



# Parent-Child Relationships and Adjustment in Adolescence:

*Findings from the  
HBSC Cycle 3 and  
NLSCY Cycle 2 Studies*



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# **Parent–Child Relationships and Adjustment in Adolescence:**

## **Findings from the HBSC Cycle 3 and NLSCY Cycle 2 Studies**

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## ***Executive Summary***

The primary focus of this project was to examine developmental changes in parent–child relationships, and their associations with child adjustment between late childhood and mid–adolescence. These questions were addressed using data from two large, nationally representative samples of Canadian children and adolescents. Recommendations for healthy parenting practices and government initiatives are summarized.

### **Background**

Research has shown that secure attachment to parents facilitates children’s adaptive adjustment. Securely attached children experience their parents as available and responsive to their needs. This security fosters adaptive exploration and buffers children from stress. In contrast, children who experience their parents as unavailable, unresponsive or rejecting become insecurely attached, and avoid relying on their parents for support. These avoidantly attached children derive little protection or guidance within their relationships with their parents. Children who experience their parents as inconsistent in their availability and responsiveness also become insecurely attached, specifically anxious or preoccupied. These anxiously attached or preoccupied children are never certain of attracting the support of their parents and tend to be dependent and clingy.

In a recent review of the published literature, Doyle and Moretti (2000) identified considerable evidence that secure attachment continues to contribute to adjustment in adolescence. For example, more positive attachment to parents among 15-year-olds has been found to be associated with fewer mental health problems such as anxiety, depression, inattention and conduct problems (Nada-Raja, McGee & Stanton, 1992). Though attachment was not specifically assessed, adolescents who report a positive relationship with their parents, and who feel comfortable turning to them for support, have been found to have a greater sense of mastery of their worlds (Paterson, Pryor & Field, 1995) and to experience less loneliness (Kerns & Stevens, 1996).

Just as parental sensitivity and responsiveness contribute to secure attachment in infancy, parental warmth/involvement, encouragement of increasing self-control and decision making, appropriate limit setting and monitoring appear to foster secure attachment and adjustment in late childhood and early adolescence (Baumrind, 1991; Steinberg, Dornbusch & Brown, 1992; Karavasilis, Doyle & Margolese, 1999). Low warmth and low control may be particularly associated with dismissing/avoidant attachment, and low psychological autonomy granting with preoccupied attachment. Similarly, hostile punishment and coercive interactions between parents and children

combined with poor parental monitoring have been found to contribute to conduct problems in preadolescence and antisocial behaviour in adolescence (Dishion, Patterson, Stoolmiller & Skinner, 1991; Conger, Patterson & Ge, 1995). Very few of the reviewed studies, however, involved families in Canada and many were based on only small samples. Moreover, Doyle and Moretti (2000) identified several gaps in the literature and unanswered key research questions to be addressed in the present project.

### **Data and Methodology**

The Health Behaviour in School-Aged Children: A World Health Organization Cross-National Survey sample included approximately 11,000 children aged 11–15 years in 1997-98. The National Longitudinal Survey of Children and Youth Cycle 2 sample included approximately 4,000 children aged 10–13 years in 1996-97, and their mothers.

### **Key Findings**

Findings were highly consistent across the two data sets. These findings indicated that the period of adolescence presents major developmental challenges but also new opportunities for parent–child relationships and the way these relationships can influence adolescents’ developmental adjustment.

#### **Research Question 1:**

*In what way do parenting and parent–child relationships differ from late childhood (age 10–11 years) through mid-adolescence (15 years)?*

Although mothers are less involved in children’s school activity as they grow older, children feel their parents continue to provide school support in other ways. Parents of older children do not report different parenting practices than parents of younger children. Nonetheless, as they grow older, children feel the quality of their relationship with parents declines. Older children report that their parents understand them less and that they argue with parents significantly more. Older children feel their parents are less warm and more rejecting, and feel less at ease confiding in their mothers and their fathers than younger children.

#### **Research Question 2:**

*How do child adjustment and social relationships change over this period?*

Age changes in social relationships were consistent across the two samples. Smoking, alcohol use and affiliation with peers who use drugs increase with age whereas self-esteem decreases. Older children are less likely to use helmets and seatbelts than younger children. The quality of sibling relationships remains stable,

but older children have more positive relationships with friends than younger children. Older children are less victimized by others and feel safer around school than younger children.

### **Research Question 3:**

*Do parenting practices, parent–child relationships and child adjustment differ for boys and girls during this period of development?*

Parents report similar practices in parenting sons and daughters. Nonetheless, girls perceive their parents as less rejecting and warmer than boys. Boys and girls are equally at ease confiding in their mothers, but girls confide less in their fathers than boys.

### **Research Question 4:**

*Do effective parenting practices contribute to a positive parent–child relationship and, in turn, to healthy child development?*

Harsher parenting (more yelling and use of physical punishment, less reasoning) leads children to feel their parents are more rejecting and cold toward them. How children perceive their relationship with their parents is related to child adjustment. Children who enjoy a more positive relationship with their parents are more likely to invest in school, to use seatbelts and helmets, and to experience fewer serious injuries. They have higher self-esteem, feel less depressed and are less anxious. Children who perceive their parents as more rejecting are more likely to smoke and use alcohol; they are more aggressive, bully others more, commit more property offences and affiliate more with deviant friends. They are also more likely to be victimized by others.

### **Research Question 7:**

*Do parenting practices influence child adjustment differently for girls versus boys or for younger versus older children?*

Overall, girls are less aggressive, commit fewer property offences, bully others less and are less often victimized by others than boys. Moreover, although girls have lower self-esteem and more internalizing problems, they have better relationships with friends, are more prosocial and are more involved in school than boys. Nonetheless, the impact of parenting practices on girls and boys is similar. Parenting is also associated with adjustment in younger and older children in similar ways. That is, for both girls and boys of all ages, angry, arbitrary parenting (i.e. low use of reasoning) is associated with a poorer parent–child relationship (i.e. child perceptions of parents as less warm and more rejecting) which in turn is associated with poor child adjustment.

### **Research Question 8:**

*Do the influences of parenting and/or the quality of the parent–child relationship differ in social contexts traditionally thought to put children at risk for maladjustment?*

Although few social contexts (i.e. maternal education, family income, maternal employment and single-parent family) directly affect child adjustment, some influence the quality of parent–child relationships. Children of mothers with less education and children in families with lower income tend to perceive their relationships with their parents more negatively. These negative perceptions in turn are associated with poorer adjustment. Maternal employment and single-parent status do not affect child adjustment independent of parenting and the parent–child relationship.

### **Research Question 9:**

*Is there evidence that relationships with mothers and fathers differ in their contribution to adjustment?*

Daughters and sons feel equally at ease confiding in their mothers, but daughters confide less in their fathers than sons. Children who feel comfortable confiding in their fathers are better adjusted in a number of ways.

## **Implications**

### **Recommendations for Parents**

- ◆ Parents need to recognize the continued importance of their relationship with their adolescents. Although the parent–child relationship undergoes transformation during adolescence, the adjustment of adolescents depends in good measure on the quality of their relationship with their parents.
- ◆ Children are more vulnerable to adjustment problems in adolescence than in childhood. Parents need to anticipate that their adolescent requires increased support during periods of transition, such as entry into high school.
- ◆ Adolescents need to feel that their parents are engaged and supportive of them. Adolescents are more independent than children in many aspects of their lives. Nonetheless, they require ongoing parental support in terms of parents remaining open to communication and responsive if help is needed, while, at the same time, fostering adolescent autonomy. Specific parenting skills include warmth, acceptance of individuality, active listening, behaviour monitoring, limit setting and negotiation.

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- ◆ Parents need to recognize the special role of fathers in supporting the well-being of their children. Fathers' increased psychological support of daughters may be particularly beneficial to them.
- ◆ Obviously, adolescent adjustment is also determined by factors outside the family and the parent–child relationship. Even though parents may only indirectly affect how peers, romantic partners and other social influences determine the adjustment of their children, parents' support through the stressful challenges of adolescence remains important.

### **Recommendations for Intervention Programs**

- ◆ Assisting parents in the development of parenting skills that support their relationship with their adolescents can be beneficial in ensuring attachment security and healthy development during this period.
- ◆ Public education programs should be launched to debunk the myth of adolescent detachment from parents and to enhance recognition and understanding of the importance of the parent–child relationship. Strategies to achieve this goal could include media advertising campaigns and provision of information brochures through government agencies, public health offices and schools. Appropriate speakers, as well as written and video materials, for junior high and high school parent groups, community centres, libraries, etc., would also be effective.
- ◆ Efforts should be made by appropriate agencies in conjunction with researchers to develop and evaluate programs to assist parents in developing effective skills in parenting adolescents, including skills in providing support and guidance and in negotiating limits during transition periods. This could be expediently achieved through the development of universal school and community-based programs that target parents of children entering high school and that provide education and support regarding effective parenting skills during transitions in the parent–child relationship.
- ◆ Efforts should be made to develop and evaluate targeted intervention programs that focus on attachment issues and effective parenting strategies for high-risk adolescents and their families. Income inadequacy and low maternal education put children at risk for non-optimal parenting and poorer parent–child relationships, which in turn are risk factors for child maladjustment. In themselves, however, neither maternal employment nor single-parent status are risk factors independent of parenting and the parent–child relationship.

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- ◆ Efforts should be made to develop and evaluate intervention programs that target attachment issues and effective parenting strategies specifically with adolescents and their families characterized by non-optimal parenting and poor parent–child relationships. A major finding of this study is the importance of these two factors in adolescent maladjustment.
- ◆ Programs should focus on fathers’ as well as mothers’ relationships with their adolescent children. The importance of fathers’ psychological support for their daughters’ well-being should be highlighted.
- ◆ Efforts should be made to advance educational training to increase the understanding and awareness of adolescent attachment issues by mental health and social service professionals, teachers, coaches, recreation and leisure leaders, front-line workers in youth-serving community organizations (e.g. Guides, Scouts, 4-H), etc.
- ◆ A coordinated referral system must be available to those working with youth and families, so families and youth in need are referred to appropriate intervention programs.

### **Recommendations for Research**

- ◆ More research is needed to clarify the changing nature of girls’ compared to boys’ relationship to their fathers during adolescence, the relation of these differences to differential parental socialization and implications for adjustment.
- ◆ The above associations between variables do not identify cause and effect. Research is necessary to clarify the causal role of parenting and the parent–child relationship in child adjustment. Longitudinal analyses following the development of the NLSCY children over time will contribute to answering this question. It is also possible that both parents’ and children’s behaviour may be a result of another factor, such as their genetic makeup. Again, further analyses of the NLSCY data set, taking into account the shared family background of children in the same family, will provide some assessment of such contributions.
- ◆ Longitudinal analyses should continue to examine the role of social context risk factors such as inadequate income and low maternal education in the development of parenting problems and child maladjustment.

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- ◆ The above findings indicate the need for additional research, using more precise and extensive measures of parents' behaviour and of the parent–child relationship than in the HBSC and NLSCY studies. Specifically, more extensive and reliable direct measures of parenting, as well as more extensive age-appropriate measures of child–parent attachment are warranted.
- ◆ Further research is required to determine whether parenting and the quality of parent–child relationships play a role in determining how other factors – such as peer influences – contribute to determining child adjustment.

### **Recommendations for Government Policy**

- ◆ Government agencies should support the above initiatives through mental health programs, the coordination of services and further research funding.

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# ***I Overview***

In a recent review of the published literature, Doyle and Moretti (2000) identified considerable evidence that adolescent–parent attachment contributes to adolescent adjustment. On the basis of this review, several policy recommendations were made regarding effective parenting strategies and government mental health initiatives. At the same time, this review identified several gaps in the literature and key research questions that required investigation. In addition, the review revealed that very little of the data involved families in Canada and many studies involved small samples.

The objectives of the present project were:

- ◆ to examine evidence for the contribution of a positive parent–adolescent relationship to adolescent peer relations, social adjustment and psychological adjustment, including risk-taking behaviour, in two nationally representative samples of Canadian children and adolescents;
- ◆ to examine gender, age and social context factors that may influence the association between the quality of parent–adolescent relationships and adolescent adjustment; and
- ◆ to draw implications from these findings regarding:
  - specific factors that influence the relationship between parent–adolescent attachment and adaptive functioning in Canadian youth,
  - recommendations for healthy parenting practices and social support that enhance the quality of adolescent–parent attachment, and
  - policy implications for government programs.

Two data sets were used. The first is the 1997-98 Canadian component of the Health Behaviour in School-Aged Children WHO Cross-National Survey (HBSC, Principal Investigator, Dr. Will Boyce, Queen’s University; funded by Health Canada). The HBSC sample includes approximately 11,000 children aged 11–15 years. The second is a subset of the 1996-97 data from the National Longitudinal Survey of Children and Youth Cycle 2 (NLSCY, Statistics Canada). This report is based on NLSCY data from approximately 4,000 children aged 10–13, and their mothers.

## **II Background, Context, Brief Summary of Relevant Literature**

During the past two decades, researchers have clarified the role of attachment security in promoting psychological well-being during infancy and adulthood. Most recently, attention has turned toward understanding the role of attachment with parents in healthy adjustment during adolescence. Adolescence introduces a period of significant transition in family and social role expectations, coupled with increases in the range and intimacy of social relationships (Selman, 1980; Buhrmester & Furman, 1987). During early adolescence (ages 13–14), the emergence of autonomy is an important developmental task (Collins, 1990; Allen, Hauser, Bell & O’Conner, 1994). Adolescence involves a transition from a dependency relationship with parents to mutually reciprocal relationships with others (e.g. parents, peers and intimate partners). Recent models, based on attachment theory, emphasize the importance of attachment or connection to, rather than detachment from, parental figures for the development of autonomy and adjustment during the adolescent years, despite decreases in shared activities and interactions (Bowlby, 1969, 1973, 1980; Ryan & Lynch, 1989; Larson, Richards, Moneta & Holmbeck, 1996).

The consolidation of identity and clarification of values at this age assist adolescents in regulating their behaviour independently of others around them. However, this process can pose risks for adolescents and their relationships with those to whom they are close. In their attempts to differentiate their own beliefs and values from others, many adolescents experiment with risky behaviours in the areas of delinquency, substance use and abuse, and sex (King, Beazley, Warren, Hankins, et al., 1988; Moffitt, 1993; Moore & Rosenthal, 1993; Adlaf, Ivis, Smart & Walsh, 1995). For some, such risky involvement is limited; for others, however, it becomes problematic. Moreover, the stressful process of differentiation and identity consolidation can result in significant psychological distress. Compared to adults, adolescents show higher stress levels and fewer coping resources (Allen & Hiebert, 1991). In addition, depressive symptoms increase substantially from middle to late adolescence (Compas, Orosan & Grant, 1993), particularly for girls (Nolen-Hoeksema & Girgus, 1994).

It is important to understand that the quality of parent–child relationships within adolescence is linked to the quality of these relationships prior to adolescence, and adjustment during adolescence is related to childhood adjustment. Similarly, although adolescence marks a period during which the crystallization of identity is the central developmental challenge, identity development extends from birth across the life span

(Erikson, 1963). Nonetheless, the period of adolescence presents unique developmental challenges for adjustment and new opportunities for identity development and growth in parent–child relationships.

### **1. Attachment Theory**

Attachment theory was proposed by John Bowlby (1969, 1973, 1980) to account for infant social and emotional development and adjustment. He conceptualized attachment as a life-span construct, with children maintaining attachment bonds to their parents across childhood and into adulthood. A basic premise of the theory is that the quality of attachment relationships stems from interactions between infants and their caregivers, reflecting the degree to which infants can rely on their caregivers to provide proximity and companionship, a safe haven in the face of threat or anxiety, and a secure base from which to explore. The unique pattern of caregiver sensitivity and responsiveness to the infant's needs results in a particular attachment organization in the child (Ainsworth, Blehar, Waters & Wall, 1978).

Attachment patterns have been delineated in childhood, adolescent and adult attachment: secure, avoidant (dismissing), ambivalent (preoccupied) and, most recently, disorganized (unresolved). Secure attachment is characterized by a developmentally appropriate balance between exploration from and proximity seeking with the caregiver in times of perceived danger or threat. In contrast, insecure attachment is manifested in several different ways. The preoccupied child curtails exploration of the environment and new social relationships and shows heightened vigilance and fear of abandonment by his or her caregiver. Avoidant attachment in adolescence and adulthood may be either dismissing or fearful. Dismissing attachment is characterized by the tendency to be disengaged from attachment figures and to devalue the importance of attachment and associated feelings. In contrast, fearful attachment is characterized by the tendency to avoid attachment figures due to fear of rejection and, at the same time, the desire to pursue relationships and express attachment behaviour (Bartholomew & Horowitz, 1991). As reviewed below, the security of attachment has been found to have profound implications for adjustment in both childhood and adolescence.

