidell, 2001).

Criminal Sentiments Scale-Modified (CSS-M). The first set of regression analyses explored the contributions of the structural and functional family background variables to the prediction of CSS-M total scores. The set of structural family background variables did not account for a significant proportion of variance in CSS-M total scores ($F < 1$). Further, the set of functional family background variables did not account for a significant proportion of variance in CSS-M total scores ($F(4, 251) = 2.17$, $p > .07$, $R^2 = .03$, adjusted $R^2 = .02$). A multiple regression analysis was also performed with the set of functional family background variables entered in the equation first, followed by the set structural family background variables. When the effect of the functional family background variables was held constant, the proportion of variance accounted for in CSS-M total scores by the structural family background variables was not significant ($F \text{ change} < 1$). The last multiple regression in this set of analyses involved entering the set of structural family background variables in the equation first, followed by the set of functional family background variables. When the effect of the structural family background variables was held constant, the set of functional family background variables accounted for approximately 6% of the variance in CSS-M total scores ($R^2 \text{ change} = .06$, $F(4, 202) \text{ change} = 3.07$, $p < .05$).

When all family background variables were entered as the independent variables, the set of family background variables accounted for approximately 7% of the variance in CSS-M total scores ($R^2 = .07$, adjusted $R^2 = .04$, $F(7, 209) = 2.25$, $p < .05$). Examination of the regression coefficients showed that Parental involvement and

supervision ($\beta = -.18$) and Parent-child relations ($\beta = .26$) were the only variables that demonstrated significant unique contributions to the prediction of CSS-M total scores (see Table 9). The implication is that adolescents with higher levels of parental involvement and supervision and poor parent-child relations endorse higher levels of criminal attitudes based on CSS-M total scores.

Table 9

Regression Coefficients for the Criminal Sentiments Scale-Modified: Total Sample

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	32.74	1.44		22.67
Family structure	-.24	.97	-.02	-.25
Socioeconomic status	1.18	1.53	.06	.77
Family deviance	.58	1.03	.04	.57
Parental involvement/ supervision	-1.04	.47	-.18	-2.24*
Parent-child relations	1.50	.46	.26	3.27**
Abuse/neglect	-.85	1.56	-.04	-.54
Family violence	2.59	2.63	.07	.98

Note. * $p < .05$; ** $p < .01$.

When the effect of age was removed from the family background variables, the set of predictors did not account for a significant proportion of variance in CSS-M total scores ($F(7, 209) = 1.96, p > .06, R^2 = .06, \text{adjusted } R^2 = .03$). Thus, with the effect of age held constant, the relationship between scores on the CSS-M and the set of structural and functional family background variables was not significant.

For exploratory purposes, a set of regression analyses was performed for two age groups (13-15 years and 16-19 years). With the older age group, the set of family background variables did not account for a significant proportion of variance in CSS-M total scores ($F < 1$). However, with the younger age group, the set of predictors accounted for approximately 33% of the variance in CSS-M total scores ($R^2 = .33$, adjusted $R^2 = .11$, $F(7, 159) = 2.58$, $p < .05$). Examination of the regression coefficients revealed that Parental involvement and supervision ($\beta = -.23$) and Parent-child relations ($\beta = .34$) provided significant unique contributions to the prediction of CSS-M total scores (see Table 10).

Table 10

Regression Coefficients for the Criminal Sentiments Scale-Modified: 13-15 years (Total Sample)

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	31.58	1.57		20.11
Family structure	-1.11	2.32	-.04	-.48
Socioeconomic status	-.37	1.75	-.02	-.21
Family deviance	1.41	1.27	.10	1.11
Parental involvement/supervision	-1.30	.50	-.23	-2.61*
Parent-child relations	1.96	.53	.34	3.73**
Abuse/neglect	-.70	1.81	-.03	-.39
Family violence	2.94	3.04	.08	.97

Note. * $p < .01$; ** $p < .001$.

The implication is that higher levels of parental involvement and supervision and poor parent-child relations are significantly related to higher levels of criminal attitudes based on CSS-M total scores for younger adolescents.

For male adolescents, the set of predictors did not account for a significant proportion of variance in CSS-M total scores ($F(7, 119) = 1.68, p > .12, R^2 = .10$, adjusted $R^2 = .04$). For female adolescents, however, the set of predictors accounted for approximately 22% of the variance in CSS-M total scores ($R^2 = .22$, adjusted $R^2 = .15, F(7, 85) = 3.12, p < .01$). Further, the regression coefficients showed that only Parent-child relations ($\beta = .46$) provided a significant unique contribution to the prediction of CSS-M total scores for females (see Table 11). This indicates that female adolescents reporting poor parent-child relations endorse higher levels of criminal attitudes based on CSS-M total scores.

For females, when the effect of age was removed from the family background variables, the set of predictors again accounted for approximately 22% of the variance in CSS-M total scores ($R^2 = .22$, adjusted $R^2 = .15, F(7, 85) = 3.12, p < .01$). Also, the regression coefficients showed that only Parent-child relations ($\beta = .46$) provided a significant unique contribution to the prediction of CSS-M total scores. Thus, when the effect of age was held constant for female adolescents, the relationship between scores on the CSS-M and the structural and functional family background variables remained the same.

Table 11*Regression Coefficients for the Criminal Sentiments Scale-Modified: Females (Total Sample)*

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	29.24	1.96		14.92
Family structure	1.12	1.61	.08	.69
Socioeconomic status	.01	2.25	.00	.01
Family deviance	-.65	1.36	-.06	-.48
Parental involvement/ supervision	-.32	.69	-.06	-.46
Parent-child relations	2.45	.68	.46	3.58*
Abuse/neglect	-3.75	2.25	-.18	-1.67
Family violence	.22	4.19	.01	.05

Note. * $p < .01$.

When differences between males and females were considered within the context of the different age groups, the set of family background variables did not account for a significant proportion of variance in CSS-M total scores for older males ($F < 1$) or females ($F(7, 13) = 2.10, p > .19, R^2 = .71$, adjusted $R^2 = .37$). However, the set of family background variables did account for 18% of the variance in CSS-M total scores for younger males ($R^2 = .18$, adjusted $R^2 = .11, F(7, 85) = 2.43, p < .05$). Examination of the regression coefficients revealed that Parental involvement and supervision ($\beta = -.40$) and Parent-child relations ($\beta = .31$) made significant unique contributions to the prediction of CSS-M total scores for younger male adolescents (see Table 12).

Table 12

*Regression Coefficients for the Criminal Sentiments Scale-Modified:
Males (13-15 years)*

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	33.77	2.20		15.33
Family structure	-5.40	3.49	-.17	-1.55
Socioeconomic status	.88	2.42	.04	.37
Family deviance	1.65	1.92	.10	.86
Parental involvement/ supervision	-2.27	.70	-.40	-3.25**
Parent-child relations	1.85	.72	.31	2.55*
Abuse/neglect	2.99	2.67	.13	1.12
Family violence	3.81	3.93	.11	.97

Note. * $p < .05$; ** $p < .01$.

Furthermore, the set of family background variables accounted for 20% of the variance in CSS-M total scores for younger females ($R^2 = .20$, adjusted $R^2 = .11$, $F(7, 71) = 2.21$, $p < .05$). Table 13 demonstrates that the only variable that provided a unique contribution to the prediction of CSS-M total scores for younger female adolescents was Parent-child relations ($\beta = .41$). The implication is that family background variables do not seem to be related to criminal attitudes as measured by the CSS-M total for older male or female adolescents. On the other hand, high levels of parental involvement and supervision and poor parent-child relations are associated with higher scores on the CSS-M total for younger males, and poor parent-child relations are associated with higher scores on the CSS-M total for younger female adolescents.

Table 13

*Regression Coefficients for the Criminal Sentiments Scale-Modified:
Females (13-15 years)*

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	29.25	2.20		13.28
Family structure	3.18	3.32	.13	.96
Socioeconomic status	.08	2.76	-.00	-.03
Family deviance	1.06	1.72	.09	.62
Parental involvement/ supervision	-.46	.75	-.08	-.61
Parent-child relations	2.22	.80	.41	2.77*
Abuse/neglect	-4.43	2.64	-.21	-1.68
Family violence	-4.49	6.07	-.10	-.74

Note. * $p < .01$.

Pride in Delinquency scale (PID). The first set of regression analyses with the PID explored the contributions of the structural and functional family background variables to the prediction of PID total scores. The set of structural family background variables did not account for a significant proportion of variance in PID total scores ($F < 1$). Also, the set of functional family background variables did not account for a significant proportion of variance in PID total scores ($F < 1$).

A multiple regression analysis was also performed with the set of functional family background variables entered in the equation first, followed by the set structural family background variables. When the effect of the functional family background variables was held constant, the proportion of variance accounted for in PID total scores by the structural family background variables was not significant ($F(3, 243)$ change =

1.06, $p > .36$, R^2 change = .01). The last multiple regression in this set of analyses involved entering the set of structural family background variables in the equation first, followed by the set of functional family background variables. When the effect of the structural family background variables was held constant, the proportion of variance accounted for in PID total scores by the set of functional family background variables was also not significant ($F(4, 243)$ change = 1.42, $p > .22$, R^2 change = .02).

When all family background variables were entered as the independent variables, the set of family background variables did not account for a significant proportion of variance in PID total scores ($F(7, 250) = 1.00$, $p > .42$, $R^2 = .03$, adjusted $R^2 = .00$).

In terms of gender differences, the set of predictors did not account for a significant proportion of variance in PID total scores for male adolescents ($F(7, 139) = 1.08$, $p > .38$, $R^2 = .05$, adjusted $R^2 = .00$), whereas they accounted for approximately 15% of the variance in PID total scores for female adolescents ($R^2 = .15$, adjusted $R^2 = .09$, $F(7, 106) = 2.53$, $p < .05$). There were no significant unique contributions of the family background variables to the prediction of PID total scores for females (see Table 14). This indicates that a linear combination of the predictors is accounting for variance in PID total scores, but that individual family background variables do not significantly contribute to the prediction.

Table 14*Regression Coefficients for the Pride in Delinquency Scale: Females (Total Sample)*

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	53.96	5.42		9.96
Family structure	-6.92	4.46	-.15	-1.55
Socioeconomic status	-8.41	6.24	-.13	-1.35
Family deviance	-4.85	3.45	-.14	-1.41
Parental involvement/ supervision	1.41	1.77	.09	.80
Parent-child relations	3.08	1.81	.20	1.70
Abuse/neglect	-8.70	5.89	-.15	-1.48
Family violence	10.42	9.46	.11	1.10

Hostile Interpretations Questionnaire. The first set of regression analyses with the HIQ considered the contributions of the structural and functional family background variables to the prediction of HIQ total scores. The set of structural family background variables did not account for a significant proportion of variance in HIQ total scores ($F < 1$). In addition, the set of functional family background variables did not account for a significant proportion of variance in HIQ total scores ($F(4, 285) = 1.80, p < .12, R^2 = .03$, adjusted $R^2 = .01$).

A multiple regression analysis was also performed with the set of functional family background variables entered in the equation first, followed by the set structural family background variables. When the effect of the functional family background variables was held constant, the proportion of variance accounted for in HIQ total scores by the structural family background variables was not significant ($F \text{ change} < 1$). The

last multiple regression in this set of analyses involved entering the set of structural family background variables in the equation first, followed by the set of functional family background variables. When the effect of the structural family background variables was removed, the proportion of variance accounted for in HIQ total scores by the set of functional family background variables was also not significant ($F(4, 239) \text{ change} = 1.15, p > .33, R^2 \text{ change} = .02$).

In addition, the overall set of structural and functional family background variables did not account for a significant proportion of variance in HIQ total scores ($F < 1$). Furthermore, the set of predictors did not account for a significant proportion of variance in HIQ total scores for males ($F < 1$) or females ($F(7, 107) = 1.13, p > .34, R^2 = .07$, adjusted $R^2 = .01$) separately. These results suggest no significant relationship between the HIQ and the set of structural and functional family background variables for male or female adolescents.

Family Background Variables and Antisocial Cognition Measures: Subscales

Regression assumptions were tested for the following analyses using the same methods as those presented in the data screening section above. All assumptions were satisfied.

Law-Court-Police (LCP). The set of predictors explained approximately 6% of the variance in the LCP subscale scores ($R^2 = .06$, adjusted $R^2 = .03, F(7, 228) = 2.09, p < .05$). Parent-child relations ($\beta = .20$) was the only variable that uniquely contributed to the prediction of LCP subscale scores (see Table 15). This indicates that adolescents reporting poor parent-child relations scored higher on the Law-Court-Police subscale of the CSS-M.

Table 15***Regression Coefficients for the Law-Court-Police Subscale: Total Sample***

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	20.06	.87		23.13
Family structure	-.14	.59	-.02	-.24
Socioeconomic status	1.44	.89	.11	1.62
Family deviance	.10	.59	.01	.17
Parental involvement/ supervision	-.44	.28	-.12	-1.60
Parent-child relations	.68	.27	.20	2.56*
Abuse/neglect	-.82	.94	-.06	-.87
Family violence	2.05	1.53	.10	1.34

Note. * $p < .05$.

When the effect of age was removed from the family background variables, the set of predictors did not account for a significant proportion of variance in LCP subscale scores ($F(7, 228) = 1.81, p > .08, R^2 = .05, \text{adjusted } R^2 = .02$). Thus, with the effect of age held constant, the relationship between scores on the LCP subscale and the set of structural and functional family background variables was not significant.

For male adolescents, the set of predictors did not account for a significant proportion of variance in LCP subscale scores ($F(7, 129) = 1.93, p > .07, R^2 = .10, \text{adjusted } R^2 = .05$). For female adolescents, however, the set of predictors accounted for approximately 16% of the variance in LCP subscale scores ($R^2 = .16, \text{adjusted } R^2 = .09, F(7, 94) = 2.37, p < .05$). Examination of the regression coefficients revealed that Parent-child relations ($\beta = .34$) provided a significant unique contribution to the prediction of

LCP subscale scores for female adolescents (see Table 16). It appears as though poor parent-child relations are associated with higher scores on the Law-Court-Police subscale for female adolescents.

Table 16

Regression Coefficients for the Law-Court-Police Subscale: Females (Total Sample)

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	18.24	1.27		14.42
Family structure	.88	1.02	.09	.87
Socioeconomic status	.50	1.41	.04	.36
Family deviance	-.23	.82	-.03	-.28
Parental involvement/ supervision	.10	.43	.03	.24
Parent-child relations	1.12	.41	.34	2.71*
Abuse/neglect	-2.59	1.40	-.19	-1.85
Family violence	-1.37	2.47	-.06	-.55

Note. * $p < .01$.

When the effect of age was removed from the family background variables, the set of predictors again accounted for approximately 16% of the variance in LCP subscale scores ($R^2 = .16$, adjusted $R^2 = .09$, $F(7, 94) = 2.37$, $p < .05$) for female adolescents. Further, Parent-child relations ($\beta = .34$) emerged as the only predictor with a significant unique contribution to the prediction of female LCP subscale scores. Thus, when the effect of age was held constant for female adolescents, the relationship between scores on the LCP subscale and the structural and functional family background variables remained the same.

Tolerance for Law Violations (TLV). The set of predictors did not account for a significant proportion of variance in TLV subscale scores ($F(7, 237) = 1.16, p > .32, R^2 = .03$, adjusted $R^2 = .01$), nor in TLV subscales scores for males ($F(7, 136) = 1.42, p > .20, R^2 = .07$, adjusted $R^2 = .02$) and females ($F < 1$) separately.

Identification with Criminal Others (ICO). The set of predictors did not account for a significant proportion of variance in ICO subscale scores for the total sample ($F(7, 239) = 1.31, p > .24, R^2 = .04$, adjusted $R^2 = .01$) or for male adolescents ($F(7, 136) = 1.56, p > .15, R^2 = .08$, adjusted $R^2 = .03$). However, the set of family background variables did account for approximately 15% of the variance in ICO subscale scores for female adolescents ($R^2 = .15$, adjusted $R^2 = .08, F(7, 98) = 2.25, p < .05$). The regression coefficients showed that Parent-child relations ($\beta = .39$) was the only variable that uniquely contributed to the prediction of ICO subscale scores (see Table 17). This suggests that poor parent-child relations are also associated with higher scores on the ICO subscale for female adolescents.

When the effect of age was removed from the family background variables, the set of predictors again accounted for approximately 15% of the variance in ICO subscale scores ($R^2 = .15$, adjusted $R^2 = .08, F(7, 98) = 2.23, p < .05$) for female adolescents. Also, Parent-child relations ($\beta = .38$) emerged as the only predictor with a significant unique contribution to the prediction of ICO subscale scores. Thus, with the effect of age held constant for female adolescents, the relationship between scores on the ICO subscale and the structural and functional family background variables remained significant.

Table 17

Regression Coefficients for the Identification with Criminal Others Subscale: Females (Total Sample)

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	3.72	.36		10.31
Family structure	-.08	.30	-.03	-.26
Socioeconomic status	.12	.41	.03	.29
Family deviance	.07	.24	.03	.28
Parental involvement/ supervision	-.02	.12	-.01	-.12
Parent-child relations	.38	.13	.39	3.04*
Abuse/neglect	-.68	.40	-.18	-1.71
Family violence	-.39	.67	-.06	-.58

Note. * $p < .01$.

HIQ subscales. The set of predictors accounted for approximately 6% of the variance in Authority subscale scores of the HIQ ($R^2 = .06$, adjusted $R^2 = .03$, $F(7, 254) = 2.29$, $p < .05$). Examination of the regression coefficients showed no significant unique contributions of the structural or functional family background variables in predicting scores on the Authority subscale when all other predictor variables were held constant (see Table 18). This indicates that some combination of the predictors is explaining variance in Authority subscale scores, but that individual family background variables do not significantly contribute to the prediction. The set of predictors did not account for a significant proportion of variance in Authority subscale scores when males ($F(7, 139) = 1.40$, $p > .20$, $R^2 = .07$, adjusted $R^2 = .02$) and females ($F(7, 110) = 1.71$, $p > .11$, $R^2 = .10$, adjusted $R^2 = .04$) were examined separately.

Table 18

Regression Coefficients for the HIQ Authority Subscale: Total Sample

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	11.45	.25		46.33
Family structure	.26	.16	.10	1.60
Socioeconomic status	-.33	.27	-.08	-1.20
Family deviance	.28	.17	.11	1.61
Parental involvement/ supervision	.09	.08	.08	1.14
Parent-child relations	.09	.08	.08	1.14
Abuse/neglect	-.25	.29	-.06	-.86
Family violence	.44	.44	.07	1.00

Finally, the set of family background variables did not account for a significant proportion of variance in the Family, Acquaintance, Work, Anonymous, Overgeneralization, Attribution of Hostility, Hostile Reaction or External Blame subscales of the HIQ (largest $F(7, 251) = 1.78, p > .09, R^2 = .05$, adjusted $R^2 = .02$).

Further, the set of predictors did not account for a significant proportion of variance in any of these subscales when male and female adolescents were examined separately (largest $F(7, 137) = 1.23, p > .28, R^2 = .06$, adjusted $R^2 = .01$ and $F(7, 109) = 1.58, p > .14, R^2 = .10$, adjusted $R^2 = .04$, respectively).

*Relations Between Antisocial Cognition Measures and Behavioural Outcome**Variables: Correlational and Logistic Regression Analyses*

It was hypothesized that adolescents with a higher level of antisocial cognition would report engaging in more antisocial behaviour, including violent and delinquent

acts. It was also hypothesized that a stronger relationship would exist between hostility and interpersonal violence as compared to criminal attitudes and interpersonal violence, and that a stronger relationship would exist between criminal attitudes and delinquent acts as compared to hostility and delinquent acts. The final hypothesis of the present study was that adolescents endorsing higher levels of criminal attitudes would report committing a greater diversity of delinquent acts. In order to test these hypotheses, a set of correlational and logistic regression analyses was conducted between scores on the antisocial cognition measures and the behavioural outcome variables.

Correlational Analyses

First, a set of correlational analyses was conducted between scores on the antisocial cognition measures and the behavioural outcome variables. The correlations for gender and age are also reported. As illustrated in Table 19, positive relationships existed between the antisocial cognition measures and the behavioural outcome variables (range $r = .10$ to $r = .22$).

There was a significant positive correlation between the CSS-M total and the Juvenile Delinquency outcome variable. The LCP and TLV subscales of the CSS-M were also significantly correlated with Juvenile Delinquency. There were no other significant correlations between the Criminal Sentiments Scale-Modified (CSS-M) and the behavioural outcome variables.

The PID's Criminal Subculture factor (Factor 2) was significantly correlated with the Juvenile Delinquency outcome variable. No other significant relationships emerged between the behavioural outcomes and the Pride in Delinquency scale (PID).

HIQ total scores were positively correlated with Juvenile Delinquency and Diversity of Delinquent Acts. The Authority, Acquaintance and Attribution of Hostility subscales of the HIQ were positively correlated with the Juvenile Delinquency and Diversity of Delinquent Acts outcome variables. The Hostile Reaction subscale of the HIQ was positively correlated with the Juvenile Delinquency, Diversity of Delinquent Acts and Interpersonal Violence outcome variables. Finally, there were no significant correlations between the behavioural outcome variables and the Intimate/Family, Work, Anonymous, Overgeneralization and External Blame subscales of the HIQ.

Table 19

Correlations for Antisocial Cognition Measures and Behavioural Outcome Variables

Measure	Juvenile Delinquency	Diversity of Delinquent Acts	Interpersonal Violence
CSS-M	.14**	.06	.01
LCP	.10*	.07	.03
TLV	.10*	.03	-.00
ICO	.04	.01	-.02
PID	.06	.08	-.01
PID Factor 1	-.01	.05	-.02
PID Factor 2	.12*	.07	-.01
HIQ	.12*	.12*	.06
Authority	.17**	.16**	.09
Intimate/Family	.00	.08	-.02
Acquaintance	.14**	.13**	.08
Work	.04	.05	.09
Anonymous	.10	.05	.03
Overgeneralization	.08	.01	.02
Attribution of Hostility	.14**	.11*	.04
Hostile Reaction	.17**	.22***	.12*
External Blame	.05	.07	.01
Gender	-.24***	-.19***	-.23***
Age	.22***	.24***	.06

Note. $N = 347$.