### **2. Attachment and Adjustment in Childhood**

Extensive research suggests that attachment has important implications for adjustment in childhood. For example, in normative samples, children who are securely attached to their mothers engage in more prosocial behaviour and are perceived as more socially competent than insecure children (Sroufe, 1983). They demonstrate higher

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positive affect and lower negative affect in social interactions than insecure children. Securely attached children are also rated by their teachers as more empathic and more compliant (LaFreniere & Sroufe, 1985).

On the other hand, several sources of research show a link between insecure attachment patterns (avoidant, ambivalent, disorganized) in infancy and non-compliance and aggression in early childhood. Consistent with the theory that insecure attachment is related to poor emotional regulation, longitudinal studies have demonstrated that avoidant attachment in infancy predicts negativity, non-compliance and hyperactivity at 3.5 years of age, and higher ratings of problem behaviour in Grades 1 to 3. Compared to secure children, avoidant children are more aggressive and confrontational with their mothers (Main & Weston, 1981), and more aggressive, hostile and distant with their peers (Sroufe, 1983; Erickson, Sroufe & Egeland, 1985). Similarly, disorganized attachment in infancy has been shown to predict later aggressive behaviour. Several researchers have shown, for example, that children with disorganized attachment patterns in infancy develop controlling and coercive behaviour as they move into the preschool and early childhood period (Lyons-Ruth, Repacholi, McLeod & Silva, 1991; Wartner, Grossmann, Fremmer-Bombik & Suess, 1994). Ambivalently attached children, on the other hand, are more adult-oriented and emotionally dependent than securely attached children (Erickson, Sroufe & Egeland, 1985; Renken, Egeland, Marvinney, Mangelsdorf et al., 1989). With peers, ambivalently attached children have been found to be lower in peer status, more withdrawn and more apt to be victimized (LaFreniere & Sroufe, 1985; Renken et al., 1989; Finnegan, Hodges & Perry, 1996).

Insecure attachment patterns are not, however, consistently related to later behaviour problems. A number of researchers (Fagot & Kavanagh, 1990; Goldberg, Perrotta, Minde & Corter, 1986) do not report that avoidant or disorganized attachment predicts later aggressive behaviour. A review of this literature shows that the association between insecurity of attachment and amount of later problem behaviour is found more consistently among children in high-risk contexts (e.g. family poverty, low social support, parental psychopathology) than among children in low-risk contexts. For example, Lyons-Ruth et al. (1991) found that infant security was most predictive of later aggressive problems in families where mothers suffered from psychopathology, particularly chronic depression, and where mothers engaged in hostile, intrusive parenting practices toward the infant. These authors reported that 56% of low-income children who were classified as disorganized in infancy and whose mothers suffered from psychopathology at that time displayed aggressive behaviour in kindergarten. In contrast, only 25% of low-income children with one risk factor and 5% of low-income children with no risk factor (i.e. neither maternal psychopathology nor maternal use of hostile, intrusive parenting) showed aggressive behaviour in kindergarten.

In summary, there is consensus that insecure attachment is a risk factor for later problems in life, but is neither necessary nor sufficient in itself. Maladaptive parenting factors appear to increase the risk that insecure attachment will be associated with poor adjustment. However, it must be kept in mind that these generalizations are based on small samples.

### **3. Development of Attachment in Adolescence**

In the current project, there are two issues to consider with respect to attachment in adolescence: 1) the nature of changes in the child–parent relationship and 2) the adolescent’s development of new close relationships (e.g. with peers). Complex changes in the child–parent relationship occur during adolescence. Although some studies have shown that self-reported attachment security to both parents decreases with pubertal maturity (Papini, Roggman & Anderson, 1991), recent investigations indicate that only certain components of the attachment relationship change while others remain stable. For example, the degree to which children seek proximity and rely on the principal attachment figure in times of stress decreases, but that attachment figure’s perceived availability does not (Lieberman, Doyle & Markiewicz, 1999). These findings indicate that the maintenance of physical proximity to parents and need for protection in times of threat or stress may be less essential for older children due to increased mental and physical capacities (e.g. more sophisticated coping mechanisms). However, the availability of the attachment figure (i.e. the belief that the attachment figure is open to communication and responsive if help is needed) remains important to young people (Bowlby, 1973; Kerns, Klepac & Cole, 1996).

### **4. Attachment and Adjustment in Adolescence**

In the past decade, studies have begun to examine the contribution of adolescent–parent attachment to psychological adjustment. The majority of these studies have examined this relationship within late adolescent (junior college, first-year university) samples. Few studies have examined adolescent–parent attachment and adjustment in early (age 12–13) and middle adolescents (at around age 15 years).

With reference to the relation between attachment patterns in adolescence and adjustment, reports to date mostly confirm findings based on studies of young children. That is, secure attachment is typically related to healthier adjustment, whereas insecure attachment is linked to various forms of maladjustment.

In normal population studies, late adolescents who are classified as securely attached are rated by their peers as less anxious, less hostile and more able to successfully regulate their feelings (i.e. more ego-resilient) compared to insecurely attached adolescents (Kobak & Sceery, 1988). Adolescents who report a positive relationship

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with their parents, and who feel comfortable turning to them for support, have been found to have a greater sense of mastery of their worlds (Paterson, Pryor & Field, 1995) and to experience less loneliness (Kerns & Stevens, 1996). More positive attachment to parents among 15 year-olds is also associated with fewer mental health problems such as anxiety, depression, inattention and conduct problems (Nada-Raja, McGee & Stanton, 1992).

A positive relationship with parents may also protect adolescents from risk. Adolescents who report close, accepting relationships with their mothers report less involvement in delinquent activities (Aseeltine, 1995; Smith & Krohn, 1995). These positive relationship qualities are those typical of secure attachment. Indeed, adolescents' secure attachment to their mother has been linked to less experimentation with drugs (Voss, 1999) and less frequent substance use (Cooper, Shaver & Collins, 1998).

In terms of specific insecure attachment styles, a dismissing style (i.e. poor communication and trust, combined with feelings of alienation and disengagement from the attachment relationship) has been associated with externalizing problem behaviours (e.g. aggression and delinquency) (Nada-Raja et al., 1992; Voss, 1999), more experimentation with drugs (Voss, 1999) and riskier attitudes about safe sex (Voss, 1999). Dismissing young adults report less family support and more loneliness than their peers (Kobak & Sceery, 1988).

Like dismissing adolescents, fearful adolescents are avoidant, but they are distressed by their lack of closeness to others, and suffer from feelings of inadequacy and anxiety (Griffin & Bartholomew, 1994). Fearful attachment with mothers has been linked to delinquency and greater experimentation with drugs (Voss, 1999).

Adolescents who have a preoccupied attachment style (i.e. have positive views of others, and negative views of themselves) see themselves as socially incompetent and are rated by their peers as more anxious than all other attachment groups (Kobak & Sceery, 1988). Compared to other adolescents, these teens report more physical symptoms (Kobak & Sceery, 1988). In a three-category system of attachment classification (secure, dismissing, preoccupied), preoccupied adolescents have been found to be the most vulnerable to maladjustment (Cooper, Shaver & Collins, 1998).

Research on high-risk populations confirms findings based on normative samples: high-risk adolescents with insecure attachment patterns are more likely than securely attached adolescents to experience a range of mental health problems (Allen, Hauser & Borman-Spurrell, 1996). These include suicidality (Lessard & Moretti, 1998), drug use (Lessard, 1994), aggressive and antisocial behaviour (Reimer, Overton, Steidl, Rosenstein et al., 1996; Rosenstein & Horowitz, 1996; Fonagy, Target, Steele & Steele,



1997; Moretti, Holland & Moore, 1998). For example, in a sample of male adolescent inpatients, Rosenstein and Horowitz (1996) found that symptoms of conduct disorder were associated with a dismissing attachment pattern. Preoccupied adolescents, on the other hand, have been found more likely to report anxiety, dysthymia and an interest in others combined with a fear of criticism and/or rebuff (Rosenstein & Horowitz, 1996; Allen, Moore, Kuperminc & Bell, 1998). Preoccupation has also been found to be associated with adolescent externalizing behaviours, though only in the presence of the additional demographic risk factors of male gender and low income (Allen et al., 1998).

Although similar patterns of results are present in normative and clinical samples (e.g. Allen & Hauser, 1996), research with younger children (Lyons-Ruth et al., 1991) also shows that the relation between attachment and adjustment is *stronger* among children in high-risk (e.g. poverty, low social support, parental psychopathology) than low-risk contexts. In other words, the relationship between attachment and adjustment appears to be *moderated* by exposure to adversity. This suggests that insecure attachment alone does not differentiate well-adjusted from poorly adjusted adolescents. Extrapolating from existing research with young children suggests that adolescents who grow up in conditions of adversity and inadequate access to resources may not suffer from psychopathology if they share secure attachment relationships with their parents. Conversely, adolescents who develop in a supportive and resource-rich environment, albeit with less secure attachment, may have poor outcomes, at least in some domains. Research examining the moderating effects of adversity on the relationship between attachment and adjustment in adolescents is urgently required.

### **5. Parenting, Attachment Security and Adjustment in Adolescence**

In infancy, caregivers who are sensitive and consistently responsive to their child's needs have been found to foster secure attachments. These children develop perceptions (i.e. internal working models) of themselves as lovable and of others as helpful and available. Conversely, caregivers who are insensitive and rejecting have been found to have avoidant children who view themselves as unworthy, and others as uncaring and undependable. Research has linked avoidant attachment to mothers' suppressed anger, lack of tenderness in touching and holding, and rejection of child-initiated attachment behaviour. Such children tend to suppress their feelings and avoid contact in times of stress to avoid further alienating their caregivers (Main & Weston, 1981; Renken et al., 1989; Shaw & Bell, 1993). Caregivers who are inconsistent (i.e. sometimes responsive and sometimes rejecting) tend to have children who are preoccupied with discovering ways of eliciting care and are hypervigilant to sources of distress. Such children experience conflict between the desire to approach

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the caregiver for support and feelings of anger and anxiety at the caregiver's unreliability (Bowlby, 1973). They come to view themselves as incapable and unworthy of obtaining support.

In adolescence, parental involvement, encouragement of psychological autonomy, and demands for age-appropriate behaviour combined with limit setting and monitoring (i.e. authoritative parenting) contribute to good psychosocial, academic and behavioural adjustment among adolescents (Baumrind, 1971, 1991; Steinberg, Dornbusch & Brown, 1992; Steinberg, Darling & Fletcher, 1995). Similar to the way in which parental sensitivity and responsiveness contribute to secure attachment in infancy, recent findings indicate that parental warmth/involvement, psychological autonomy granting and behavioural control/monitoring are associated with security of attachment in late childhood and early adolescence (Karavasilis, Doyle & Margolese, 1999). Low warmth and low control were particularly associated with dismissing/avoidant attachment, and low psychological autonomy granting with preoccupied attachment. Thus, in adolescence, it appears that parental behaviour that fosters autonomy in the context of parental availability, in addition to parental warmth/responsiveness, becomes important for secure attachment.

With respect to adolescent adjustment, parental warmth/involvement and behavioural control are associated with greater social competence, autonomy, positive attitudes toward school and work, academic achievement and self-esteem, as well as with less depression, school misconduct, delinquency and drug use (Lamborn, Mounts, Steinberg & Dornbusch, 1991; Parish & McCluskey, 1992; Steinberg, Lamborn, Dornbusch & Darling, 1992; Allen & Hauser, 1996). With respect to protection against depressed mood, adolescents' security with their mother seems to be particularly important (Margolese, Markiewicz & Campini, 2001). In terms of resistance to substance abuse, the effect of parenting appears to operate through adolescents' development of better self-regulation skills (i.e. self-control, behavioural competence, adaptive coping), and less affiliation with deviant peers (Wills, DuHamel & Vaccaro, 1995). The negative associations between observations of maternal warmth, and teacher and official reports of delinquency, are robust, persisting even after controlling for child IQ, age, attachment to delinquent peers, ethnicity, poverty, family size, parental deviance, supervision and discipline (Sampson & Laub, 1994). On the other hand, hostile punishment and coercive interactions between parents and children combined with poor parental monitoring contribute to conduct problems in preadolescence and antisocial behaviour in adolescence (Dishion, Patterson, Stoolmiller & Skinner, 1991; Conger, Patterson & Ge, 1995).

Although it is likely that the link between adolescent attachment quality and parent behaviour is bi-directional, there is some evidence to suggest that parental rejection is a stronger predictor of delinquency than the reverse (Simons, Robertson & Downs,



1989), supporting the crucial importance of parenting behaviour for adolescent outcome. Of particular importance is the recent finding that in high-risk contexts (e.g. neighbourhood poverty, crime, unemployment), parental monitoring may be effective in reducing adolescent deviance only for securely attached adolescents (Allen et al., 1998).

### **6. Attachment, Parental Socialization and Gender**

To understand the relationship between adolescent–parent attachment and adjustment, it is important to examine two potentially significant moderating effects: gender of child and gender of parent. First, there is some evidence that sex differences emerge in attachment patterns by adolescence and early adulthood. The factors that contribute to these differences are important to investigate. Second, there is evidence that attachment relationships with mothers and fathers may differ in their importance for predicting adjustment.

Sex differences in attachment quality in infancy and early childhood are neither implied theoretically nor typically found. However, by late adolescence and adulthood, sex differences in patterns of insecure attachment are sometimes found, with more men being dismissing and more women being preoccupied (e.g. Bartholomew & Horowitz, 1991). Gender-specific parental socialization practices may contribute to these gender differences in attachment style. For example, parents monitor the behaviour of their daughters more than their sons (see Cross & Madson, 1997, for a review).

With respect to differences in attachment relationships with mothers and fathers, it is important to understand that most studies of child attachment and adjustment have focused on mother–child rather than father–child relationships. This focus has occurred because the primary caregiver in infancy is typically the mother, because infant attachment is predictable primarily from mothers' as opposed to fathers' attachment style (Van IJzendoorn & De Wolff, 1997), and because childhood attachment security is predicted more from infant attachment to mother than from infant attachment to father (Main, Kaplan & Cassidy, 1985; Cassidy, 1988). In late adolescence, mothers remain the principal attachment figure (Hazan & Zeifman, 1994; Trinke & Bartholomew, 1997). Although both boys and girls see their mother's availability as remaining constant across age, adolescent girls perceive their fathers as less available than younger girls (Lieberman et al., 1999). Consistent with these findings, several studies have demonstrated that there are significant changes in the quality of girls' relationship with their fathers during adolescence (Youniss & Smollar, 1985; Paterson, Pryor & Field, 1995; Hosley & Montemayor, 1997). For example, with the transition to adolescence, girls report feeling more distant, uncomfortable and withdrawn from their fathers, and feel that their fathers do not meet their emotional needs (Youniss & Smollar, 1985).

Despite the greater importance of mothers as attachment figures, and of attachment to mothers for adjustment, some research indicates that attachment to fathers may be significantly associated with certain aspects of adjustment. For example, independent of and in addition to security of attachment to mothers, security of attachment to fathers has been found to be associated with peer competence (Suess, Grossmann & Sroufe, 1992; Youngblade & Belsky, 1992; Youngblade, Park & Belsky, 1993; Kerns & Barth, 1995; Kerns & Stevens, 1996). Moreover, fathers' warmth and involvement have been found to play a unique role in intellectual development (Radin, 1981) and academic achievement (Wagner & Phillips, 1992), and to be associated with higher self-esteem in middle childhood (Amato, 1986). Moreover, it is possible that stronger relations between child–father attachment and adjustment might emerge in adolescence. In support of this hypothesis, a longitudinal study of north German children found that coping styles at age 16 were related to several measures of quality of early childhood attachment to fathers but not to mothers (Grossmann, Grossmann & Zimmermann, 1999). Moreover, adolescents' ratings of their father's negative affect but not their mother's was associated with the adolescents' ratings of the quality of their relationship with their parent (Flannery, Montemayor & Eberly, 1994). It is important for research to clarify the changing nature of girls' compared to boys' relationship to their fathers during adolescence, the relation of these differences to differential parental socialization, and the implications for adjustment.