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

Table 19 also shows that gender correlated significantly with the Juvenile Delinquency ($r = -.24$), Diversity of Delinquent Acts ($r = -.19$) and Interpersonal Violence ($r = -.23$) outcomes, indicating that males displayed higher levels of juvenile delinquency and interpersonal violence, and more diversity in delinquent acts. Furthermore, age correlated significantly with the Juvenile Delinquency ($r = .22$) and Diversity of Delinquent Acts ($r = .24$) outcome variables, suggesting that older adolescents engage in more juvenile delinquent acts and a greater diversity of delinquent acts than younger adolescents. Age was not significantly correlated with the Interpersonal Violence outcome.

Logistic Regression Analyses

A second series of regression analyses was performed as a further test for the hypothesis that adolescents with a higher level of antisocial cognition would report engaging in more antisocial behaviour, including delinquent and interpersonally violent acts. These analyses also tested the hypotheses that there would be a stronger relationship between hostility and interpersonal violence as compared to criminal attitudes and that there would be a stronger relationship between criminal attitudes and juvenile delinquency as compared to hostility.

The logistic regression analyses involved the criminal attitudes and hostility measures as the independent variables and each of the interpersonal violence and juvenile delinquency outcomes as the dependent variable. Age was included in the equations as an exploratory predictor variable and emerged as a significant predictor for the Juvenile Delinquency outcome. Subsequent analyses with the Juvenile Delinquency outcome variable involved controlling for the effect of age. Age failed to emerge as a significant

predictor for the Interpersonal Violence outcome. Again, analyses were performed separately for males and females.

Data Screening

There are several issues to consider when performing a logistic regression analysis (see Stevens, 2002; Tabachnick & Fidell, 2001). One concern is that the two levels of the categorical dependent variable must be mutually exclusive and exhaustive. This assumption was tenable, because both behavioural outcome variables are dichotomous indicators for which 1 indexes the presence of the behaviour and a 0 its absence.

The assumption of independence of observations was also considered and there was no reason to believe that observations were correlated among subjects. This conclusion is based on the same reasoning presented in the data screening section for the multiple regression analyses.

Finally, the issue of multicollinearity was investigated. Again, there were low to moderate intercorrelations among the predictors and the variance inflation factor (VIF) statistics did not exceed the value of 2, suggesting no problems with multicollinearity.

Antisocial Cognition Measures and Behavioural Outcome Variables

Juvenile Delinquency outcome. The logistic regression used to examine juvenile delinquency outcome resulted in a significant chi-square test for change in likelihood (χ^2 (3, $N = 277$) = 9.45, $p < .05$). This indicates that the antisocial cognition measures, as a set, are relatively strong predictors of whether adolescents have a history of juvenile delinquency. Of the antisocial cognition measures, the CSS-M provided a significant unique contribution to the prediction of juvenile delinquent outcome (Wald = 6.54, $p <$

.05). The implication is that, with total scores on the PID and HIQ held constant, the odds of delinquency are 1.05 times higher for each 1 point increase in CSS-M total scores. The PID and HIQ failed to make significant unique contributions to the prediction of juvenile delinquency.

As noted earlier, age was significantly correlated with the Juvenile Delinquency variable. With the effect of age removed from the antisocial cognition measures, the overall chi-square test for change in likelihood was not significant ($\chi^2(3, N = 275) = 7.03, p > .07$). This suggests that the set of antisocial cognition measures is a weak predictor of whether adolescents have a history of juvenile delinquency when the effect of age is held constant.

Furthermore, the overall chi-square tests for change in likelihood were not significant for either males ($\chi^2(3, N = 144) = 6.75, p > .08$) or females ($\chi^2(3, N = 128) = 6.90, p > .07$) separately. As a result, no further analyses were conducted.

Interpersonal Violence outcome. The logistic regression analysis used to examine interpersonal violence outcome produced a non-significant chi-square test for change in likelihood ($\chi^2(3, N = 279) = 2.43, p > .48$). This indicates that the set of predictor variables is a weak predictor of whether adolescents have engaged in interpersonally violent behaviours. Also, the logistic regression analyses for both males ($\chi^2(3, N = 146) = 3.31, p > .34$) and females ($\chi^2(3, N = 128) = 2.01, p > .57$) separately were not significant. As a result, no further analyses were conducted.

Descriptive Statistics and Group Comparisons: Juvenile Delinquency

Table 20 presents the descriptive statistics and group comparisons on the CSS-M, PID and HIQ for the total sample as well as for delinquent and nondelinquent

adolescents. Inspection of this table shows that delinquent adolescents had significantly greater mean scores on many of the antisocial cognition measures. Using a Bonferroni correction resulted in significant differences for only the Authority and Hostile Reaction subscales of the HIQ.

Table 20

Descriptive Statistics and Comparisons of Mean Antisocial Cognition Measure Scores: Juvenile Delinquency

Antisocial Cognition Measure	Group			<i>t</i>
	Total Sample (<i>N</i> = 347)	Delinquent (<i>n</i> = 41)	Nondelinquent (<i>n</i> = 306)	
CSS-M	33.9 (12.5)	38.8 (13.0)	33.3 (12.3)	2.69**
LCP	20.8 (7.9)	23.0 (9.3)	20.5 (7.6)	1.99*
TLV	8.8 (4.1)	9.8 (4.0)	8.6 (4.1)	1.99*
ICO	4.5 (2.2)	4.8 (2.2)	4.5 (2.2)	0.85
PID	54.7 (34.9)	60.0 (30.9)	54.0 (35.4)	1.17
PID-Factor 1	-33.0 (19.0)	-33.6 (16.9)	-33.0 (19.3)	-0.22
PID-Factor 2	-6.2 (12.9)	-2.3 (12.9)	-6.8 (12.8)	2.40*
HIQ	82.3 (15.0)	87.2 (16.1)	81.7 (14.7)	2.30*
Authority	12.1 (2.5)	13.2 (2.7)	11.9 (2.4)	3.48**
Family	12.1 (2.5)	12.1 (2.7)	12.1 (2.5)	0.04
Acquaintance	10.8 (3.3)	12.0 (3.2)	10.6 (3.3)	2.86**
Work	12.0 (3.3)	12.4 (3.3)	12.0 (3.3)	0.83
Anonymous	11.1 (3.2)	11.9 (4.1)	11.0 (3.1)	1.55 ^a
Overgeneralization	21.9 (4.2)	22.8 (4.7)	21.8 (4.1)	1.61
Attribution	20.8 (4.7)	22.6 (4.6)	20.6 (4.6)	2.86**
Hostile Reaction	18.2 (5.0)	20.4 (5.8)	17.8 (4.8)	3.37**
External Blame	21.5 (4.8)	22.1 (4.0)	21.4 (4.9)	0.95

Note. Standard deviations are in parentheses. CSS-M = Criminal Sentiments Scale-Modified; LCP = Law, Courts, Police; TLV = Tolerance for Law Violations; ICO = Identification with Criminal Others; PID = Pride in Delinquency Scale; PID-Factor 1 = Pride in Delinquency Scale-Factor 1; PID-Factor 2 = Pride in Delinquency Scale-Factor 2; Attribution = Attribution of Hostility.

^aResults for equal variances not assumed due to violation of homogeneity of variance.

* $p < .05$; ** $p < .01$.

Descriptive Statistics and Group Comparisons: Interpersonal Violence

Table 21 presents the descriptive statistics and group comparisons on the CSS-M, PID and HIQ for the total sample as well as for interpersonally violent and nonviolent adolescents.

Table 21*Descriptive Statistics and Comparisons of Mean Antisocial Cognition Measure Scores: Interpersonal Violence*

Antisocial Cognition Measure	Group			<i>t</i>
	Total Sample (<i>N</i> = 349)	Violent (<i>n</i> = 218)	Nonviolent (<i>n</i> = 131)	
CSS-M	34.0 (12.5)	34.1 (13.1)	33.8 (11.4)	0.26
LCP	20.8 (7.9)	21.0 (8.3)	20.5 (7.2)	0.60
TLV	8.8 (4.1)	8.8 (4.1)	8.8 (4.2)	-0.04
ICO	4.5 (2.2)	4.5 (2.2)	4.6 (2.3)	-0.43
PID	54.7 (35.1)	54.5 (34.1)	55.0 (36.7)	-0.16
PID-Factor 1	-33.0 (19.0)	-33.3 (18.2)	-32.7 (20.2)	-0.32
PID-Factor 2	-6.3 (13.0)	-6.4 (12.9)	-6.1 (13.2)	-0.20
HIQ	82.2 (14.9)	82.9 (15.8)	81.1 (13.4)	1.15
Authority	12.1 (2.5)	12.2 (2.6)	11.8 (2.4)	1.75
Family	12.1 (2.5)	12.1 (2.7)	12.2 (2.1)	-0.40 ^a
Acquaintance	10.8 (3.3)	11.0 (3.5)	10.5 (2.9)	1.67
Work	12.0 (3.3)	12.2 (3.4)	11.7 (3.0)	1.53
Anonymous	11.1 (3.2)	11.2 (3.4)	10.9 (2.8)	0.71 ^a
Overgeneralization	21.9 (4.2)	22.0 (4.3)	21.8 (4.1)	0.44
Attribution	20.8 (4.7)	20.9 (4.9)	20.6 (4.4)	0.75
Hostile Reaction	18.2 (5.0)	18.6 (5.1)	17.4 (4.7)	2.49*
External Blame	21.5 (4.8)	21.5 (4.9)	21.4 (4.6)	0.22

Note. Standard deviations are in parentheses. CSS-M = Criminal Sentiments Scale-Modified; LCP = Law, Courts, Police; TLV = Tolerance for Law Violations; ICO = Identification with Criminal Others; PID = Pride in Delinquency Scale; PID-Factor 1 = Pride in Delinquency Scale-Factor 1; PID-Factor 2 = Pride in Delinquency Scale-Factor 2; Attribution = Attribution of Hostility.

^aResults for equal variances not assumed due to violation of homogeneity of variance.

* $p < .05$.

Inspection of Table 21 shows that interpersonally violent adolescents had a significantly greater mean score on the Hostile Reaction subscale of the HIQ. This difference was non-significant with the use of a Bonferroni correction. Differences on mean scores for all other antisocial cognition measures were not statistically significant.

Relations Between Family Background and Behavioural Outcome Variables:

Correlational Analyses

For exploratory purposes, a set of correlational analyses was conducted between scores on the family background variables and the behavioural outcome variables. As illustrated in Table 22, there were significant positive relationships between the family background and behavioural outcome variables (range $r = .10$ to $r = .36$). In terms of the structural family variables, Family structure and Socioeconomic status were positively correlated with the Juvenile Delinquency and Diversity of Delinquent Acts outcomes. Family deviance and the overall Structural Family Factor were significantly correlated with each of the behavioural outcome variables.

In terms of the functional family variables, Mother and Father involvement and supervision were positively correlated with the Juvenile Delinquency and Diversity of Delinquent Acts outcome variables. With regards to overall Parental involvement and supervision, positive correlations were found with each of the three behavioural outcome variables. Parent-child relations, Mother-child relations and Father-child relations were significantly correlated with both Juvenile Delinquency and Diversity of Delinquent Acts.

There were significant positive correlations between Abuse/neglect and each of the behavioural outcome variables. Family violence was positively correlated with the

Diversity of Delinquent Acts and Interpersonal Violence outcomes. Finally, the overall Functional Family Factor was significantly correlated with Juvenile Delinquency, Diversity of Delinquent Acts and Interpersonal Violence.

Table 22

Correlations for Family Background Variables and Behavioural Outcome Variables

Variable	Juvenile Delinquency	Diversity of Delinquent Acts	Interpersonal Violence
Structural			
Family Factor	.24***	.36***	.14**
Family structure	.21***	.23***	.05
Socioeconomic status	.10*	.17***	.07
Family deviance	.17***	.24***	.23***
Functional			
Family Factor	.20***	.24***	.13*
Parental involvement/supervision	.19***	.17**	.11*
Mother	.22***	.18***	.08
Father	.13*	.12*	.10
Parent-child relations	.15**	.17***	.04
Mother	.14**	.16***	.06
Father	.13**	.14**	.01
Abuse/neglect	.15**	.32***	.25***
Family violence	.07	.19***	.19***

Note. $N = 338$.

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

Discussion

The family, being an individual's earliest social influence, has been represented in a vast amount of the theoretical and empirical literature on antisocial behaviour among adolescents (e.g., Andrews & Bonta, 1998; Rutter et al., 1998). However, there is a lack of research on the potential influence of family variables on the development of negative attitudes, specifically criminal attitudes and hostility. Such research is important in that it provides information on possible directions for the effective treatment of adolescents presenting with behavioural problems or delinquency. This study, therefore, explored the relationship between family background factors and the development of antisocial cognition and behaviour among adolescents. In order to extend the existing research, the development of antisocial cognition, specifically criminal attitudes and hostility, was examined using specialized assessment instruments.

There were four main purposes of this study. The first was to describe characteristics of the adolescents' family backgrounds and levels of antisocial cognition and behaviour. Further, this study examined the psychometric properties of the criminal attitudes and hostility measures in adolescents. The relationships between family background variables and antisocial cognition as well as between antisocial cognition and antisocial behaviour were examined. Finally, this study explored the potentially more direct relationships between family background variables and antisocial behaviour. It was hypothesized that there would be a stronger positive relationship between negative *functional* family variables and antisocial cognition than between negative *structural* family variables and antisocial cognition. Furthermore, it was hypothesized that adolescents with higher levels of antisocial cognition would report engaging in more

antisocial behaviour; stronger relationships were expected between hostility and interpersonal violence, and between criminal attitudes and juvenile delinquency. Finally, it was predicted that adolescents endorsing higher levels of criminal attitudes would report committing a greater variety of delinquent acts.

Characteristics of Adolescents

Males and females did not generally differ in their reported levels of negative structural and functional family background variables. That is, for this sample of adolescents, males and females presented with the same overall levels of adverse family background experiences. Research indicates that the family environments of female offenders are generally more dysfunctional than those of males (e.g., Hoge et al., 1994), but these findings would not be expected to generalize to the sample of adolescents in this study.

The functional family factors were the most prevalent for this sample, particularly poor relations between adolescents and their parents, with approximately 51% of adolescents reporting medium to high levels of dysfunction in this area. On the other hand, the data indicated that the overall incidence of family background risk factors was quite low, with the majority of adolescents reporting in the lower range of possible negative family background factors. This is reflected in the mean family background variable scores and percentages presented earlier. Given that the sample consisted of adolescents from correctional, clinical and non-clinical populations, the lower levels of dysfunction are not necessarily surprising, although the limited variability on the negative structural and functional family factors was unexpected. Unfortunately, the different

groups of adolescents were not identified in the database; therefore, the sample could not be subdivided for specific analyses.

With respect to antisocial cognition, males and females did not differ in their levels of criminal attitudes and hostility. The lack of gender differences is consistent with previous research on the risk factors for delinquency (Hoge et al., 1994; Simourd & Andrews, 1994). Also, the criminal attitude and hostility scores as measured by the CSS-M and HIQ were higher than those of previous studies with adult offender populations (Simourd, 1997; Simourd & Mamuza, 2000, 2002; Simourd & van de Ven, 1999). These findings were unexpected given the diverse nature and overall low base rate of criminality of the sample. Reasons for this may include sample differences (e.g., adolescents vs. adults) or the reliance on adolescent self-reports. For instance, these differences may be indicative of possible developmental changes in antisocial cognition (e.g., Crick & Dodge, 1996) or potential differences between this sample and adult offenders in terms of their tendency to provide socially desirable responses. The strengths and weaknesses of self-report measures will be discussed in the limitations section.

Consistent with research suggesting the stability of criminal attitudes across time within adult offender populations (Simourd & van de Ven, 1999), criminal attitudes and hostility, as assessed by the PID and HIQ, were found to be unrelated to age. The implication is that antisocial cognition is prevalent in both younger and older adolescents. On the other hand, criminal attitudes as measured by the CSS-M were significantly related to age for male adolescents. Furthermore, this relationship was evident only with respect to males' attitudes toward the law and criminal justice system. This finding may

reflect the greater involvement of older male adolescents with the criminal justice system (e.g., see Rutter et al., 1998), and thus more negative attitudes toward the system, as compared to females and younger male adolescents. Notwithstanding, the fact clearly remains that more research is needed in the area of the etiology of criminal attitudes among male and female adolescents (Simourd & van de Ven, 1999).

Finally, this study was the first to investigate the psychometric properties of the HIQ among adolescent populations. Consistent with previous research with adult offender populations (Simourd, 1997; Simourd & van de Ven, 1999; Simourd & Mamuza, 2000, 2002), the results suggest that the CSS-M, PID and HIQ are potentially useful instruments in assessment and case planning for adolescents presenting with aggressive or delinquent behaviours. The data indicated that the CSS-M, PID and HIQ had generally acceptable psychometric properties, which applied to both male and female adolescents. Finally, the HIQ was uncorrelated with both the CSS-M and PID, which should direct future research to investigate the association between the hostility and criminal attitude measures more closely. Further research on the use of these measures with adolescent populations is also needed.

The base rate of juvenile delinquency was low, with approximately 12% of the total sample of 507 adolescents reporting ever being arrested. Given that the adolescents were from correctional, clinical and non-clinical populations, this finding was expected. Furthermore, the diversity of delinquent acts was limited, with a maximum number of 10 out of 20 possible different types of delinquent acts reported. On the other hand, interpersonal violence was more prevalent, with 56% of the total sample having committed interpersonally violent acts. This relatively high rate may be due to the

definition of interpersonal violence used in this study, which included less severe and more common forms of interpersonal violence (e.g., hitting a sibling).

The lack of variability and low base rates of antisocial behaviour undoubtedly contributed to the low level of prediction and lack of significant findings where significant relationships had been expected. On the other hand, this same issue provides support for those relationships that did emerge, reinforcing the strength of these relationships despite the overall low incidence of antisocial behaviour.

Finally, 85% of the adolescents reporting delinquency were male and 15% female. Also, approximately 64% of the adolescents reporting interpersonal violence were male and 36% were female. These ratios are consistent with those typically reported in the literature (e.g., Eagly & Steffen, 1986; Hoge et al., 1994; see Rutter et al., 1998).

Relations Between Family Background Variables and Antisocial Cognition

As hypothesized, all significant correlations showed a positive relationship between adolescents' level of family dysfunction and antisocial cognition. That is, adolescents who reported a greater degree of adverse family background factors had higher levels of antisocial cognition. The correlational results also provided preliminary support for the hypothesized relationships between the functional and structural family background variables and the antisocial cognition measures. For instance, there were positive, albeit weak, relationships between the negative *functional* family variables and antisocial cognition as measured by the CSS-M, PID and HIQ total scores, whereas none emerged for the negative *structural* family variables.

The magnitude of the correlations between the *functional* family variables and antisocial cognition measures were lower than expected. This may be indicative of a more indirect relationship between functional family background factors and antisocial cognition. Consistent with research on the development of antisocial behaviour (e.g., see Andrews & Bonta, 1998; Rutter et al., 1998), the development of antisocial cognition among adolescents is likely influenced by a complex and interacting set of physical, psychological and environmental factors. Future research should investigate additional influences, such as peer relations, on the development and maintenance of antisocial cognition.

The fact that poor parent-child relations and a lack of parental involvement and supervision were significantly related to antisocial cognition is consistent with previous findings on the risk factors for delinquency (e.g., Hoge et al., 1994; Laub & Sampson, 1988; Loeber & Stouthamer-Loeber, 1986; Simourd & Andrews, 1994; Van Voorhis et al., 1988). Also, from a social learning perspective, it is not surprising that adolescents who have witnessed family violence also report higher levels of hostility toward authority figures.

At a broader level, the correlational results suggest that functional family background variables may be more related to hostility than to criminal attitudes per se. In fact, the literature provides support for a link between early family and environmental factors and hostility (e.g., Houston & Vavak, 1991; Thoresen & Pattillo, 1988; Weiss et al., 1992), but no such relationship has been established for criminal attitudes. In short, the implication is that, although both are important cognitive constructs in the

understanding of antisocial behaviour, hostility and criminal attitudes may differ in terms of etiology.

Inconsistent with the existing literature on the risk factors for delinquent behaviour (e.g., Hoge et al., 1996; Loeber & Stouthamer-Loeber, 1986), regression results suggested that *high* levels of parental involvement and supervision were significantly related to criminal attitudes as measured by the CSS-M. This relationship must be interpreted with some caution due to the existence of suppressor variables (Pedhazur, 1997; Tabachnick and Fidell, 2001). On the other hand, this relationship may be reflective of a methodological issue. The adolescents in this sample are relatively low risk and less deviant than those in previous studies on delinquency (e.g., Hoge et al., 1996); thus, the relationship between a *lack of* parental involvement and supervision and criminal attitudes may have emerged with adolescents displaying higher levels of risk. Finally, *high* levels of the parental involvement and supervision variable may be more reflective of adolescents' perceptions of inappropriate discipline, such as overly strict rules (e.g., Hoge & Andrews, 2001). In this case, the relationship to criminal attitudes is in the expected direction.

The regression results provide further support for the hypothesized relationship between the functional and structural family background variables and antisocial cognition, with the significantly stronger relationship emerging between the negative *functional* family variables and criminal attitudes as measured by the CSS-M.

The multiple regression analyses involving the CSS-M indicated that higher levels of parental involvement and supervision and poor parent-child relations were significantly related to higher levels of criminal attitudes. Moreover, this relationship

was significant for adolescents 13 to 15 years of age, but not for older adolescents (16-19 years). That is, higher levels of parental involvement and supervision and poor parent-child relations were significantly related to higher levels of criminal attitudes for younger adolescents. Consistent with previous research (e.g., Hoge et al., 1996), these results suggest that family and parental variables may be more important and have more of an influence for younger adolescents, whereas older adolescents may be more influenced by factors external to the family, such as peer relations.

High levels of parental involvement and supervision and poor parent-child relations were significantly related to higher levels of criminal attitudes for younger males, whereas only poor parent-child relations were significantly related to higher levels of criminal attitudes for female adolescents. These findings may reflect differential effects of parental involvement and supervision practices for young male and female adolescents (e.g., Riley & Shaw, 1985). Future research should consider this issue more closely, given the possible interpretations of the parental involvement and supervision effect in this study and the limited research on gender differences in psychosocial risks (see Rutter et al., 1998).