## **7. Social Context**

It is also important to assess the generality of the above findings across different family structures (e.g. both single-earner and dual-earner). Most of the studies of the effects of maternal employment on parenting and attachment have focused on infants and young children. These studies indicate that it is not the mother's employment *per se* which affects child attachment security, but rather her sensitivity and responsiveness to her child, investment in parenting and participation in shared activities (Hoffman, 1989; Moorehouse, 1991). Early adolescents with employed mothers spend no less time with family, parents, friends, in class or alone, but do spend more time alone with fathers (Richards & Duckett, 1994). Moreover, adolescents with single or employed mothers do not have more contentious or distant relationships with them than their peers in “traditional” families (Laursen, 1995). However, more research is necessary to determine how maternal employment and single parenthood interact with other factors, such as poverty, low social support and life stress, to influence parental availability and adolescent–parent attachment.

### ***III Research Questions Examined in the Current Study***

Two sets of questions are addressed in this report, based on examination of data from the National Longitudinal Survey of Children and Youth Cycle 2 (approximately 4,000 children aged 10–13 years and their parents) and the Canadian component of the Health Behaviour in School-Aged Children WHO Cross-National Survey (approximately 11,000 children aged 11–15 years). The first set focuses on shifts in parenting and parent–child relationships from late childhood (10–11 years) to mid-adolescence (15 years) and changes in child adjustment during this period. Specific questions addressed included:

- ◆ In what way do parenting and parent–child relationships differ from late childhood (age 10–11 years) through mid-adolescence (15 years)?
- ◆ How does child adjustment change over this period?
- ◆ In what way do children’s other social relationships change over this period?
- ◆ Do parenting practices, parent–child relationships and child adjustment differ for boys and girls during this period of development?

These questions were addressed in both data sets by multivariate analyses of variance of age and sex differences in parent–child relationship quality and child functioning. Subsequently, path analyses (see below) permitted re-examination of age and sex differences in parenting, parent–child relationships and adjustment independent of other associations.

The second set of questions addressed in this report examines associations between parenting, parent–child relationships and child adjustment. Specific questions examined included:

- ◆ How is parenting behaviour associated with the quality of parent–child relationships?
- ◆ In what ways are parenting and parent–child relationships associated with children’s other social relationships and adjustment? Is there evidence that parenting and parent–child relationships affect adjustment in expected ways? That is, does effective parenting contribute to a positive parent–child relationship, which in turn results in better adjustment?

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- ◆ Are there differences in the degree and nature of these associations between younger and older children, or between boys and girls?
- ◆ Do the influences of parenting and/or the quality of the parent–child relationship differ in contexts traditionally thought to put children at risk for maladjustment (inadequate income, low parental education, family dysfunction, maternal depression, single parenthood, divorce, dual-earner family)?
- ◆ Is there evidence of differential importance of positive relationships with mothers versus fathers?
- ◆ Is there evidence that the social background and family climate contexts noted above (e.g. inadequate income, low parental education, family dysfunction, maternal depression, single parenthood, divorce, dual-earner family) affect child adjustment through negative effects on parenting and the parent–child relationship?

This second set of questions was addressed in two stages. First, hierarchical multiple linear regressions were computed to examine the unique and interactive predictive relations from predictor variables to child adjustment outcomes. These analyses established whether parenting effects were moderated by age, sex, social background and/or family climate. In these analyses, potential direct effects of social background and/or family climate factors affecting child adjustment were also identified, a necessary step in assessing whether such effects operate through parenting behaviour and/or the parent–child relationship. Finally, to examine associations between parenting and particular child adjustment outcomes independent of other associations, we carried out path analyses (Bentler, 1990). This procedure also permitted testing of the hypothesis that social and family background factors influence child adjustment in part through their effects on parenting and the parent–child relationship.

## ***IV Description of Methodology***

### **I. Data Sources**

This study uses two large nationally representative data sets. The first includes 1997-98 data from the Canadian component of the Health Behaviour in School-Aged Children WHO Cross-National Survey (HBSC, Principal Investigator, Dr. Will Boyce, Queen's University; funded by Health Canada). The second set includes 1996-97 data from children aged 10–13 years and their mothers in the National Longitudinal Survey of Children and Youth Cycle 2 (NLSCY, Statistics Canada).

#### **HBSC Data Set Sample Description**

The HBSC sample comprises 11,243 Canadian children aged 11, 12, 13, 14 and 15. Children were in Grades 6 through 10 in 1997-98, with approximately equal numbers of boys and girls in each grade. All data were provided by the children, who completed questionnaires in school. In 66% of families, mothers were working, while in 23% only the father worked; 74% of the adolescents lived with both biological parents, 16% lived with a single parent (mostly the mother) and 11% lived in a reconstructed two-parent family. Overall, 86% of children reported that their families were average to very well off economically.

#### **NLSCY Data Set Sample Description**

The NLSCY Cycle 2 data set comprises data from the second year of a 10-year longitudinal study of approximately 20,000 children between the ages of 2 and 11 years. The current cross-sectional analyses were conducted on data collected in 1996-97 by home interviews with 3,200 children aged 10 to 13 years. About 800 children at each year of age participated, approximately equal numbers of boys and girls. Mothers reported information on family background and parenting behaviours, while children reported their perceptions of parenting and adjustment. In 47% of the families, mothers worked full time, in 31% they worked part time and in 22% they did not work. Seventy-three percent of children lived with both biological parents, 16% lived with a single parent and 11% lived in a reconstructed two-parent family. Overall, 82% of the families were average to very well off economically.

Thus, the HBSC and NLSCY samples were very comparable in family configuration and income adequacy, and quite comparable in mother's work status. It must be noted that in both samples, more than one child per family may be included. That is, in the HBSC sample, 44% in Grades 6–8 indicated having an older brother and 43% an older sister.

If within two years of age, these siblings may have been among the students in Grades 9 and 10. Similarly, in the NLSCY sample, 55% of the 10–11 year-olds had older siblings and 51% of the 12–13 year-olds had younger siblings. Restriction of analyses to only one child per family for the NLSCY data sets was prohibitive in terms of time and for the HBSC data set impossible due to lack of information. Thus, the assumption of independence was likely violated and results should be regarded as approximate. For this reason, as well as the large sample size, a stringent alpha level ( $p < .01$ ) and effect size criterion (see below) were adopted in describing results.

## **2. Predictor and Dependent Variables**

In addressing our research questions, aggregate scores were computed from groups of individual questionnaire items, whenever feasible, to increase reliability. The specific variables used in the analyses of each data set, as well as the constituent items and reliability information, are presented in Appendix A.

### **Predictor variables in the HBSC data set include (see Appendix A I):**

- a) Individual and family demographic variables:
  - ◆ child sex and grade
  - ◆ mother's work status (working vs. non-working)
  - ◆ family configuration (biological two-parent family, reconstructed two-parent family, single-parent family)
  - ◆ income adequacy
- b) Children's perceptions of the quality of their relationship with parents:
  - ◆ parent relations in general (e.g. my parents understand me, I (don't) have a lot of arguments with my parents)
  - ◆ ease of confiding in mother
  - ◆ ease of confiding in father
  - ◆ parents' support with school

### **Dependent variables in the HBSC data set include (see Appendix A I):**

- a) Externalizing problems:
  - ◆ bullying
  - ◆ substance use (asked only in Grades 8, 9 and 10) including:
    - alcohol use
    - tobacco smoking
    - drug use
    - association with deviant peers who use drugs

- b) Internalizing problems:
  - ◆ self-esteem
  - ◆ internalizing problems (depression, anxiety, loneliness)
- c) School identification
- d) Risk-taking behaviour:
  - ◆ helmet use
  - ◆ seatbelt use
  - ◆ number of serious injuries suffered
- e) Social relationships:
  - ◆ peer relations
  - ◆ confiding in siblings
  - ◆ victimization by others

### **Predictor variables in the NLSCY data set include (see Appendix A II):**

- a) Individual and family demographic variables:
  - ◆ child sex and age
  - ◆ family configuration (intact two-parent family, reconstructed two-parent family, single-parent family)
  - ◆ amount of maternal employment
  - ◆ income adequacy
  - ◆ maternal education
- b) Family climate (parent report):
  - ◆ family functioning
  - ◆ maternal depression
- c) Parenting style (parent report):
  - ◆ harsh parenting
  - ◆ mother's school involvement
- d) Parent–child relationship quality (child report):
  - ◆ parental warmth
  - ◆ parental rejection
  - ◆ confiding in mother
  - ◆ confiding in father

**Dependent variables (child report) in the NLSCY data set include (see Appendix A II):**

- a) Externalizing problems:
  - ◆ conduct problems/aggression
  - ◆ hyperactivity/inattention
  - ◆ indirect aggression
  - ◆ property offences
- b) Substance use:
  - ◆ alcohol
  - ◆ tobacco
  - ◆ drug use
  - ◆ affiliation with deviant peers who use drugs
- c) Internalizing problems:
  - ◆ self-esteem
  - ◆ emotional problems (depression/anxiety)
- d) School adjustment:
  - ◆ academic involvement
  - ◆ prosocial behaviour
- e) Social relations:
  - ◆ peer relations (lots of friends, liked by other kids)
  - ◆ feeling safe on way to and from school
  - ◆ victimization by others
  - ◆ sibling relations (how well get along with siblings)
  - ◆ confiding in other adults

### **3. Analytic Strategy**

Data analysis progressed in three stages. First, **multivariate analyses of variance** were performed to examine age and sex differences in parent–child relationship quality and child adjustment in both data sets. In each data set, child adjustment variables that were conceptually related and/or intercorrelated at 0.3 or greater were grouped into five clusters, with parallel clusters for each data set (see Appendix B). In the **HBSC sample, child adjustment clusters** included externalizing behaviour (bullying), substance use problems (tobacco, alcohol and drug use, deviant peer affiliation), internalizing problems (self-esteem, general internalizing problems), school adjustment (identification with school), risk taking (bike helmet use, seatbelt use, a



number of serious injuries) and social adjustment (peer relationship quality, confiding in siblings). In the **NLSCY data set**, **child adjustment clusters** included externalizing problems (symptoms of conduct disorder, hyperactivity, indirect aggression, property offences), substance use (tobacco, alcohol and drug use, affiliation with deviant peers), internalizing problems (symptoms of emotional disorder, self-esteem), school adjustment (academic involvement, prosocial behaviour) and social adjustment (peer relation quality, feeling safe at school, being victimized by others, sibling relationship quality, relationships with other adults). Only effect sizes at or above 0.01 (i.e. those explaining 1% or more of the variance in the dependent variable) were interpreted as meaningful, given the very large sample size and resulting large number of statistically significant, but very small, differences.

Second, **hierarchical multiple linear regressions** were computed to examine the unique and interactive predictive relations from predictor variables to child adjustment outcomes. These analyses established whether parenting effects were moderated by (i.e. differed with) child age, sex, social background and/or family climate. In these analyses, potential direct effects of social background and/or family climate factors affecting child adjustment were also identified, a necessary step in assessing whether such effects operate through parenting behaviour and/or the parent–child relationship. For the **HBSC data set**, **child and family background variables** included child sex, grade, mother’s work status (working vs. non-working), family configuration (one vs. biological two-parent family, reconstructed vs. biological two-parent family) and income adequacy. **HBSC family relations variables** included child perception of parent–child relationship quality, ability to confide in mother, ability to confide in father and parental support with school. For the **NLSCY data set**, **child and family background variables** included child sex and age, family configuration (one vs. two-parent family, intact vs. reconstructed family), amount of maternal employment (full time, part time/more than half-time, part time/less than half-time, does not work), income adequacy and maternal education. (Preliminary analyses indicated that neither the father’s work status [full time, part time] nor the joint parental work status affected adjustment.) **NLSCY family climate variables** included family functioning and maternal depression. **Parenting behaviour** included mother’s report of harsh parenting practices and school involvement. **Parent–child relationship quality** included child report of parental nurturance, parental rejection, confiding in mother and confiding in father. In HBSC analyses, regression effects accounting for 1% of variance or more were regarded as noteworthy. In analyses of the NLSCY data set, where relationships between variables provided by independent sources (i.e. mother and child) were examined, regression effect sizes accounting for at least 0.5% of variance are reported.

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Finally, to examine direct and indirect pathways from personal and family background factors and family functioning to child adjustment, we carried out **path analyses** using the EQS software package (Bentler, 1998). Child adjustment variables were grouped in the same way as for the multivariate analyses of variance described above. Background and parenting variables for each data set were grouped in the same manner as described above for the regression analyses. This procedure permitted assessment of associations between parenting and particular child adjustment outcomes independent of other associations. It also permitted testing of the hypothesis that social and family background factors influence child adjustment in part through their effects on parenting and the parent–child relationship; that is, that parenting and the parent–child relationship mediate associations between social and family background characteristics and child adjustment. Each analytic procedure is described in more detail in relation to relevant research questions. (For a complete picture of the correlations and intercorrelations, on which these analyses are based, see Appendices E and F.)

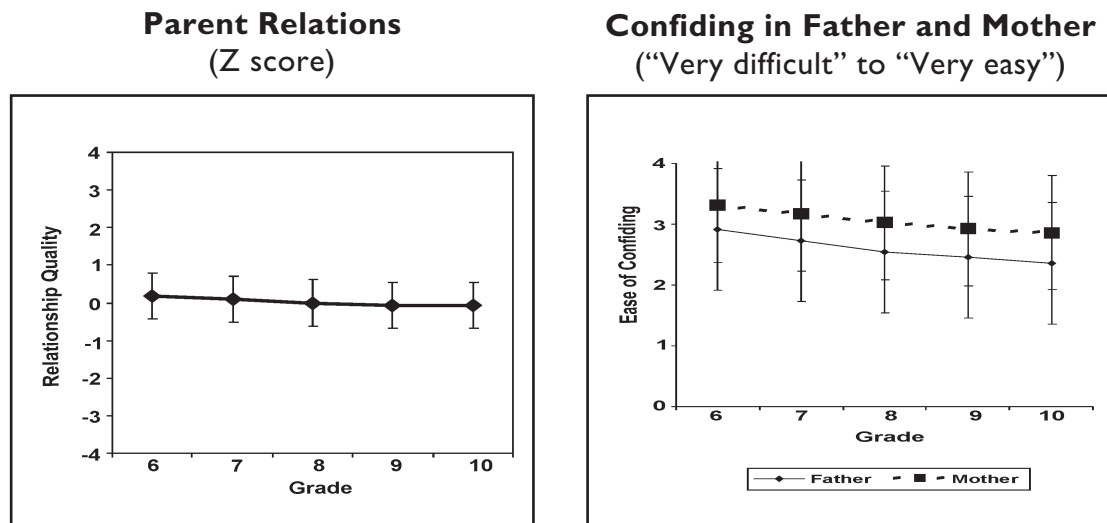
## V Results

### I. Age Trends in Parent–Child Relationships and Child Functioning

*How do parenting and parent–child relationships differ from late childhood (age 10–11) to middle adolescence (age 15)?*

The HBSC questionnaire did not assess parenting behaviour. Multivariate analyses of variance of the HBSC data set confirmed, however, that the quality of parent–child relationships decreased as children moved from late childhood to mid-adolescence (see Figure 1). Results showed that between Grades 6 and 10, children perceived their parents to understand them less and reported arguing with them significantly more. Adolescents also reported less ease in confiding in their mothers and their fathers than younger children.