Additional information on the relationship between family background variables and criminal attitudes was obtained from the multiple regression analyses involving the subscales of the CSS-M. First, analyses indicated that female adolescents reporting poor parent-child relations endorsed higher levels of criminal attitudes with respect to the criminal justice system (LCP subscale). Also, these results suggested that poor parent-child relations influenced female adolescents' identification with criminal others (ICO subscale). Consistent with previous research on gender differences and parental and peer

group influences (Maccoby, 1986; Riley & Shaw, 1985; Warr, 2002), this last finding may indicate differential effects of poor parent-child relations for male and female adolescents with respect to the role of peer group influences. Again, further research is needed on gender differences in social groups and peer group influences before any firm conclusions can be made (Rutter et al., 1998).

Overall, the relationships between the family background variables and criminal attitudes as measured by the PID were not significant. One implication of the multiple regression results involving the PID is that some combination of the family background variables appeared to influence female adolescents' criminal attitudes as measured by the PID, but that individual family background variables did not significantly contribute to this relationship. Furthermore, this relationship did not emerge for male adolescents. This suggests that gender differences may exist with respect to the development of criminal attitudes, despite the fact that research has suggested no gender differences for the risk factors for delinquency per se (Hoge et al., 1994; Simourd et al., 1994).

The multiple regression analyses involving the HIQ showed that there was a significant relationship between the set of family background variables and hostility as measured by the Authority subscale, although individual family background variables did not contribute to this relationship. However, this relationship did not emerge for males and females separately, nor were there any significant relationships between the family background variables and the remaining scales of the HIQ. These results are inconsistent with theories and research findings that explain the development of hostility from an early environmental perspective (e.g., Houston & Vavak, 1991; Thoresen & Pattillo, 1988). One explanation for this may be the significant overlap among the family

background variables, making it difficult to separate their individual effects. In fact, given the significant relationships between the family background variables and hostility (see Table 8), it is likely the case that family and early environmental factors are correlates of hostility, but that these relationships are not as direct as previously suggested.

Furthermore, the correlational results did suggest that the functional family variables, including parental involvement and supervision, parent-child relations and the witnessing of family violence, were more related to hostility than any of the structural family variables. The failure to find a significant relationship between abuse/neglect and hostility is inconsistent with the existing literature (e.g., Weiss et al., 1992). One explanation for this finding is the direct nature of the questions relating to a history of abuse, which may have resulted in the adolescent not identifying abusive or neglectful parental behaviour as "abuse" per se. Clearly, more research is needed on the etiology of hostility.

Relations Between Antisocial Cognition and Antisocial Behaviour

As hypothesized, higher levels of antisocial cognition were significantly related to antisocial behaviour, including juvenile delinquency and interpersonal violence. Overall, these results are consistent with theory and research, suggesting clear links between an individual's attitudes and behaviour (e.g., Ajzen & Fishbein, 1980).

The hypothesized relationships between the antisocial cognition measures and the behavioural outcome variables, and the relative strengths of these relationships were only partially supported. First, there were significant relationships between criminal attitudes and juvenile delinquency, but there were also similar relationships between hostility and

juvenile delinquency. The magnitude of the correlations between the criminal attitude measures and the juvenile delinquency outcome variable were lower than expected. One reason for this may be the sample's low base rate of delinquency. Future research should compare the strength of the criminal attitude-behaviour relationship in adolescents across more diverse samples.

Another reason may relate to the measurement difficulties inherent in attempts at sorting out the mechanisms involved in attitude-behaviour relationships. As suggested in previous research (Simourd, 1997), stronger relationships between attitude measures and criminal conduct may be evident with the complementary use of measures of intention, which is often considered to be more directly related to behaviour (Ajzen & Fishbein, 1980). Finally, it may be related to developmental issues, such as age of onset (e.g., Loeber & Stouthamer-Loeber, 1996; Moffitt, 1993; Moffitt, Caspi, Dickson, Silva, & Stanton, 1996). For instance, Moffitt and colleagues (1993, 1996) suggest that there are two distinct and qualitatively different groups of adolescents who engage in antisocial behaviour: adolescent-limited and life-course-persistent. Differentiating between adolescents whose antisocial behaviour is limited to adolescence and those for whom such behaviour is more persistent may allow for a better understanding of the attitude-behaviour relationship among adolescents. For example, it may have been that adolescents reporting juvenile delinquent behaviours in the present study were of the adolescent-limited group and, thus, had weaker criminal attitudes than might be expected. This may explain the weaker criminal attitude-behaviour relationship as compared to results from studies with adult offender populations (e.g., Simourd, 1997; Simourd & van de Ven, 1999).

The finding that hostility as measured by the HIQ total and several subscales was related to juvenile delinquency was expected given that hostility has emerged as an important cognitive construct in the understanding of deviant and offending behaviours (e.g., Gendreau et al., 1996; Simourd & Mamuza, 2000). The fact that these relationships were relatively weak is consistent with the idea that hostility is a dynamic attitudinal construct, more related to proximal aggressive and criminal behaviour than to distal criminal conduct, such as previous criminal convictions (Simourd & Mamuza, 2000).

The relationship between hostility as measured by the Hostile Reaction subscale and interpersonal violence, and the failure to find any significant relationships between criminal attitudes and interpersonal violence, provide support for the hypothesis that there would be a stronger relationship between hostility and interpersonal violence as compared to criminal attitudes and interpersonal violence. This is consistent with theory and research, identifying hostility as a significant determinant of aggression and violent behaviour (e.g., Anderson & Bushman, 2002; Dodge, 1980; Orobio et al., 2002). Further, the finding that there were significant relationships between the criminal attitude measures and juvenile delinquency, whereas none emerged between criminal attitudes and interpersonal violence reinforces the inherent importance of criminal attitudes in the understanding and prediction of criminal behaviour (e.g., Andrews & Bonta, 1998).

The unique relationship between the Hostile Reaction subscale and the Interpersonal Violence outcome variable is also interesting in the context of research with aggressive adolescents and juvenile offenders (Dodge et al., 1990; Slaby & Guerra, 1988). For instance, Dodge and colleagues (1990) found that hostile attribution

tendencies were significantly related to reactive-aggressive and interpersonally violent behaviours, but not to proactive (instrumental) aggression.

One reason for the lack of significant relationships between the remaining hostility scales and interpersonal violence may be related to the level of aggressive or interpersonally violent behaviours exhibited by the adolescents. According to previous research (Orobio et al., 2002), larger effects are associated with more severe aggressive behaviour. Thus, we may have found stronger relationships between the hostility scales and the Interpersonal Violence outcome had a different measure of interpersonal violence been used (e.g., assault).

Another explanation may be the inappropriateness of some items of the HIQ for an adolescent sample. The HIQ was designed to measure overall level of hostile interpretations, the different social situations in which these interpretations occur, and the different forms or subcomponents of hostility, and use of the HIQ is most typical with adult offender populations. Thus, the adult-orientation of some of the questions may not be applicable to adolescents.

The final research hypothesis that there would be a positive relationship between the level of criminal attitudes and the diversity of juvenile delinquency was not supported. Inconsistent with previous research findings (e.g., Simourd, 1997; Simourd & van de Ven, 1999), adolescents endorsing higher levels of criminal attitudes based on the CSS-M and PID scores did not report committing a greater variety of delinquent acts. On the other hand, adolescents endorsing higher levels of hostility based on the HIQ scores did report committing a greater number of different offenses, suggesting that these

adolescents may be more likely to engage in both nonviolent and violent behaviours, resulting in a greater versatility of criminal behaviour.

Overall, the logistic regression analyses provided support only for the hypothesized relationship between criminal attitudes and juvenile delinquent acts in so far as the unique contribution of the CSS-M to the prediction of the juvenile delinquency outcome variable was significant, whereas that of the HIQ was not.

Contrary to the research hypotheses, the logistic regression results indicated that the CSS-M, PID and HIQ were relatively weak predictors of adolescents' history of juvenile delinquent and interpersonally violent behaviours. In short, these antisocial cognition measures were unable to clearly distinguish between juvenile delinquents and nondelinquents, and between interpersonally violent and nonviolent adolescents. Again, reasons for this may be the low base rate of delinquency, the definition of violence and the resulting lack of variability in the behavioural outcome variables.

On the other hand, additional analyses did provide support for differences between juvenile delinquents and nondelinquents, and between interpersonally violent and nonviolent adolescents in terms of their levels of antisocial cognition. Results indicated that delinquent adolescents had greater criminal attitudes and hostility than nondelinquent adolescents as assessed by the CSS-M, PID and HIQ. These results are consistent with those of previous studies (e.g., Glueck & Glueck, 1950), which clearly showed that delinquents and nondelinquents differed on such things as defiant attitudes and hostility. Furthermore, the results indicated that interpersonally violent adolescents were more likely than nonviolent adolescents to respond in hostile ways after interpreting neutral situations as hostile. However, the finding that interpersonally violent and

nonviolent adolescents did not generally differ in levels of criminal attitudes or hostility is inconsistent with previous research (e.g., Dodge et al., 1990; Orobio et al., 2002; Simourd & van de Ven, 1999; Slaby & Guerra, 1988).

Relations Between Family Background Variables and Antisocial Behaviour

Exploratory analyses showed that family background variables were significantly related to both delinquency and interpersonal violence. These results are consistent with the extensive literature previously reviewed, indicating the importance of family factors in the development of antisocial behaviours. Furthermore, these results underline the importance of an exhaustive set of family variables for the explanation of behavioural problems and delinquency (e.g., Loeber & Stouthamer-Loeber, 1986).

Based on the correlational results, the distinction between structural and functional family factors, and their relative contributions to the development of behavioural problems and delinquency are not as clear as in previous studies (e.g., Laub & Sampson, 1988; Leblanc, 1992; Van Voorhis et al., 1988). Overall, these results suggest that the structural family background variables may be just as important to the understanding of juvenile delinquency and interpersonal violence as the functional family background variables. More research is clearly needed in this area.

Limitations of the Study

Given the use of archival data, limitations exist in terms of the variables available for investigation in the study, including the absence of protective factors (e.g., Hoge et al., 1996; Stouthamer-Loeber et al., 1993). Further, the previously discussed issue of missing data did limit the total number of subjects that could be used for each analysis, although statistical power was retained due to large sample size.

Another potential limitation is the use of self-report measures. One issue with self-report measures is that adolescents who are unable to read and/or understand the questions will be unable to provide reliable information. The fact that at least 90% of the adolescents were in grades 9 to 12 suggests that this issue is not a concern with this sample. In addition, only 6.7% of the adolescents reported a learning disorder, with an even lower percentage of adolescents reporting a learning disorder that might potentially affect reading abilities or comprehension (e.g., Dyslexia, 1.6%). Nonetheless, a weakness of this study is the exclusive reliance on self-report data from adolescents. Youth may not clearly or accurately remember their experiences or may not be able to objectively report on their own behaviour. Consistent with this are response bias or social desirability considerations when using self-report measures (e.g., Paulhus, 1991).

Despite these considerations, self-report measures are useful in applied settings and are an established method for obtaining information in this area of research (e.g., Leblanc, 1992; Van Voorhis et al., 1988). For instance, the debate over the use of official records of delinquency is extensive and involves issues such as selection factors and differential processing. Thus, self-reported delinquency is most often accepted as a more useful and reliable account of actual delinquent behaviours than official records (e.g., see Rutter et al., 1998). Finally, it is unlikely that adolescents underestimated their delinquent or interpersonally violent behaviours, as might be the case with official data, because it would serve no purpose for the adolescents (i.e., information was for research purposes only), and all information was kept anonymous and confidential. Nonetheless, only limited information is available regarding the reliability and validity of the

psychosocial history information questionnaire from which the family background and behavioural outcome variables were derived and this presents an obvious concern.

The suppression of variance in the regression analyses of the family background variables on the antisocial cognition measures was inevitable due to the low correlations between the family background variables and the antisocial cognition measures, and the relatively high intercorrelations among the family background variables. Although useful in terms of prediction, suppressor variables complicate the analysis and interpretation of the data (see Pedhazur, 1997; Tabachnick and Fidell, 2001). Also, the high intercorrelations among predictors and low correlations with outcomes would contribute to the lack of significant findings where significant relationships had been expected.

The level of prediction represented in the correlational and regression results was relatively low. This partly reflects the fact that adolescents in the present study displayed limited variability on the predictor and outcome variables. The relations would undoubtedly have been stronger if more delinquent youths with varying levels of delinquency had been included.

Finally, an investigation of the direct and indirect relationships between the family background factors, criminal attitudes and hostility measures, and behavioural outcome variables was not possible due to low statistical significance. The proposed model is outlined in Figure 2. In short, it was proposed that functional family factors would mediate the indirect influence of structural family factors on the development of antisocial cognition and behaviour. It was also suggested that functional family factors would have a direct influence on the development of antisocial cognition and behaviour. Next, it was expected that there would be an indirect influence of functional family

factors on the development of antisocial behaviour, which would be mediated by the presence of antisocial cognition, specifically criminal attitudes and hostility. Finally, it was suggested that antisocial cognition would be directly related to antisocial behaviour. More specifically, it was hypothesized that hostility would have a stronger influence on interpersonally violent outcome, whereas criminal attitudes would be more strongly related to juvenile delinquency. It was also expected that the overall path analysis would be the same for males and females.

Family Background Variables

Figure 2. Proposed model of the development of antisocial cognition and behaviour.

Along with suggestions outlined in the following section, future research should investigate such a model. A definitive test of this model would require improved measurement in some of the family background and behavioural outcome variables. Also, a longitudinal study (vs. cross-sectional) would provide important information on

age differences and developmental changes with respect to the strengths of predictors of antisocial cognition and behaviour. Finally, there is a need for a more comprehensive model that considers reciprocal relations and includes a broader range of situational and personal factors (e.g., peers).

Implications and Suggestions for Future Research

This study is important from both a theoretical and applied perspective. First, it extended the research on the assessment and understanding of antisocial cognition, using specialized assessment instruments. This research also demonstrated that relationships do, in fact, exist between family background factors, antisocial cognition and antisocial behaviour, but that the development of both antisocial cognition and behaviour is likely influenced by an interacting, comprehensive set of risk and protective factors (e.g., Hoge et al., 1994; Hoge et al., 1996; Rutter et al., 1998).

Future research should consider a broader range of possible risk and protective factors, including antisocial cognition, using a longitudinal design in order to provide a better understanding of how the effects of adverse early experiences can be carried forward developmentally (Rutter et al., 1998). Following from this, more studies are also needed that consider developmental differences between adolescents whose antisocial behaviour is limited to adolescence and those for whom such behaviour persists into adulthood (e.g., Loeber & Stouthamer-Loeber, 1996; Moffitt, 1993; Moffitt et al., 1996). Finally, further research is needed on the psychometric properties of the antisocial cognition measures with adolescent populations. Investigating the validity of these measures with aggressive adolescents and juvenile delinquents will allow for stronger conclusions with respect to their usefulness in the areas of assessment and treatment.

An applied implication of this research is that family background factors, such as poor parent-child relations, seem to be important in the development of both antisocial cognition and behaviour. Also, although not as evident in this study, it has been established that the development of antisocial cognition contributes to the persistence of antisocial behaviour (e.g., Andrews & Bonta, 1998). This study, therefore, provides further support for early intervention and treatment efforts of a cognitive-behavioural and multisystemic nature, delivered, for instance, in the context of the family (e.g., Andrews & Bonta, 1998; Henggeler et al., 1998; Reese, Vera, Simon, & Ikeda, 2000; Rutter et al., 1998). Indeed, a dedicated concern for the effective treatment of youth presenting with behavioural problems and delinquency is essential to the advancement of research in this area.

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Appendix A

Psychosocial History Information

Psychosocial History Information
Adolescent Demographic – Background Information Questionnaire

1. Age: _____

2. Sex: ☐ Male ☐ Female

3. Which of the following best describes your racial/ethnic background?
(Check ALL that apply)

- ☐ Asian
- ☐ African American/Black
- ☐ Native American Indian
- ☐ Mexican American or Chicano
- ☐ Puerto Rican American
- ☐ Latin American
- ☐ Caucasian/White
- ☐ Other _____
(Please specify)

4. What grade are you currently in? (Check ONE)

☐ 4 th grade	☐ 9 th grade
☐ 5 th grade	☐ 10 th grade
☐ 6 th grade	☐ 11 th grade
☐ 7 th grade	☐ 12 th grade
☐ 8 th grade	☐ ungraded class
☐ _____
(Please specify)	

5. Have you been assessed for a learning disorder?

- ☐ YES
- ☐ NO

5a. If YES, what type of disorder were you determined to have?

- ☐ Attention Deficit Disorder
- ☐ Dyslexia
- ☐ Hyperactivity
- ☐ Other _____

6. Which of the following people live in the same household with you?

(Check ALL that apply)

- ☐ I live alone
- ☐ Mother
- ☐ Other female guardian (stepmother, foster mother)
- ☐ Father
- ☐ Other male guardian (stepfather, foster father)
- ☐ Brothers / Sisters (including step or half brothers/sisters)
- ☐ Grandparents
- ☐ Other relatives (aunts, uncles, cousins)
- ☐ Non-relatives (boyfriend, girlfriend, friend)
- ☐ _____

(Please specify)

6a. Who is responsible for your care? (mother, father, stepparent, grandparent, aunt, uncle, brother, sister)

(Please specify)

7. Did you live with both biological parents to age 16?

- ☐ YES
- ☐ NO – Mother only, Father only
- ☐ NO – one parent or both parents died before age 16
- ☐ NO – separated due to parental abandonment/abuse

8. Were you adopted?

- ☐ YES
- ☐ NO

9. Were you put in a foster home before age 16?

- ☐ YES
- ☐ NO

If yes, please specify how many homes _____

10. As a child, were you ever abused?

- ☐ YES
- ☐ NO

10a. If yes, please indicate type of abuse:

- ☐ Verbally or emotionally (including neglect)
- ☐ Physically neglected
- ☐ Physically
- ☐ Sexually

10b. If yes, by whom?

- ☐ Mother
- ☐ Father
- ☐ Stepmother
- ☐ Other
- ☐ Stepfather
- ☐ Sibling
- ☐ Grandparent

(Please specify)

11. Do you have any children?

- ☐ YES – live with them
- ☐ YES – give child support
- ☐ YES – no involvement
- ☐ NO

12. Have you ever been homeless?

- ☐ YES
- ☐ NO

12a. Have you ever lived in a housing project?

- ☐ YES
- ☐ NO

12b. Have you ever lived in a trailer park?

- ☐ YES
- ☐ NO

13. Is your parent(s)/guardian(s) currently working?

Mother/Stepmother/Foster mother

- ☐ NO
- ☐ YES, full-time
- ☐ YES, part-time

Father/Stepfather/Foster father

- ☐ NO
- ☐ YES, full-time
- ☐ YES, part-time

13a. If your mother works, what is her job?

(Please specify)

13b. If your father works, what is his job?

(Please specify)

14. Are the following statements about your parents, stepparents or guardians true or false? (CIRCLE ONE NUMBER FOR EACH STATEMENT)

	TRUE	FALSE	DOESN'T APPLY
a. My <u>mother</u> (<u>stepmother</u> , <u>female</u> guardian) keeps close track of how well I am doing in school.	1	2	3
b. My <u>mother</u> (<u>stepmother</u> , <u>female</u> guardian) almost always knows where I am – what I am doing.	1	2	3
c. My <u>mother</u> (<u>stepmother</u> , <u>female</u> guardian) knows most of my friends.	1	2	3
d. My <u>mother</u> (<u>stepmother</u> , <u>female</u> guardian) approves of most of my friends.	1	2	3
e. My <u>mother</u> (<u>stepmother</u> , <u>female</u> guardian) is a person I can go to for help and advice with problems I am having.	1	2	3
f. My <u>father</u> (<u>stepfather</u> , <u>male</u> guardian) almost always knows where I am – what I am doing.	1	2	3
g. My <u>father</u> (<u>stepfather</u> , <u>male</u> guardian) knows most of my friends.	1	2	3
h. My <u>father</u> (<u>stepfather</u> , <u>male</u> guardian) keeps close track of how well I am doing in school.	1	2	3
i. My <u>father</u> (<u>stepfather</u> , <u>male</u> guardian) approves of most of my friends.	1	2	3
j. My <u>father</u> (<u>stepfather</u> , <u>male</u> guardian) is a person I can go to for help and advice with problems I am having.	1	2	3

15. If you are new here, how would you describe your grades before you came here.

- ☐ Better than average (mostly A's and B's)
- ☐ Average (mostly C's)
- ☐ Below average, but passing (mostly D's, some C's)
- ☐ Mostly failing

15a. How would you describe your current grades?

- ☐ Better than average (mostly A's and B's)
- ☐ Average (mostly C's)
- ☐ Below average, but passing (mostly D's, some C's)
- ☐ Mostly failing

16. Does anyone in your family have a history of emotional or behavioral problems (psychological or mental disorder)?

- ☐ YES
- ☐ NO

17. Have you ever received treatment or services from a psychiatrist, psychologist, counsellor, or social worker for an emotional or behavior problem?

- ☐ YES
- ☐ NO

18. Does anyone in your family have a history of alcohol and drug abuse?

- ☐ YES
- ☐ NO

19. Has a family member or a close friend ever attempted suicide?

- ☐ NO, neither one
- ☐ YES, a family member
- ☐ YES, a close friend
- ☐ YES, both a family member and a close friend

20. Has a family member or a close friend ever completed suicide (died because of suicide)?

- ☐ NO, neither one
- ☐ YES, a family member
- ☐ YES, a close friend
- ☐ YES, both a family member and a close friend

21. Have you ever attempted suicide?

- ☐ YES
- ☐ NO

22. Have you ever mutilated yourself?

- ☐ NO
- ☐ YES, by scratching
- ☐ YES, with knives
- ☐ YES, with fire
- ☐ YES, other _____
(Please specify)

23. Does anyone in your family have a history of violent behavior (angry outbursts, hitting, verbally threatening, etc.)?

- ☐ YES
- ☐ NO

24. Have you ever been violent toward a friend or someone you cared about?

- ☐ YES
- ☐ NO

24a. If YES, please describe what you did and explain why you did it.

24b. If YES, when did this happen?