**Figure 1: HBSC Age Differences in Parent–Child Relationships**

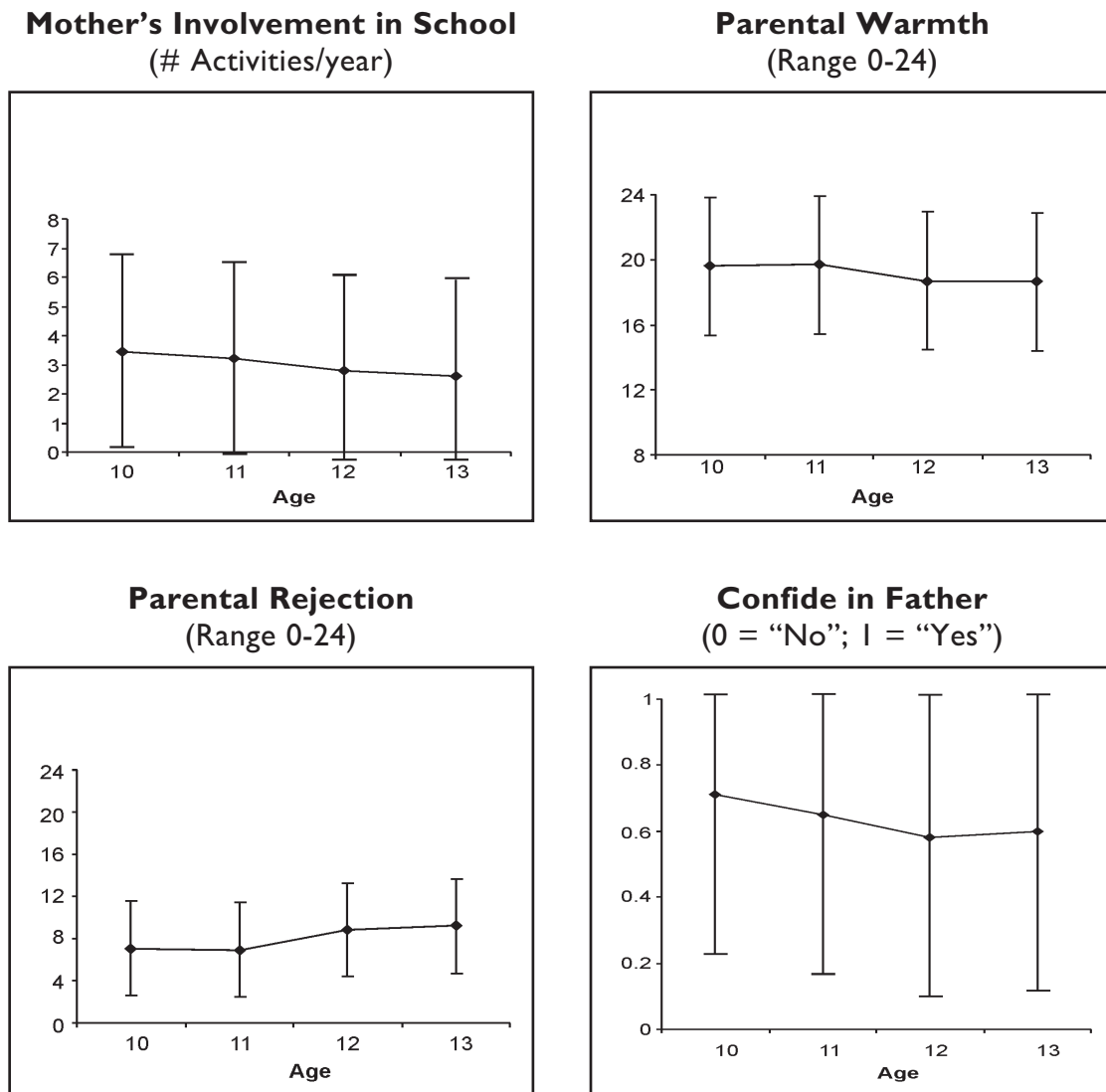


The NLSCY database contains parents' reports of their parenting behaviour and thus provided the opportunity to determine whether parents engage in different parenting strategies with younger children versus adolescents. Multivariate analyses of variance revealed that mother's involvement in school decreased with age: mothers of younger children reported more contact and involvement in their child's school than mothers of older children (see Figure 2). Harshness of parenting (as reported by parents, e.g. yelling and using physical punishment more when child breaks rules) did not vary with child age. Nonetheless, older children perceived their parents as significantly less warm (e.g. listening less to their

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opinions and ideas, speaking less of good things the child does) and more rejecting (e.g. nagging more about little things, enforcing rules depending more on their mood) than younger children. Although confiding in mother did not change with age, older children were less likely to discuss problems with their fathers than younger children.

**Figure 2: NLSCY Age Differences in Parent-Child Relationships**



Thus, in both data sets, the quality of children's relationships with their parents decreases with age. Older children perceive their parents as less warm and more rejecting, and report less ease in confiding in them, at least in fathers. It may be noted that in the HBSC data set, in contrast to the NLSCY data set, no age changes were apparent in parents' support with school. This is not surprising given the differences between the data sets in the assessment of this variable. As

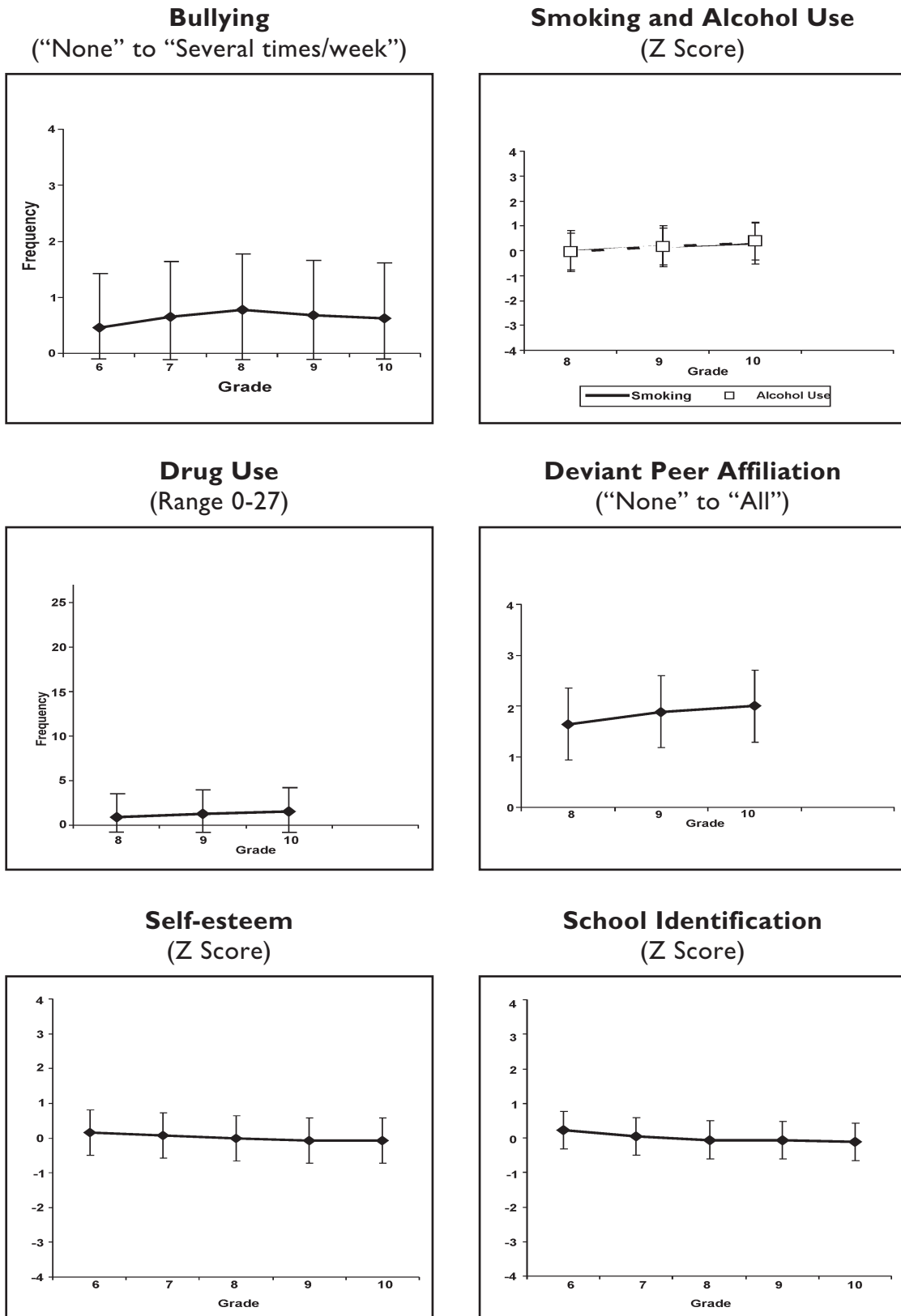
noted in Appendix A, HBSC parents' support with school was composed of three questions pertaining to parents' availability: help with school problems if they occur, willingness to talk with the teacher if needed and encouragement to do well in school. In the NLSCY data set, the eight questions contributing to mother's involvement in school pertained to the mother's actual visits to the teacher and/or class, attendance at school events and meetings and fundraising. Thus, we may conclude that children perceive parents' availability for help as remaining constant across age but that actual parental involvement decreases with age. This latter decrease may be due to greater child autonomy and less need by the child for parents' involvement with age. The NLSCY indices of confiding in mother and father were particularly limited, however. Specifically, children were free to select either or both their mother or father when asked to specify to whom, other than their friends, they talked about their problems. In the HBSC sample, on the other hand, children indicated for each parent on a 4-point scale how easy it was to confide about problems or themselves. Thus, it is likely that the HBSC finding of a decrease with age in confiding in mother is representative of adolescent experience.

### ***How does child adjustment change over this period?***

Multivariate analyses of both the HBSC and NLSCY data sets indicated that adolescents have more adjustment problems than younger children. With respect to the HBSC data set, older adolescents bullied others more, used illegal substances (tobacco, alcohol, drugs) more, and affiliated more with deviant peers who engage in substance use than did younger children (see Figure 3). Older adolescents also had lower self-esteem and identified less with school than younger children (e.g. they saw school as a less nice place to be, felt teachers treated them less fairly). In addition, older adolescents used safety precautions (helmets, seatbelts) less, although they did not incur more serious injuries.

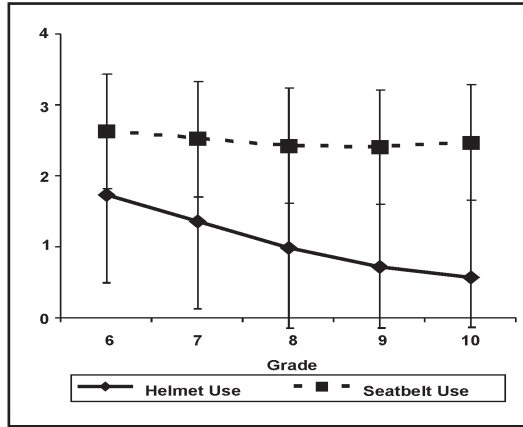
Results from the NLSCY data set partly confirm this pattern (see Figure 4). Consistent with the HBSC results, alcohol and tobacco use, as well as affiliation with deviant peers who engage in substance use, increased sharply with age, though drug use did not. Also, analyses confirmed that older children had lower self-esteem, invested less in school (e.g. liked school less and did homework less) and behaved less prosocially (e.g. offering to help other kids who are having difficulty with a task) than younger children.

**Figure 3: HBSC Age Differences in Child Adjustment**



**Figure 3: HBSC Age Differences in Child Adjustment**  
(continued)

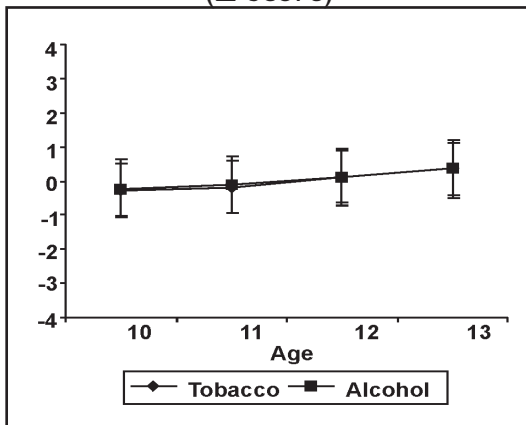
**Helmet and Seatbelt Use**  
("Rarely" to "Always")



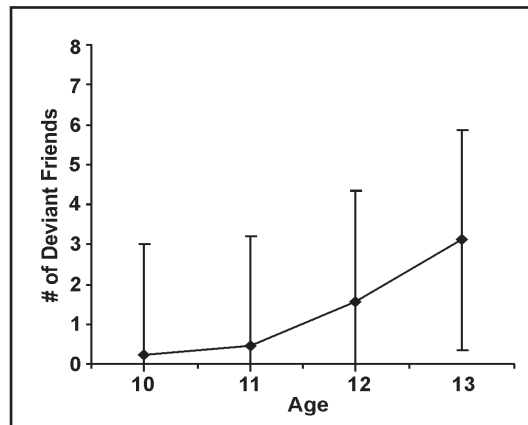
Thus, in both samples, smoking, alcohol use and affiliation with deviant peers increased, whereas self-esteem and identification/investment in school decreased, with the onset of adolescence. Only the HBSC sample showed an increase in aggression against others (i.e. bullying), though the NLSCY data provided extensive measures of similar externalizing behaviour problems (i.e. conduct/aggression problems, property offences). The lack of age increases in drug use in the NLSCY sample is likely due to the younger age of this sample (10–13 years vs. 13–15 years), in which the rate of drug use was very low, or to differences in data collection methodology. Unlike the HBSC children, who completed questionnaires in the classroom, the NLSCY children were interviewed by an adult stranger in their home.

**Figure 4: NLSCY Age Differences in Child Adjustment**

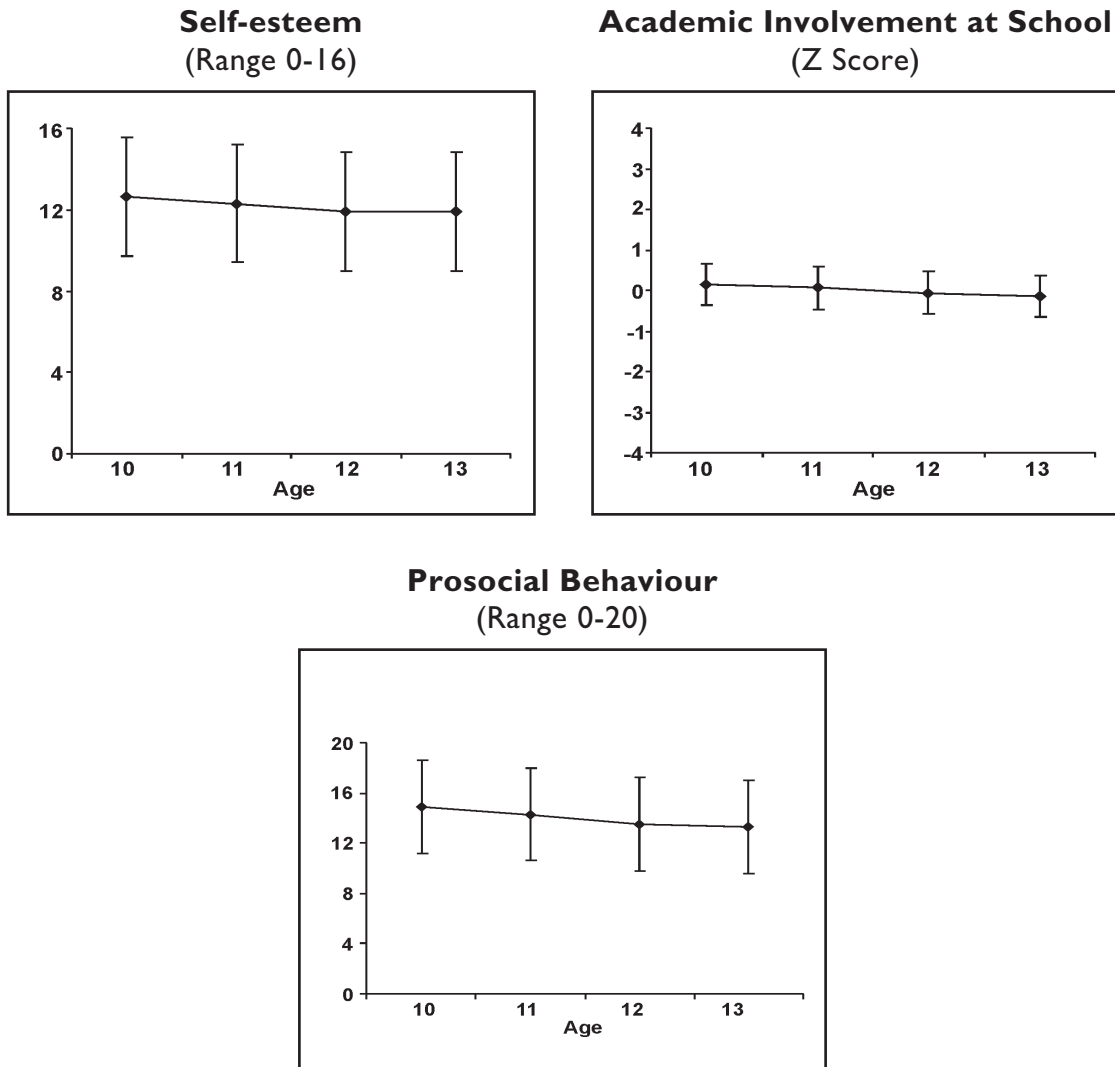
**Consumption of Tobacco,  
Alcohol**  
(Z Score)



**Interaction with Deviant Peers**



**Figure 4: NLSCY Age Differences in Child Adjustment**  
(continued)

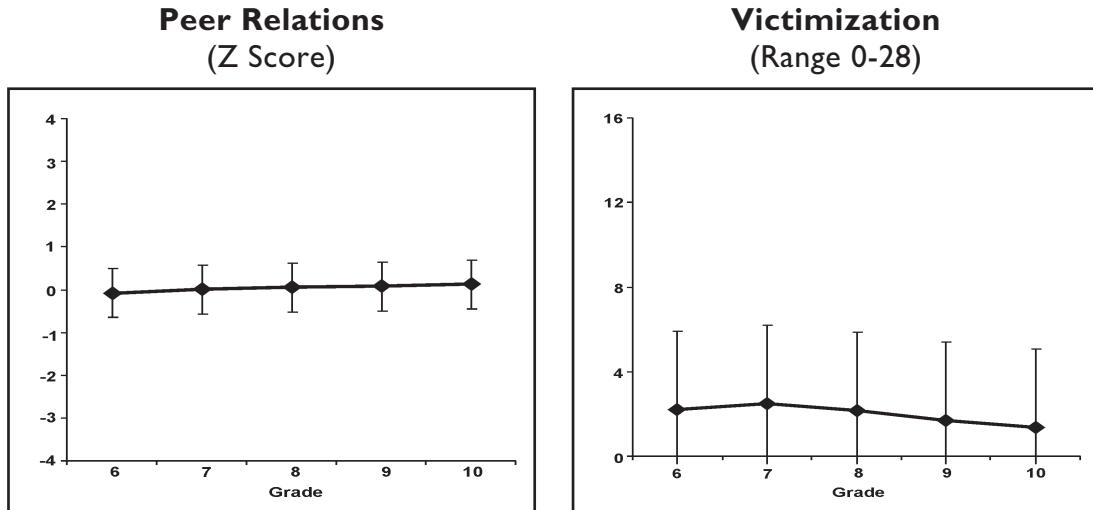


***In what way do children’s other social relationships change over this period?***

Analysis of HBSC data indicated that the quality of sibling relations (i.e. ease of confiding in older brothers or sisters) did not change with age. However, older children reported better peer relations (e.g. more often spending time with friends right after school, finding it easier to make new friends) (see Figure 5) and, as noted above, were significantly more involved with deviant peers as compared to younger children. Finally, older children reported that they are less likely to be victimized than younger children.