☐ Less than a week ago	☐ 4 to 6 months ago
☐ This past month	☐ 6 months to a year ago
☐ 2 to 3 months ago	☐ More than a year ago

25. Has a loved one or someone in your family ever been violent towards you?

- ☐ YES
- ☐ NO

25a. If YES, please describe what they did and why they might have done it.

25b. If YES, when did this happen?

☐ Less than a week ago	☐ 4 to 6 months ago
☐ This past month	☐ 6 months to a year ago
☐ 2 to 3 months ago	☐ More than a year ago

26. Have you ever been a member of a gang?

- ☐ YES, but not involved in violence
- ☐ Involved as a perpetrator/victim/witness of violence
- ☐ Never been

27. What age were you when you witnessed violence firsthand? _____

27a. What is the most extreme act of violence that you have witnessed?

- ☐ Someone being killed ☐ Someone being shot
- ☐ Someone being knifed ☐ Someone being beat up
- ☐ Other _____
- (Please specify)*

27b. What is the most extreme act of violence that someone inflicted on you?

- ☐ Someone tried to kill you ☐ Someone tried to shoot you
- ☐ Someone knifed you ☐ Someone beat you up
- ☐ Someone hit you ☐ I have never been injured or hurt
- ☐ Other _____
- (Please specify)*

27c. How old were you, the first time you were humiliated? _____

27d. What is the worst incidence of humiliation you have experienced?

27e. Have you ever tried to humiliate someone else?

- ☐ YES
- ☐ NO

27f. At what age did you first injure or hurt someone else? _____

27g. What is the most extreme act of violence that you have committed?

☐ Killed someone	☐ Shot someone
☐ Knifed someone	☐ Beat up someone
☐ Hit someone	☐ I have not committed any violent acts
☐ Other _____	

(Please specify)

28. Have you ever participated in any of the following?

☐ Daycare	☐ Head Start
☐ After school care	☐ Sports team
☐ Clubs	☐ Music or art
☐ Have any mentors	
☐ Other _____	

(Please specify)

28a. Did you have any behavior problems in elementary school?

- ☐ None (Never got in trouble)
- ☐ Slight (Minor discipline or attendance problems)
- ☐ Severe (Frequent disruptive behavior, expulsion, or serious suspension)

29. Have you ever been arrested?

- ☐ YES
- ☐ NO

29a. If YES, how many times have you been arrested? _____

29b. How old were you the first time you were arrested? _____

29c. What is the longest time that you served? _____

30. Please check any of the following offenses you have committed:

☐ (1) Aggravated assault	☐ (11) Kidnapping
☐ (2) Armed robbery	☐ (12) Manslaughter
☐ (3) Arson	☐ (13) Possession of a controlled substance
☐ (4) Burglary	☐ (14) Possession of a stolen car/property
☐ (5) Car-jacking	☐ (15) Prostitution
☐ (6) Criminal Mischief	☐ (16) Rape
☐ (7) Drug Trafficking	☐ (17) Resisting Arrest
☐ (8) Driving under the influence	☐ (18) Robbery

- ☐ (9) Homicide ☐ (19) Sexual Abuse
☐ (10) Harassment ☐ (20) Theft

31. Have you ever witnessed violence in your home?

☐ YES

☐ NO

- ☐ Someone being killed ☐ Someone being shot
☐ Someone being knifed ☐ Someone being beat up
☐ Other _____

(Please specify)

31a. Have you ever witnessed violence in your community?

☐ NO

☐ YES

- ☐ Someone being killed ☐ Someone being shot
☐ Someone being knifed ☐ Someone being beat up
☐ Other _____

(Please specify)

32. What are you MOST likely to do after completing high school? (CHECK ONE)

- ☐ I plan to get a job
☐ I plan to enlist in the military
☐ I plan to go to a technical school – learn a skill
☐ I plan to go to college
☐ I don't have any plans
☐ Other _____

(Please specify)

33. Please think about the future – the next few years.

(CIRCLE ONE NUMBER for each statement)

What is your best guess that you will:

No Chance	Very Little Chance	Some Chance	Very Good Chance
--------------	-----------------------	----------------	---------------------

a. Drop out of high school temporarily.	1	2	3	4
b. Transfer to another school.	1	2	3	4
c. Drop out of high school permanently.	1	2	3	4

d. Enlist in the military (Army, Navy, Marines, etc.).	1	2	3	4
e. Graduate from high school or pass the GED.	1	2	3	4
f. Find a job when you finish school.	1	2	3	4
g. Get into trouble with the law.	1	2	3	4
h. Continue on in school (college, technical school, etc.).	1	2	3	4
i. Do something illegal just to get money.	1	2	3	4
j. Stay out of fight.	1	2	3	4
k. Have the skills you need to get a good job.	1	2	3	4

34. If you need some information or advice about something, is there someone who you could talk with?

- ☐ YES
☐ NO

34a. If yes, please check any of the following people that you could go to for information or advice.

(CHECK ALL THAT APPLY)

- ☐ Mother or stepmother
☐ Father or stepfather
☐ Sister or brother
☐ Other relative (aunt, uncle, grandparent, cousin, etc.)
☐ Teacher at the school that you attend
☐ Other adult in the community/neighborhood/church
☐ Sports or entertainment bar
☐ Other _____

(Please specify)

35. If you were having trouble at home, is there someone you could talk to about it?

- ☐ YES
☐ NO

35a. If yes, please check any of the following people that you could go to for help with a problem or trouble at home.

(CHECK ALL THAT APPLY)

- ☐ Mother or stepmother
- ☐ Father or stepfather
- ☐ Sister or brother
- ☐ Other relative (aunt, uncle, grandparent, cousin, etc.)
- ☐ Teacher at the school that you attend
- ☐ Other adult in the community/neighborhood/church
- ☐ Sports or entertainment bar
- ☐ Other _____
(Please specify)

36. If you got into some serious trouble, is there someone you could talk with?

(CHECK ALL THAT APPLY)

- ☐ Mother or stepmother
- ☐ Father or stepfather
- ☐ Sister or brother
- ☐ Other relative (aunt, uncle, grandparent, cousin, etc.)
- ☐ Teacher at the school that you attend
- ☐ Other adult in the community/neighborhood/church
- ☐ Sports or entertainment bar
- ☐ Other _____
(Please specify)

37. Have you ever had problems with wetting your bed after age 8?

- ☐ YES
- ☐ NO

38. Have you ever set fires or engaged in fire-play?

- ☐ YES
- ☐ NO

39. Have you ever been cruel to animals?

- ☐ YES
- ☐ NO

40. Have you ever experienced a head injury?

- ☐ YES
- ☐ NO

Appendix B

Composite Family background and Behavioural outcome variables

Items Comprising the Family background variables

Structural Family Factors

Family structure

One or both biological parents absent (range = 0-1)

Adopted (range = 0-1)

Foster home (range = 0-1) and number of placements (#)

Socioeconomic status (range = 0-2)

History of low income living (range = 0-1)

Homeless

Housing project

Trailer

Parental unemployment status (range = 0-1)

Family deviance (range = 0-5)

History of behavioural or emotional problems

History of substance abuse

History of suicidal behaviour (attempt/commit)

History of violent behaviour

Functional Family Factors

Parental involvement and supervision (range = 0-8)

Mother (range = 0-4)

Monitor school performance

Monitor location/activities

Monitor friends

Approval of friends

Father (range = 0-4)

Monitor school performance

Monitor location/activities

Monitor friends

Approval of friends

Parent-child relations (range = 0-6)

Mother (range = 0-3)

For information or advice

For help with problem or trouble at home

To talk with if involved in serious trouble

Father (range = 0-3)

For information or advice

For help with problem or trouble at home

To talk with if involved in serious trouble

Abuse and/or neglect (range = 0-2)

Abused as a child (including reported type of abuse)

Victim of violence by a family member

Family violence (range = 0-1)

Witnessed violence in the home (including reported type of violence)

Items Comprising the Behavioural outcome variables

Interpersonal Violence (range = 0-1)

Violent toward a friend or someone they cared about

Interpersonally violent acts reported

Interpersonally violent offences or crimes reported

Juvenile Delinquency (range = 0-1)

History of arrest (including number)

Diversity of Delinquent Acts

Diversity of antisocial acts or offences committed (range = 0-20)

Appendix C

Criminal Sentiments Scale Modified

Criminal Sentiments Scale Modified

David Simourd, Ph.D.

NAME: _____

DATE: ____/____/____

For each statement check the appropriate
Box according to how you feel about it.

If you AGREE

Check ☐ A

If you are not sure or are
UNDECIDED

Check ☐ U

If you DISAGREE

Check ☐ D

#	Question	Agree	Undecided	Disagree
1	Pretty much all laws deserve our respect.	☐	☐	☐
2	It is our duty to obey all laws.	☐	☐	☐
3	Laws are usually bad.	☐	☐	☐
4	The law is rotten to the core.	☐	☐	☐
5	You cannot respect the law because it's there only to help a small and selfish group of people.	☐	☐	☐
6	All laws should be obeyed because they are laws.	☐	☐	☐
7	The law does not help the average person.	☐	☐	☐
8	The law is good.	☐	☐	☐
9	Law and Justice are the same thing.	☐	☐	☐
10	The law makes slaves out of most people for a few people on top.	☐	☐	☐
11	Almost any jury can be fixed.	☐	☐	☐
12	You cannot get justice in court.	☐	☐	☐
13	Lawyers are honest.	☐	☐	☐
14	Prosecutors often produce fake witnesses.	☐	☐	☐
15	Judges are honest.	☐	☐	☐
16	Court decisions are pretty well always fair.	☐	☐	☐
17	Pretty well anything can be fixed in court if you have enough money.	☐	☐	☐
18	A judge is a good person.	☐	☐	☐
19	The police are honest.	☐	☐	☐
20	A cop is a friend to people in need.	☐	☐	☐
21	Life would be better with fewer cops.	☐	☐	☐

22	The police should be paid more for their work.	☐	☐	☐
23	The police are as crooked as the people they arrest.	☐	☐	☐
24	Society would be better off if there were more police.	☐	☐	☐
25	The police almost never help people.	☐	☐	☐
26	Sometimes a person like me has to break the law to get ahead in life.	☐	☐	☐
27	Most successful people break the law to get ahead in life.	☐	☐	☐
28	You should always obey the law, even if it keeps you from getting ahead in life.	☐	☐	☐
29	It's OK to get around the law as long as you don't get caught.	☐	☐	☐
30	Most people would commit crimes if they knew they wouldn't get caught.	☐	☐	☐
31	There is never a good reason to break the law.	☐	☐	☐
32	A hungry man has the right to steal.	☐	☐	☐
33	It is OK to get around the law as long as you don't actually break it.	☐	☐	☐
34	You should only obey those laws that are reasonable.	☐	☐	☐
35	You are crazy to work for a living if there is an easier way, even if it means breaking the law.	☐	☐	☐
36	People who have broken the law have the same sorts of ideas about life as me.	☐	☐	☐
37	I prefer to be with people who obey the law rather than people who break the law.	☐	☐	☐
38	I'm more like a professional criminal than the people who break the law now and then.	☐	☐	☐
39	People who have been in trouble with the law are more like people who never break the law.	☐	☐	☐
40	I have very little in common with people who never break the law.	☐	☐	☐
41	No one who breaks the law can be my friend.	☐	☐	☐

Appendix D

Pride in Delinquency Scale

PID SCALE

Listed below are some behaviours. You may or may not have done some of them in the past; this is not important. What you are to do is to imagine for a moment that you have just done each behaviour. You are to rate how proud or ashamed you would feel if you actually did them. You are to rate your pride or shame according to the scale below.