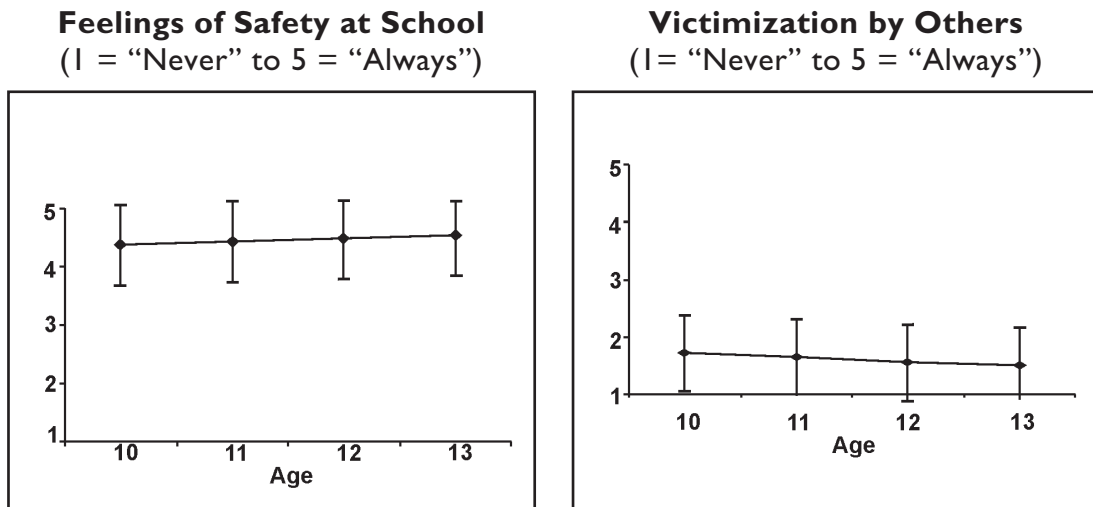


**Figure 5: HBSC Age Differences in Peer Relations**



Consistent with the HBSC data, the NLSCY analyses showed that the extent to which children got along with their siblings did not change significantly from 10 to 13 years of age. In addition, there was a trend for older children to report more positive peer relationships (e.g. feeling they have lots of friends, feeling liked by other kids) than younger children, though the difference in the NLSCY sample was not large enough to be noteworthy. Again consistent with the HBSC data, however, older children in the NLSCY sample affiliated more with deviant peers than their younger counterparts. Older children were less victimized by others and felt safer at school and on their way to and from school than younger children (see Figure 6). Though older children mentioned confiding in other adults somewhat less than younger children, this difference was also too small to be noteworthy.

**Figure 6: NLSCY Age Differences in Peer Relations**



Thus, on the whole, age changes in social relationships were consistent across the two samples. Older children had better relations with peers, associated more with peers who used illegal substances, were less victimized and felt safer.

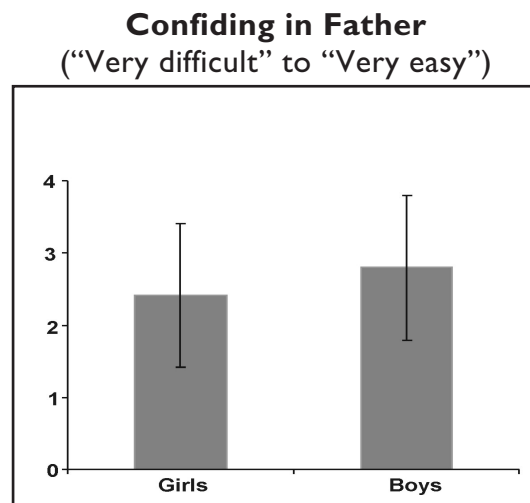
### ***How does gender influence parenting practices, parent–child relationships and child adjustment during this period of development?***

#### ***Differences in parents' behaviour and parent–child relationships for boys and girls***

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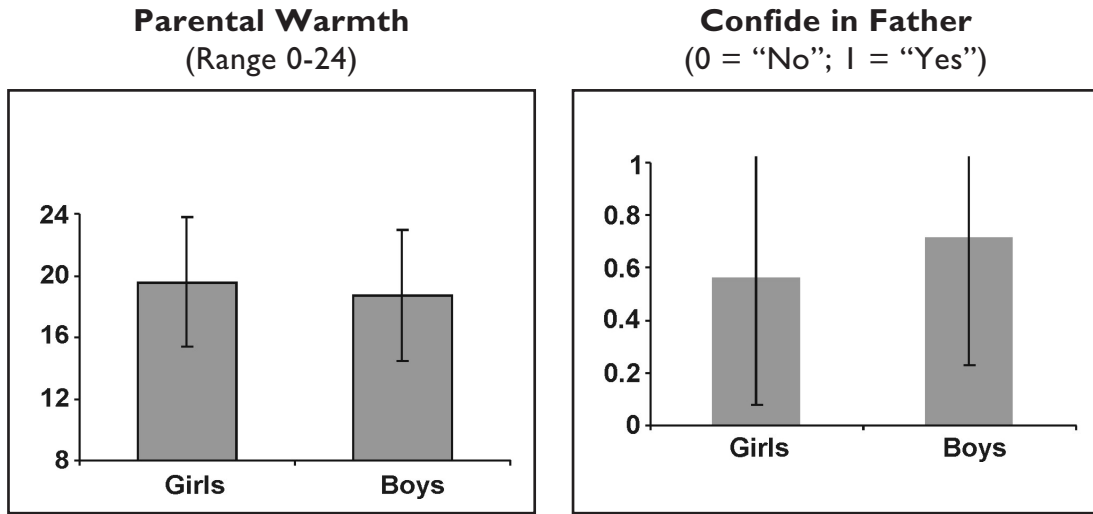
Differences between boys and girls in parent–child relationship quality and child adjustment were found in both the HBSC and NLSCY data sets. In the HBSC sample, girls and boys were equally positive in describing the quality of their relationships with parents and in confiding in their mothers, although girls reported less confiding in their fathers than boys (see Figure 7). Interestingly, although girls and boys did not differ in overall sibling relationships, as in talking with their mother and father, girls and boys were equally comfortable talking with older sisters, but girls had more difficulties talking with older brothers than boys (not shown). No gender difference was found in regard to parental support with school (e.g. helping with school problems if needed, talking to teachers if needed).

**Figure 7: HBSC Gender Differences in Parent–Child Relationships**



In the NLSCY sample, mothers did not differ in involvement in school or in harshness of parenting for their daughters versus sons. Nonetheless, in contrast to the HBSC sample, girls perceived greater warmth from their parents (see Figure 8) while boys tended to perceive greater parental rejection, though the latter difference was not large enough to be noteworthy. Finally, consistent with the HBSC sample, girls and boys did not differ in confiding in their mothers, although boys discussed problems more with their fathers than girls.

**Figure 8: NLSCY Gender Differences in Parent-Child Relationships**

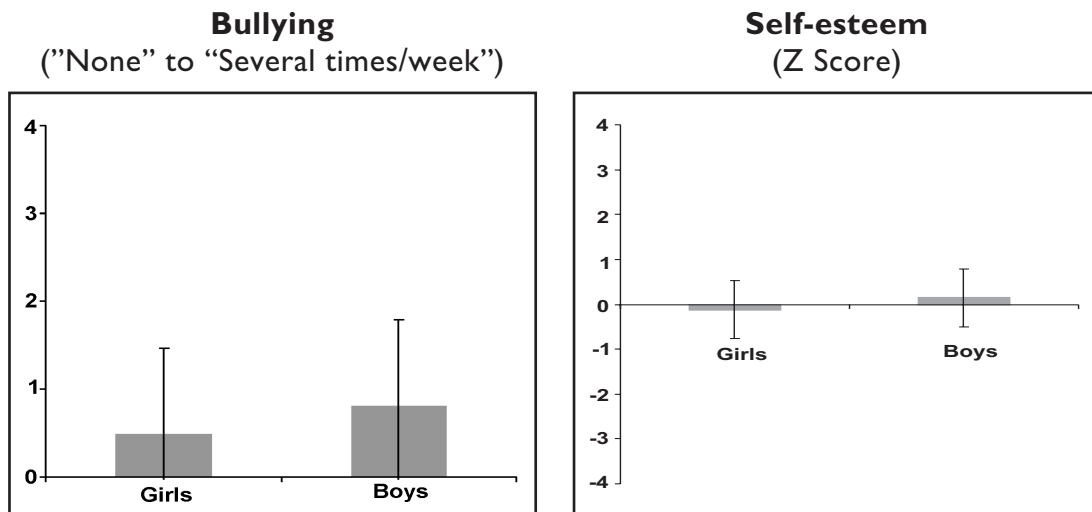


Thus, in both samples girls found it less easy to confide in their fathers. However, only in the NLSCY sample did girls report more positive relationships (i.e. more warmth, less rejection) with their parents than boys.

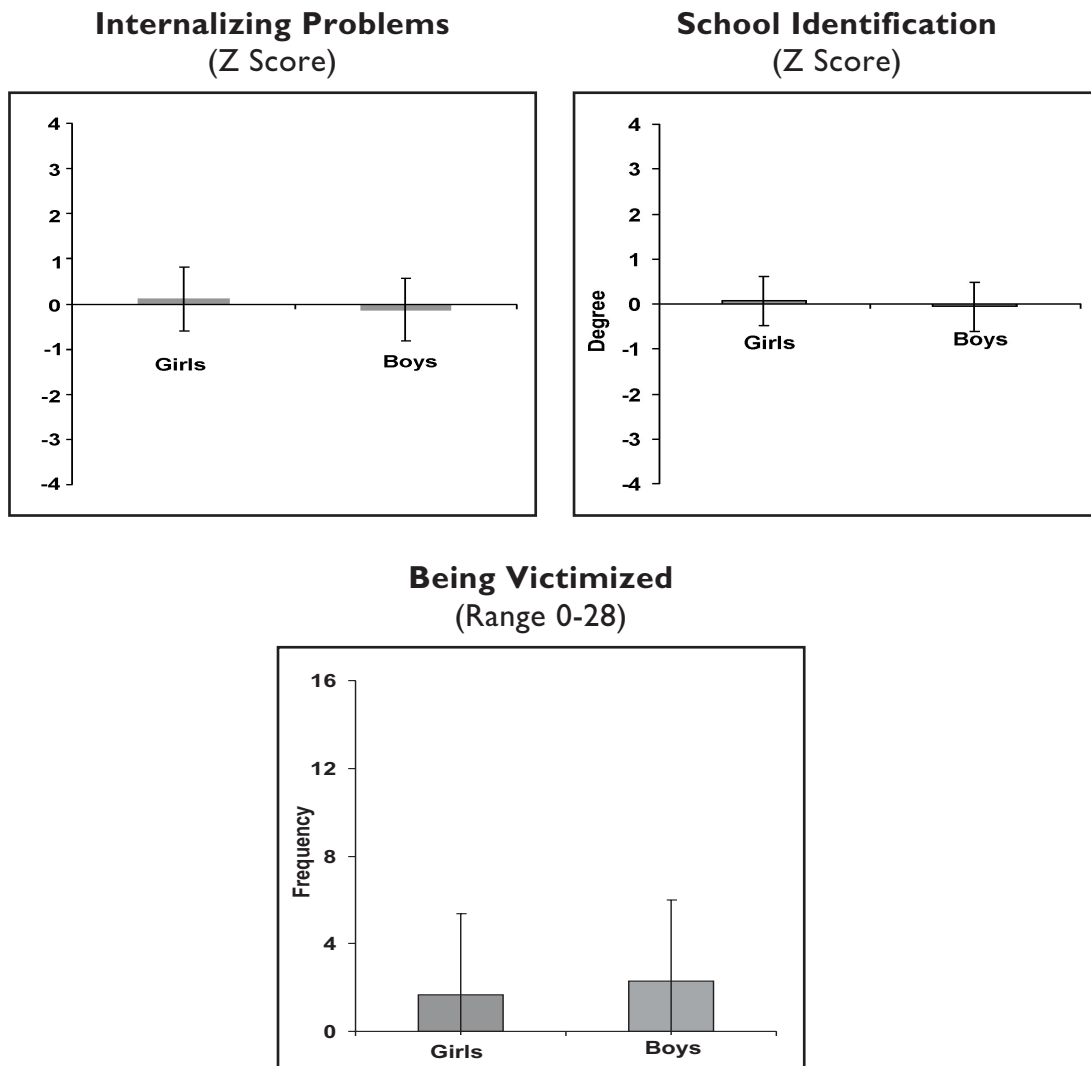
*Differences in the adjustment of boys versus girls*

In terms of adjustment outcomes, girls and boys sometimes reported different types of problems. Specifically, in the HBSC sample, girls bullied others less frequently, had lower self-esteem and reported more internalizing problems (e.g. depression, anxiety) than boys (see Figure 9). Girls were also more involved in school and less frequently victimized than boys.