-----Ashamed-----Neither-----Proud-----
 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

You give a positive number if you would be proud to do it and a negative number if you'd be ashamed to do it. The bigger the number, the more proud or ashamed you'd be. So if you gave it a +8, +9 or +10, you'd be extremely proud to do it. If you gave it a -4, -5 or -6, you'd be moderately ashamed to do it. If you gave it a +1 or +2, you'd be just a little bit proud. If you would be neither proud nor ashamed, you'd be right in the middle and you'd give it a 0.

Let me give you a few examples before we begin. Most people would give a +10 to saving the life of a drowning child, because they'd be extremely proud to do a thing like that. Most people would give a -10 to murdering a young child, because they'd be extremely ashamed to do a thing like that. Most people would give a 0 to waking up in the morning, because they wouldn't be proud or ashamed; they just get up and get going. Now remember, you are to rate each behaviour how you'd feel about doing each of these things, not how most people would feel.

1. _____ Beating up a child molester.
2. _____ Committing sexual assault.
3. _____ Breaking into a family's home when no one is in and stealing jewellery and a VCR.
4. _____ Seeing a store being robbed and not calling the police.
5. _____ Driving home after a party when you've had too much to drink.
6. _____ Striking someone who insults you.
7. _____ Selling cocaine.
8. _____ Carrying a concealed weapon.
9. _____ Pointing a shotgun at a store clerk and telling him/her to hand over all the money in the till.
10. _____ Getting away from the police after a high speed chase.

_____ = Total + 100 = _____

Name: _____ CR#: _____

Date: _____

Appendix E

Hostile Interpretations Questionnaire

HIQ© Questionnaire

Described below are different social situations in which a person named Fred finds himself. Read each situation and answer each question using the Response Form provided. Please do not write in the HIQ Questionnaire booklet.

A. Fred is on probation. He is walking down the street with a couple buddies when a police officer approaches and asks where they are going.

A1. Rate how likely you think it is that police officers approach people on probation like this.

1-----	2-----	3-----	4-----	5-----
EXTREMELY UNLIKELY	UNLIKELY	UNDECIDED	LIKELY	EXTREMELY LIKELY

A2. Rate how likely you think the police officer wants to start something with Fred.

1-----	2-----	3-----	4-----	5-----
EXTREMELY UNLIKELY	UNLIKELY	UNDECIDED	LIKELY	EXTREMELY LIKELY

A3. Fred refuses to cooperate because he figures the police officer is trying to give him a hard time. If you found yourself in this same situation today, rate how differently or similarly you would respond.

1-----	2-----	3-----	4-----	5-----
EXTREMELY DIFFERENT	DIFFERENTLY	UNDECIDED	SIMILARLY	EXTREMELY SIMILAR

A4. If Fred refuses to cooperate, how responsible is the police officer for Fred's reaction.

1-----	2-----	3-----	4-----	5-----
NOT AT ALL RESPONSIBLE	NOT VERY RESPONSIBLE	UNDECIDED	SOMEWHAT RESPONSIBLE	TOTALLY RESPONSIBLE

B. Fred goes to see his probation officer for the first time. The probation officer reads him the conditions of his probation.

B1. Rate how likely you think it is that probation officers read the conditions of probation just to put guys in their place and show them who's boss.

1-----	2-----	3-----	4-----	5-----
EXTREMELY UNLIKELY	UNLIKELY	UNDECIDED	LIKELY	EXTREMELY LIKELY

B2. Rate how likely you think the probation officer wants to put Fred in his place.

1-----	2-----	3-----	4-----	5-----
EXTREMELY UNLIKELY	UNLIKELY	UNDECIDED	LIKELY	EXTREMELY LIKELY

B3. Fred figures that the probation officer is power-tripping and lets him/her know it. If you found yourself in this same situation today, rate how differently or similarly you would respond.

1-----	2-----	3-----	4-----	5-----
EXTREMELY DIFFERENT	DIFFERENTLY	UNDECIDED	SIMILARLY	EXTREMELY SIMILAR

B4. If Fred thinks the probation officer was power-tripping and decided to say something, rate the amount of responsibility you would place on the probation officer for Fred's reaction.

1-----	2-----	3-----	4-----	5-----
NOT AT ALL RESPONSIBLE	NOT VERY RESPONSIBLE	UNDECIDED	SOMEWHAT RESPONSIBLE	TOTALLY RESPONSIBLE

C. Fred goes to his mother's house for dinner one night and all his brothers and sisters are there. They ask Fred a lot of questions about what he has been up to lately.

C1. Rate how likely you think it is that his family is always on Fred's case.

1-----	2-----	3-----	4-----	5-----
EXTREMELY UNLIKELY	UNLIKELY	UNDECIDED	LIKELY	EXTREMELY LIKELY

C2. Rate how likely you think it is that his brothers and sisters are asking Fred all these questions because they are suspicious of him.

1-----	2-----	3-----	4-----	5-----
EXTREMELY UNLIKELY	UNLIKELY	UNDECIDED	LIKELY	EXTREMELY LIKELY

C3. Fred figures that his brothers and sisters are trying to give him a hard time and so he tells them to mind their own business and leaves the dinner table. If you found yourself in this same situation today, rate how differently or similarly you would respond.

1-----	2-----	3-----	4-----	5-----
EXTREMELY DIFFERENT	DIFFERENTLY	UNDECIDED	SIMILARLY	EXTREMELY SIMILAR

C4. If Fred told his brothers and sisters to mind their own business and left the dinner table, rate the amount of responsibility you would place on his brothers and sisters for Fred's reaction.

1-----	2-----	3-----	4-----	5-----
NOT AT ALL RESPONSIBLE	NOT VERY RESPONSIBLE	UNDECIDED	SOMEWHAT RESPONSIBLE	TOTALLY RESPONSIBLE

D. Fred invites a few friends to his house and when he walks in his common-law wife complains about how late he is.

D1. How likely do you think it is that his wife always nags Fred.

1-----	2-----	3-----	4-----	5-----
EXTREMELY UNLIKELY	UNLIKELY	UNDECIDED	LIKELY	EXTREMELY LIKELY

D2. Rate how likely you think his wife wants to start something with Fred.

1-----	2-----	3-----	4-----	5-----
EXTREMELY UNLIKELY	UNLIKELY	UNDECIDED	LIKELY	EXTREMELY LIKELY

D3. Fred figures his wife has no business telling him what to do and when to do it so he puts her in her place. If you found yourself in this same situation today, rate how differently or similarly you would respond.

1-----	2-----	3-----	4-----	5-----
EXTREMELY DIFFERENT	DIFFERENTLY	UNDECIDED	SIMILARLY	EXTREMELY SIMILAR

D4. If Fred puts his wife in her place, rate the amount of responsibility you would place on his wife for Fred's reaction.

1-----	2-----	3-----	4-----	5-----
NOT AT ALL RESPONSIBLE	NOT VERY RESPONSIBLE	UNDECIDED	SOMEWHAT RESPONSIBLE	TOTALLY RESPONSIBLE

E. Fred is out with some friends drinking. One of his buddies starts joking about the fact that Fred has had some trouble with the law.

E1. Rate how likely you think it is that his friends are always trying to get Fred pissed off.

1-----	2-----	3-----	4-----	5-----
EXTREMELY UNLIKELY	UNLIKELY	UNDECIDED	LIKELY	EXTREMELY LIKELY

E2. Rate how likely you think his buddies are trying to start something with Fred.

1-----	2-----	3-----	4-----	5-----
EXTREMELY UNLIKELY	UNLIKELY	UNDECIDED	LIKELY	EXTREMELY LIKELY

E3. Fred finally gets tired of listening to his buddy and tells him to "shut up or else...".
If you found yourself in this same situation today, rate how differently or similarly you would respond.

1-----	2-----	3-----	4-----	5-----
EXTREMELY DIFFERENT	DIFFERENTLY	UNDECIDED	SIMILARLY	EXTREMELY SIMILAR

E4. If Fred ends up saying this to his buddy, rate the amount of responsibility you would place on his buddy for Fred's reaction.

1-----	2-----	3-----	4-----	5-----
NOT AT ALL RESPONSIBLE	NOT VERY RESPONSIBLE	UNDECIDED	SOMEWHAT RESPONSIBLE	TOTALLY RESPONSIBLE

F. Fred is at work hanging around with a couple of co-workers. The boss approaches Fred and asks him to go to his office because he needs to talk with Fred about something.

F1. Rate how likely you think Fred's boss is always looking for something to bother Fred about.

1-----	2-----	3-----	4-----	5-----
EXTREMELY UNLIKELY	UNLIKELY	UNDECIDED	LIKELY	EXTREMELY LIKELY

F2. Rate how likely you think it is that Fred's boss is trying to give Fred a hard time today.

1-----	2-----	3-----	4-----	5-----
EXTREMELY UNLIKELY	UNLIKELY	UNDECIDED	LIKELY	EXTREMELY LIKELY

F3. Fred figures his boss is going to fire him so he tells him where he can stick his job. If you found yourself in this same situation today, rate how differently or similarly you would respond.

1-----	2-----	3-----	4-----	5-----
EXTREMELY DIFFERENT	DIFFERENTLY	UNDECIDED	SIMILARLY	EXTREMELY SIMILAR

F4. If Fred tells his boss to stick the job, rate the amount of responsibility you would place on his boss for Fred's reaction.

1-----	2-----	3-----	4-----	5-----
NOT AT ALL RESPONSIBLE	NOT VERY RESPONSIBLE	UNDECIDED	SOMEWHAT RESPONSIBLE	TOTALLY RESPONSIBLE

- G. Fred is walking down the street and notices two people walking toward him. They are talking to each other and as they get closer to Fred they glance at him. They continue talking all the while but as they pass Fred they start to laugh.**

G1. Rate how likely you think it is that most people talk about Fred just because of the way he looks.

1-----	2-----	3-----	4-----	5-----
EXTREMELY UNLIKELY	UNLIKELY	UNDECIDED	LIKELY	EXTREMELY LIKELY

G2. Rate how likely you think it is that these strangers were talking and laughing about Fred.

1-----	2-----	3-----	4-----	5-----
EXTREMELY UNLIKELY	UNLIKELY	UNDECIDED	LIKELY	EXTREMELY LIKELY

G3. Fred figures the strangers are making fun of him and stops them to give them a piece of his mind. If you found yourself in this same situation today, rate how differently or similarly you would respond.

1-----	2-----	3-----	4-----	5-----
EXTREMELY DIFFERENT	DIFFERENTLY	UNDECIDED	SIMILARLY	EXTREMELY SIMILAR

G4. If Fred gives the strangers a piece of his mind, rate the amount of responsibility you would place on the strangers for Fred's reaction.

1-----	2-----	3-----	4-----	5-----
NOT AT ALL RESPONSIBLE	NOT VERY RESPONSIBLE	UNDECIDED	SOMEWHAT RESPONSIBLE	TOTALLY RESPONSIBLE