**Figure 9: HBSC Gender Differences in Child Adjustment**



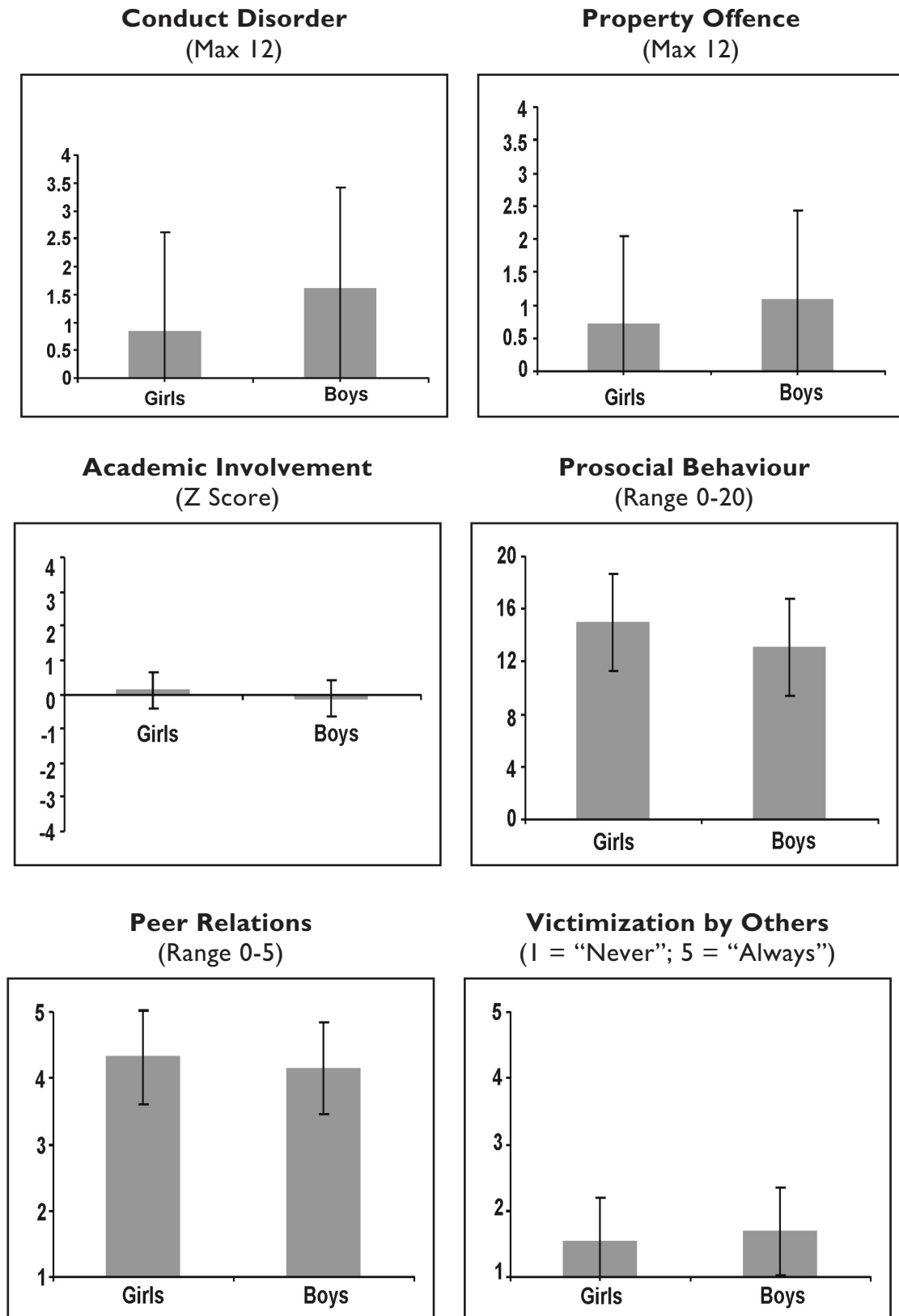
**Figure 9: HBSC Gender Differences in Child Adjustment**  
(continued)



Similarly, in the NLSCY sample, girls reported less conduct problems/aggressive behaviour and fewer property offences than boys (see Figure 10). Girls tended to have lower self-esteem and more internalizing problems than boys, but the difference in this younger sample was not large enough to be notable. In addition, girls were more committed to their schoolwork, behaved more prosocially and were less victimized than boys. Unlike in the HBSC sample, the girls in the NLSCY sample reported more positive peer relations.

## Parent-Child Relationships and Adjustment in Adolescence

Figure 10: NLSCY Gender Differences in Child Adjustment



Thus, in both samples, girls less often bullied/were aggressive against others, were more committed to their schoolwork and were less victimized than boys. Girls had lower self-esteem and more internalizing problems. It is notable that, in both samples, girls and boys did not differ significantly in hyperactivity/inattention, indirect aggression and use of alcohol, drugs and tobacco.<sup>1</sup> Although some gender differences were found, age-related shifts in parent–child relationships and child adjustment were not significantly different for boys and girls; that is, no significant interactions between gender and age emerged in analyses of either data set. Rather, changes that occurred as a function of age were similar for boys and girls.

## **2. Parent–Child Relationship Quality and Child Adjustment**

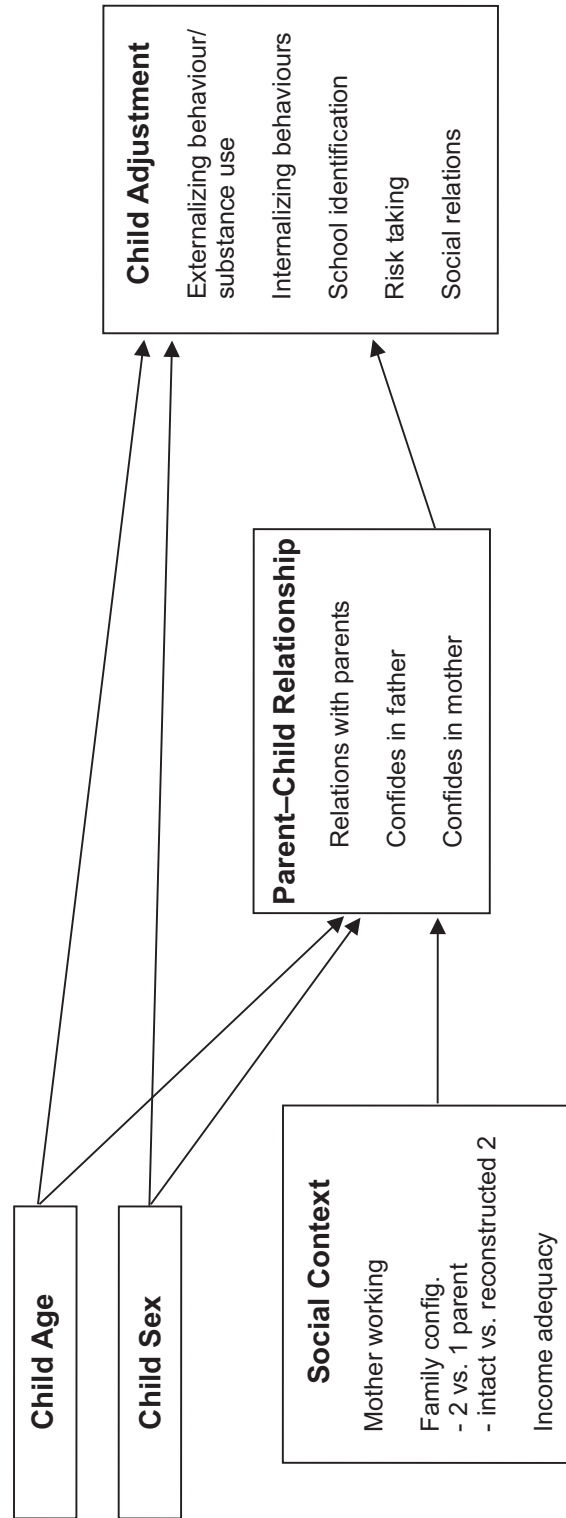
As previously noted, regression models were developed to test whether social climate and family background contributed to child adjustment, and whether parenting and parent–child relationships contributed beyond child age, gender and social climate. These models and regression procedures are described in more detail in Appendices C and D. Results indicated that interactions between the various family demographic and relations variables (e.g. work status, family configuration, income adequacy, maternal education) and child sex and age were most often not statistically significant, and almost exclusively were too small to meet the inclusion criterion of accounting for 1% or more of variance in outcome. Thus, predictions from parenting and parent–child relationships did not differ depending on the child’s age, whether the child was a boy or girl, or for children from different social climates and family backgrounds.

Regression analyses are useful in determining additive predictive significance; however, they are limited in testing complex paths between levels of predictors. Thus, as noted earlier, path analyses were conducted to provide a picture of the links between the various groups of factors that contribute to clusters of child adjustment outcomes. Because the regression analyses indicated that the predictive model applied equally well to boys and girls, and to younger and older children, etc. (i.e. interaction effects were negligible), a single path model was tested for each data set. As noted above, in each data set a mediational model was tested by which personal and family background factors were hypothesized to exert their effects through changes in parenting (measured in the NLSCY sample only) and the parent–child relationship (see Figures 11a and b). Path analytic procedures for the HBSC and NLSCY data sets are described in more detail in Appendix G. The resulting final path models are described below with respect to each area of child adjustment.

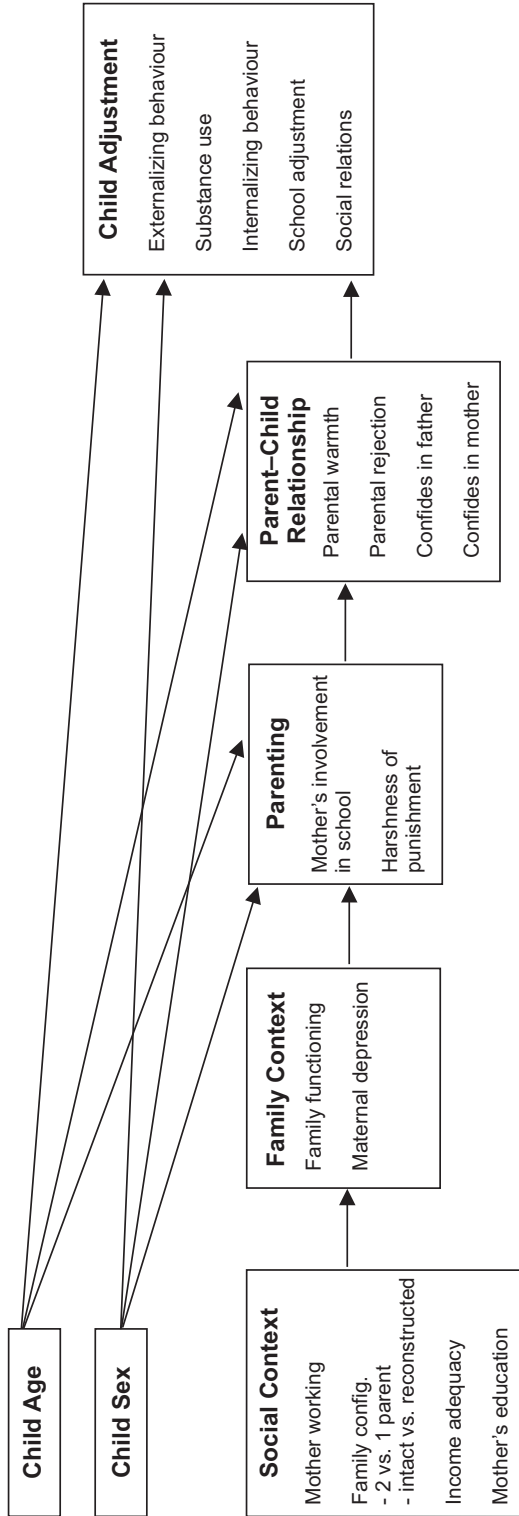
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<sup>1</sup> Differences in adjustment with age and between boys and girls as a result of path analyses differed slightly from the above and thus are reviewed again later in this report.

**Figure 11a: HBSC Models Tested**



**Figure 11b: NLSCY Models Tested**





### ***What are the associations between parenting and the quality of parent–child relationships?***

Although only the NLSCY data set permitted an examination of the relationship between parenting behaviour and the parent–child relationship, the path analytic findings (see Figures 17 to 21, 27 to 31) are particularly noteworthy because they are based on two independent sources of data: parents and children. Consistent with expectation, arbitrary, angry parenting practices (as reported by parents) predicted children’s reports of parental rejection and lack of parental warmth. Mother’s school involvement tended to be associated with greater perceived parental warmth, but this effect was not large enough to be noteworthy. These relationships held for both boys and girls, and for younger and older children.

### ***How does parenting and the parent–child relationship contribute to children’s adjustment and the quality of their other social relationships? Is there evidence that parenting and the parent–child relationship affect adjustment in expected ways? That is, does effective parenting contribute to a positive parent–child relationship, which in turn results in better adjustment?***

With respect to externalizing problems and substance use, HBSC path analyses (see Figure 12) showed that a positive relationship with parents was associated with less bullying, smoking, alcohol and drug use, and less frequent affiliation with deviant peers who engage in substance use. Ease of confiding in mother and father did not independently predict these outcomes. A positive relationship with parents predicted higher self-esteem and fewer internalizing problems, and ability to confide in father independently predicted higher self-esteem (see Figure 13). Moreover, youth who reported more positive relationships with their parents and greater ability to confide in their father were more likely to report increased school identification and commitment to education (see Figure 14). Finally, HBSC path analyses revealed that youth who felt that they had a positive relationship with their parents were less likely to take risks (i.e. to not use a bike helmet and seatbelt, and to incur more serious injuries) (see Figure 15).

Path analyses of the HBSC data set also revealed significant relationships between parent–child relationship quality and child social adjustment (see Figure 16). Specifically, children who reported a more positive relationship with their parents were less likely to be victimized. Similarly, ease of confiding in father was uniquely associated with more positive peer and sibling relationships; confiding in mother independently predicted more positive sibling relationships.

Figure 12: Substance Use/Externalizing Path Model: HBSC Sample

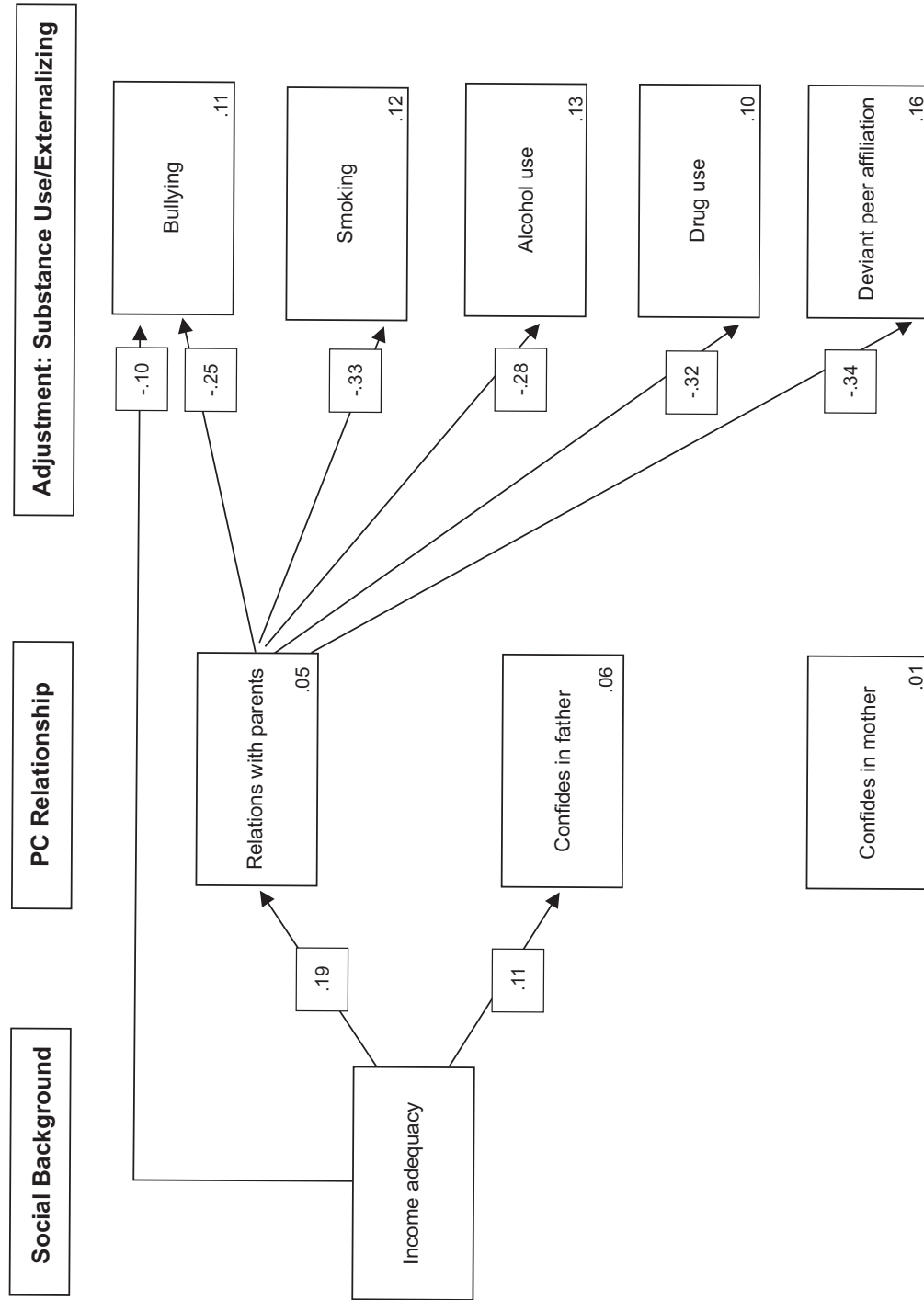


Figure 13: Internalizing Path Model: HBSC Sample

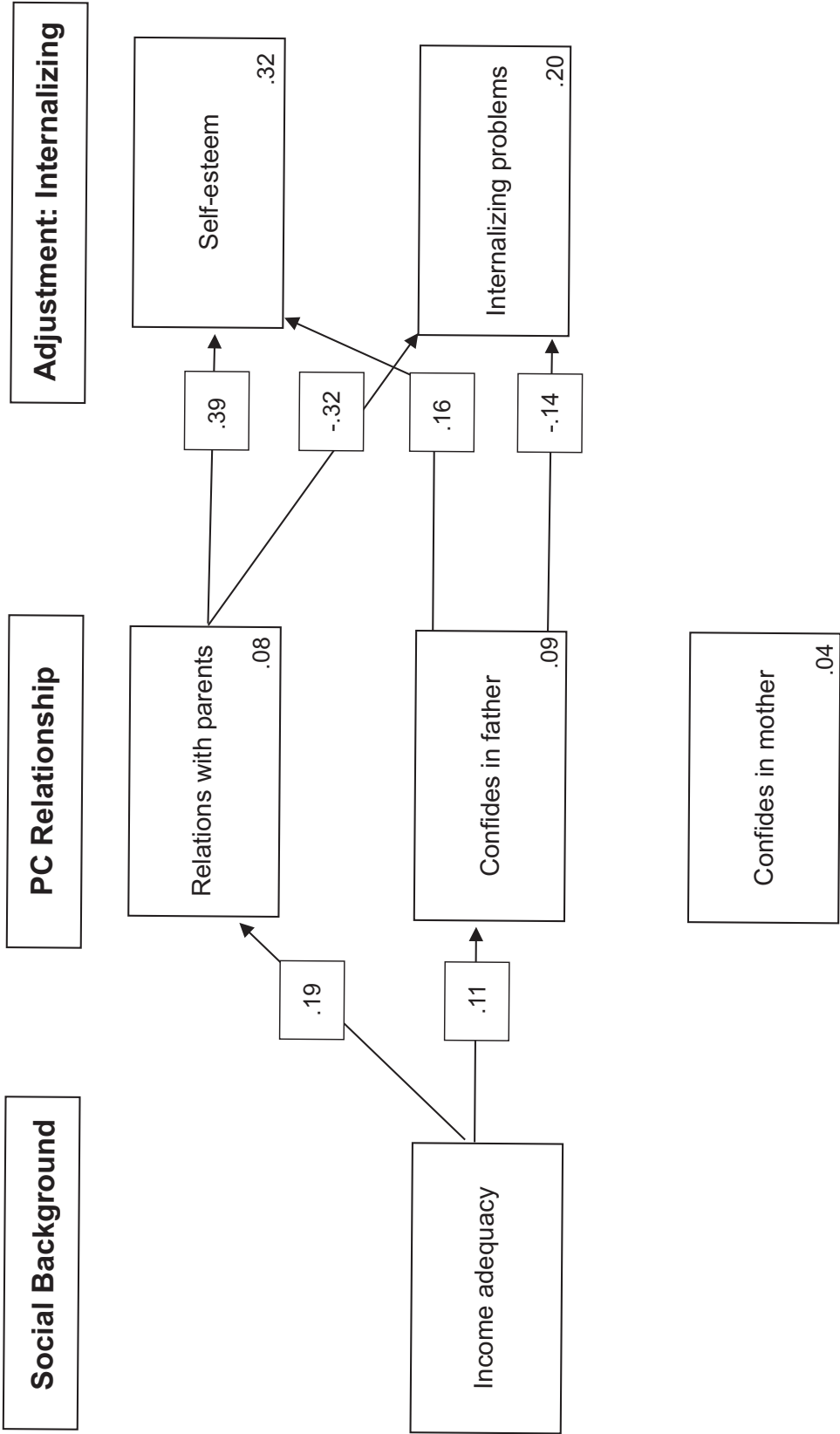


Figure 14: School Identification Path Model: HBSC Sample

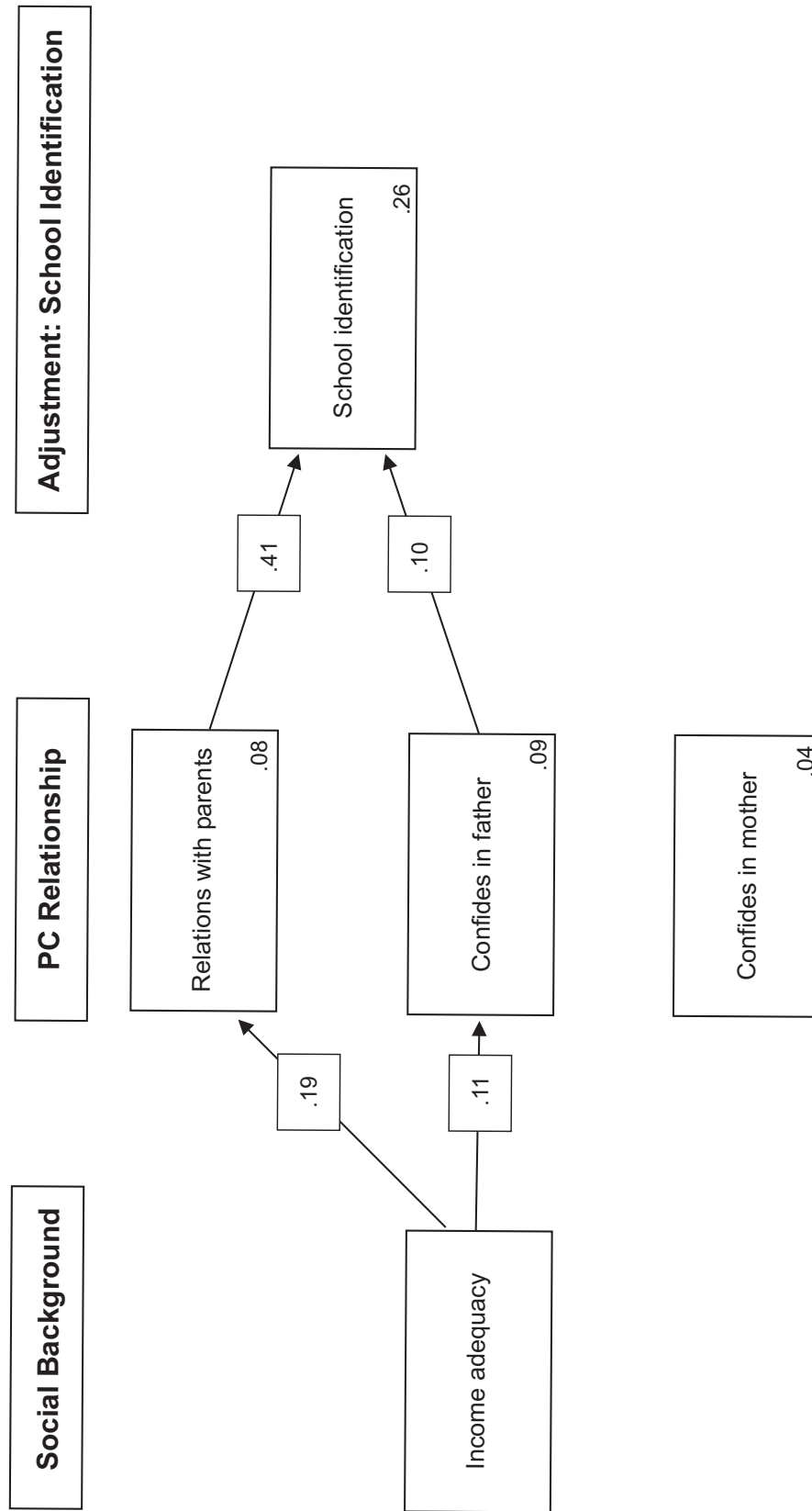


Figure 15: Risk Taking Path Model: HBSC Sample

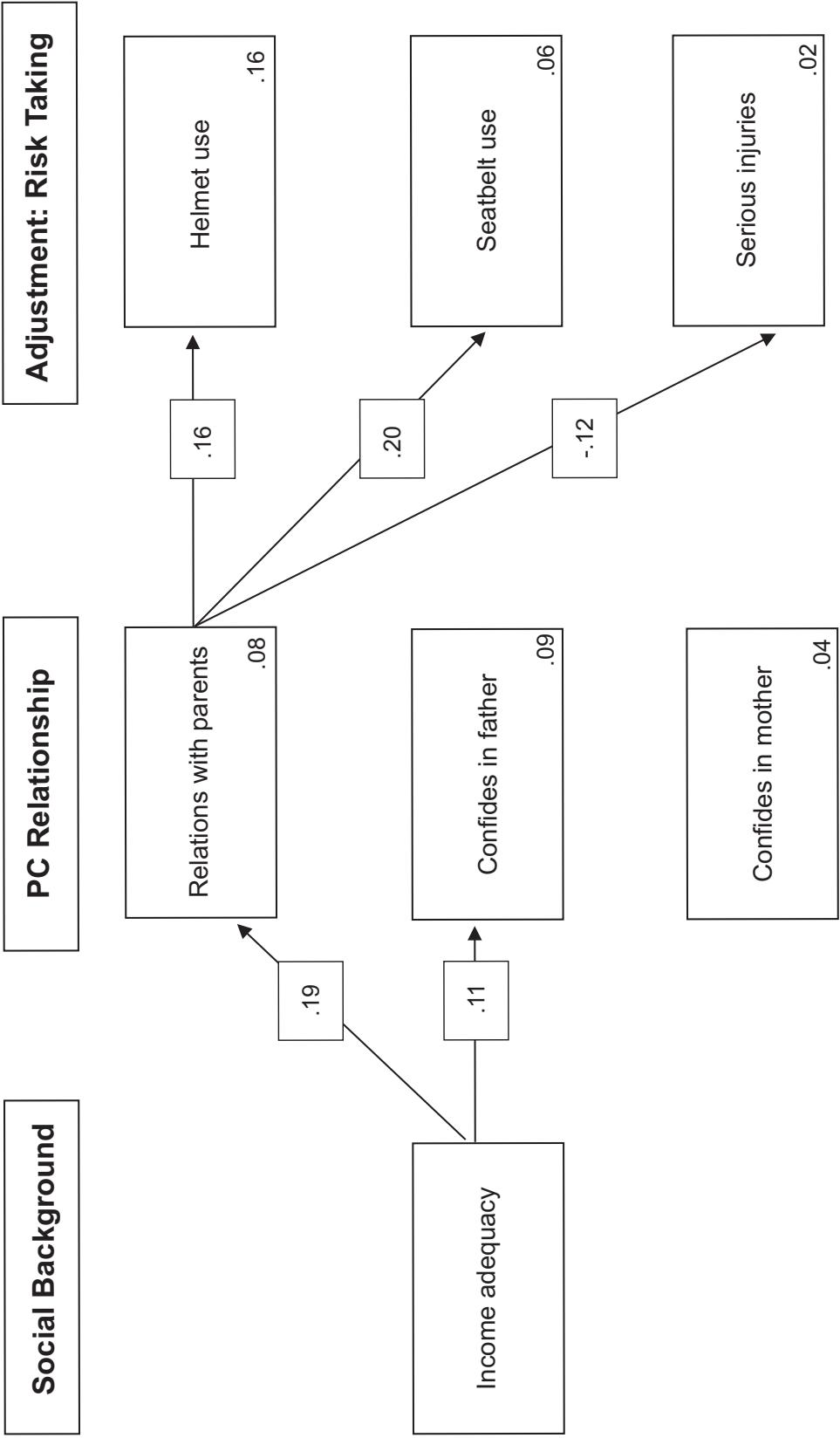
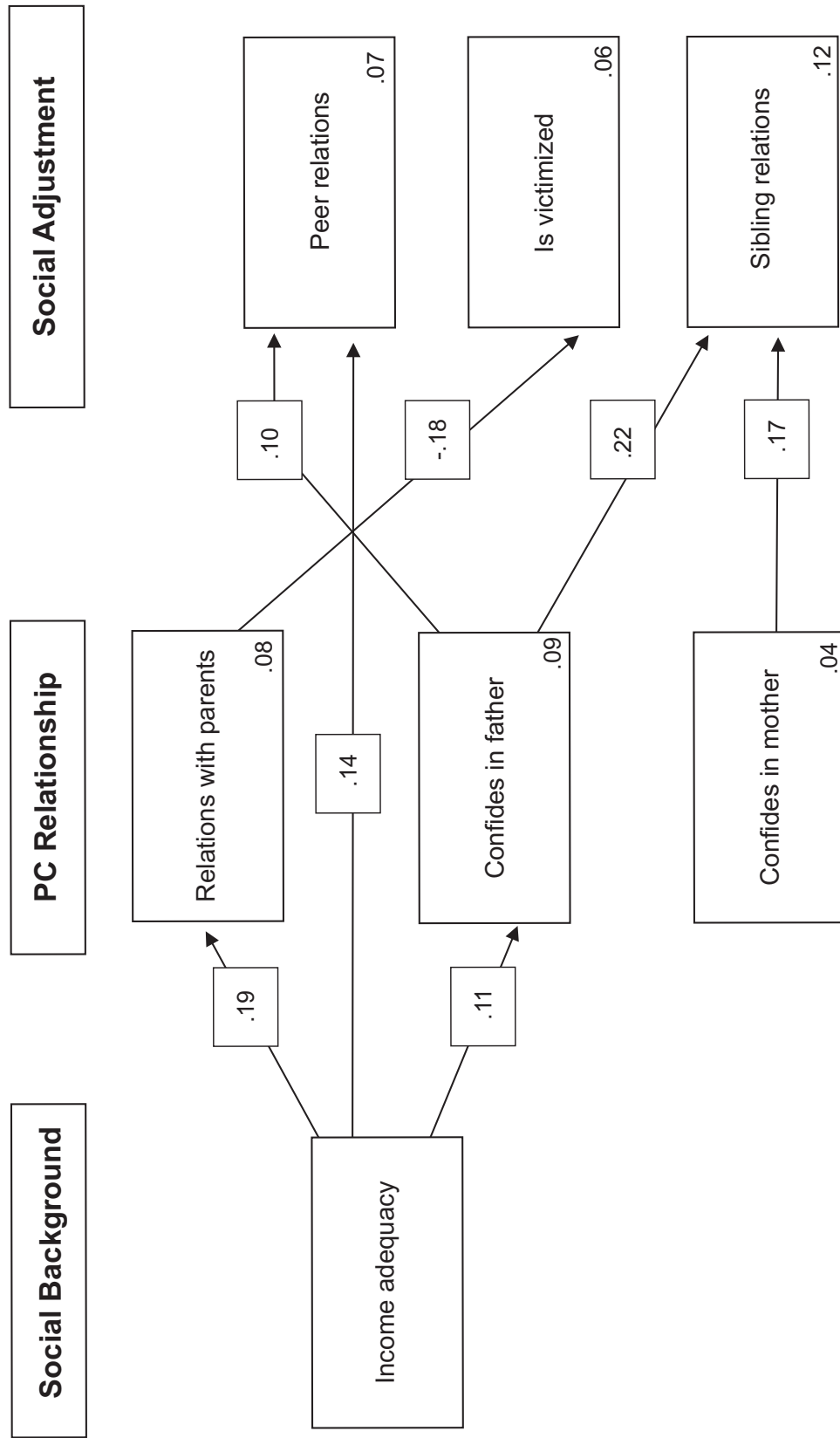


Figure 16: Social Adjustment Path Model: HBSC Sample



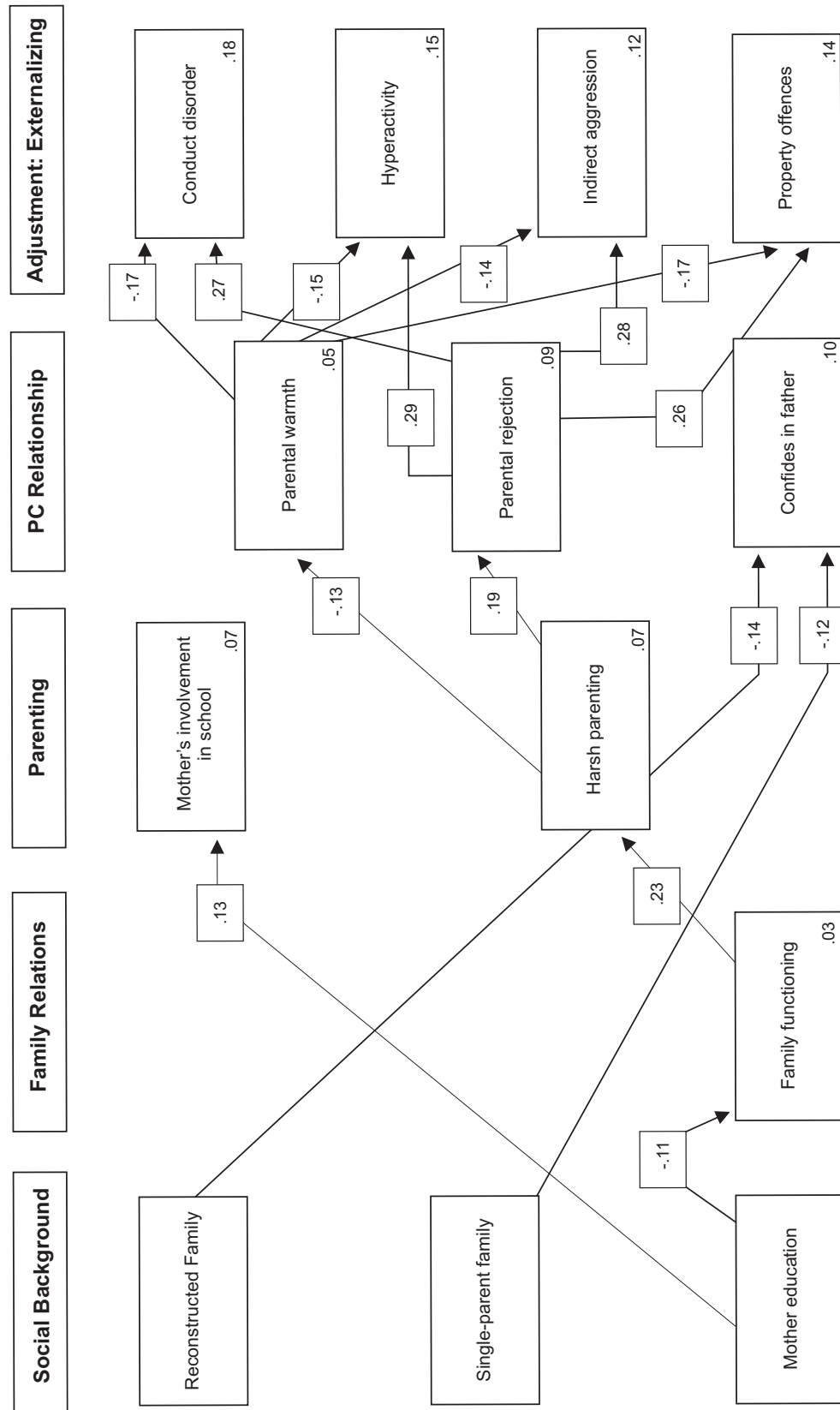
NLSCY data analyses provided a more in-depth picture of the relationships between parent behaviour, child perceptions of relationship quality and child adjustment. Results of the path analyses showed that arbitrary, angry parenting predicted children's perceptions of parental rejection and lack of warmth (see Figures 17–21), which in turn predicted poor adjustment. With respect to externalizing problems (see Figure 17), high parental rejection and low parental warmth each independently predicted increased conduct-disordered behaviour, hyperactivity/inattention, indirect aggression and property offences. Although perceived parental warmth was not independently associated with substance use, parental rejection was associated with more child smoking, alcohol use and affiliation with deviant peers who used substances (see Figure 18). Similarly, with respect to internalizing problems (see Figure 19), high parental rejection and low parental warmth each predicted children's increased feelings of anxiety and depression (emotional problems) and lower self-esteem.

Results from the NLSCY analyses also confirmed relationships between parenting, parent–child relationship quality and school adjustment (see Figure 20). Children who perceived their parents as more rejecting were less involved academically; children who perceived their parents as less warm (and, as noted earlier, mothers who were less involved in the child's school tended to be perceived as somewhat less warm) were both less involved academically and behaved less prosocially.

Path analyses of the NLSCY data set also confirmed the significance of parenting and parent–child relationship quality in predicting social adjustment (see Figure 21). Consistent with results for other indices of child adjustment, perceptions of increased parental rejection and lower parental warmth each predicted less perceived safety at school, more victimization by others and less positive sibling relationships. Perceptions of low parental warmth also predicted less positive peer relationships. Youth who reported talking with their father about their problems, however, also reported talking with non-parental adults.

These relationships indicate a highly consistent pattern across the two data sets wherever measures were comparable. In both the HBSC and NLSCY samples, a positive parent–child relationship was associated with less aggression, less smoking, less alcohol use, less affiliation with deviant peers, less anxiety and depression, higher self-esteem, more school commitment and less victimization by others. Moreover, the importance of positive relations with parents was demonstrated in its ability to predict child adjustment outcomes unique to each data set. These include risk-taking behaviour, hyperactivity/inattention and property offences, prosocial behaviour and feeling safe. In the NLSCY data set, both parental warmth and rejection made independent and opposite contributions to adjustment: parental warmth was more strongly associated with positive outcomes (i.e. self-esteem, academic involvement, prosocial behaviour, positive peer relations) and parental rejection more strongly with negative outcomes (i.e. externalizing problems, substance use, deviant peer affiliation).

Figure 17: Externalizing Path Model: NLSCY Sample





**Figure 18: Substance Abuse Path Model: NLSCY Sample**

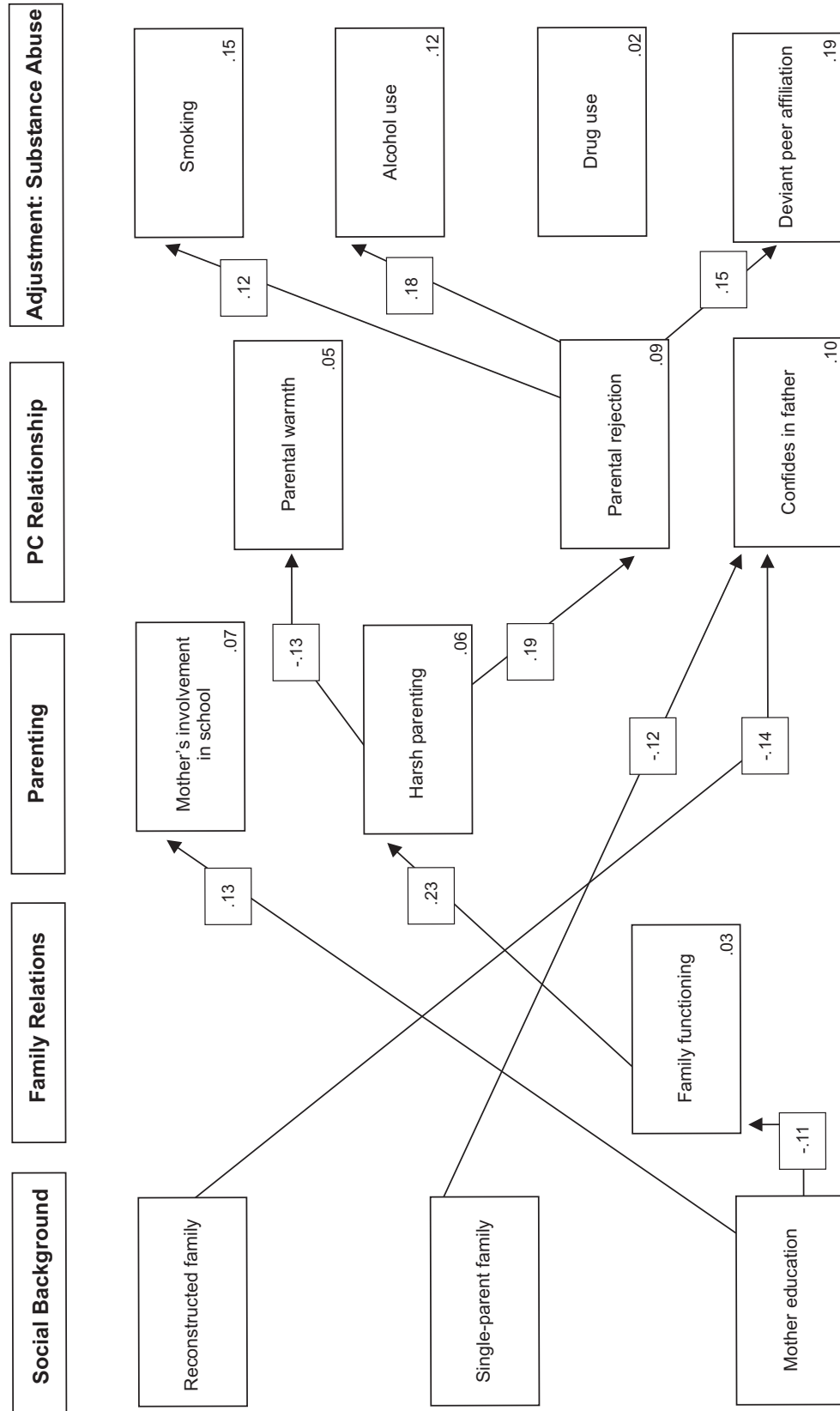
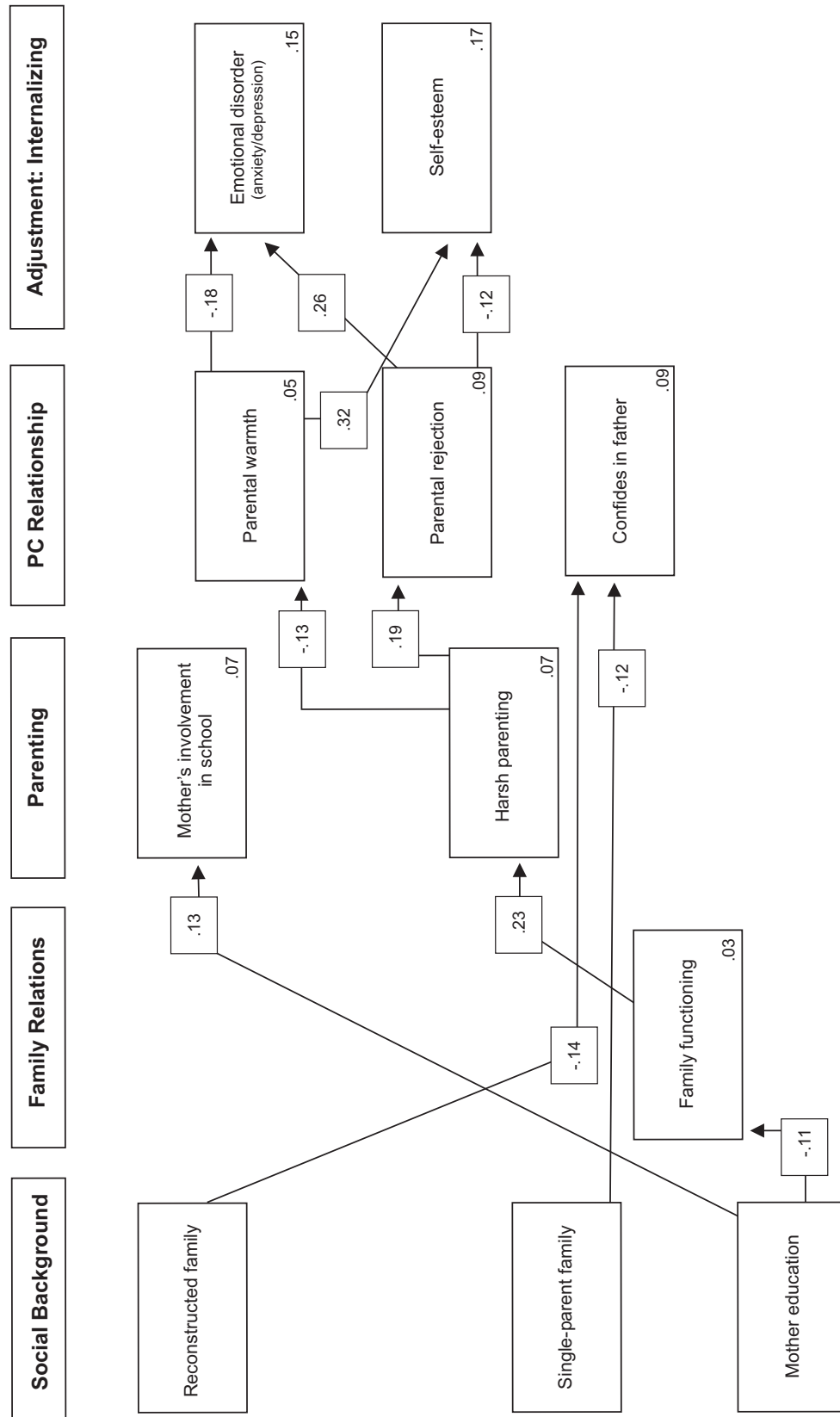


Figure 19: Internalizing Path Model: NLSCY Sample



**Figure 20: School Adjustment Path Model: NLSCY Sample**

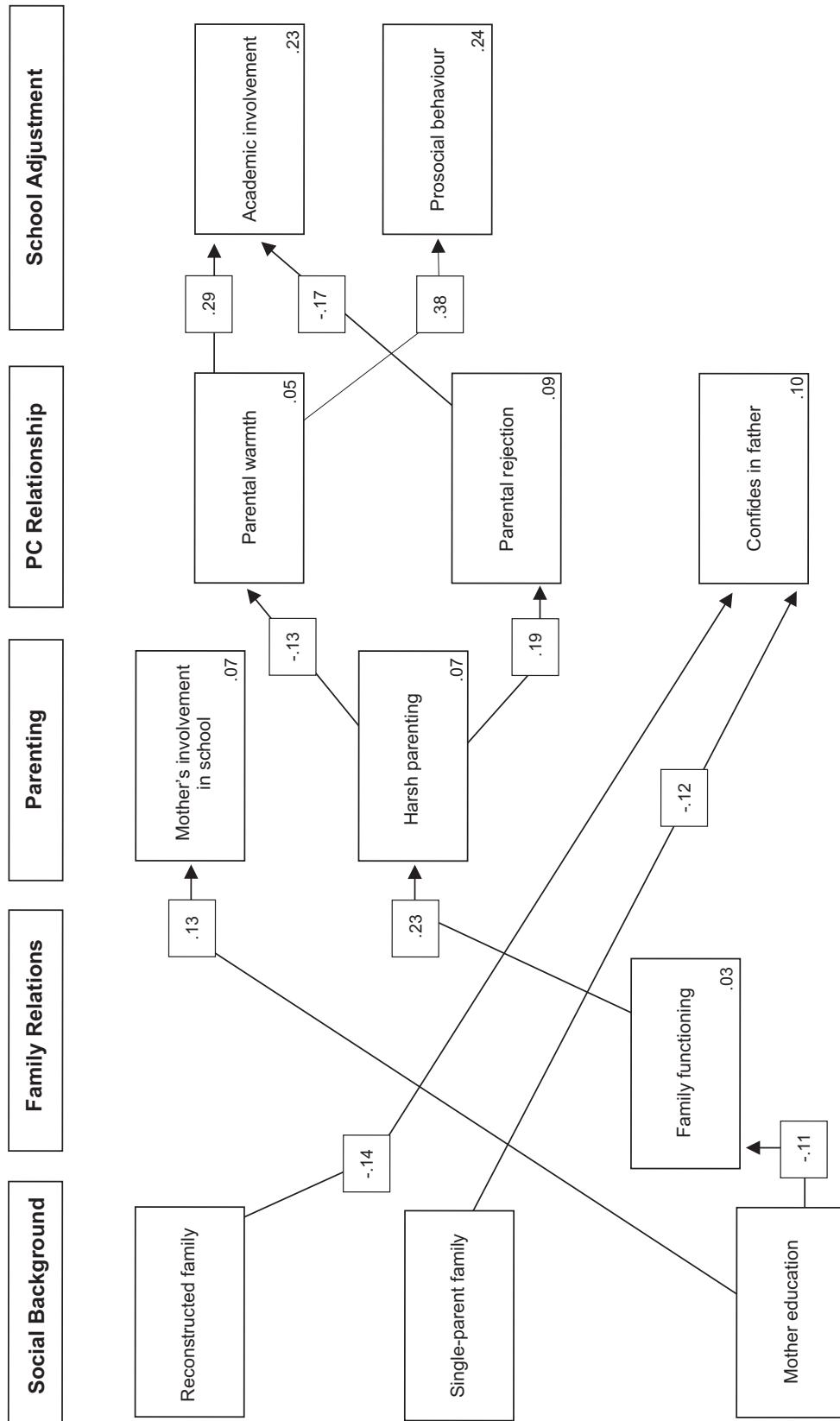
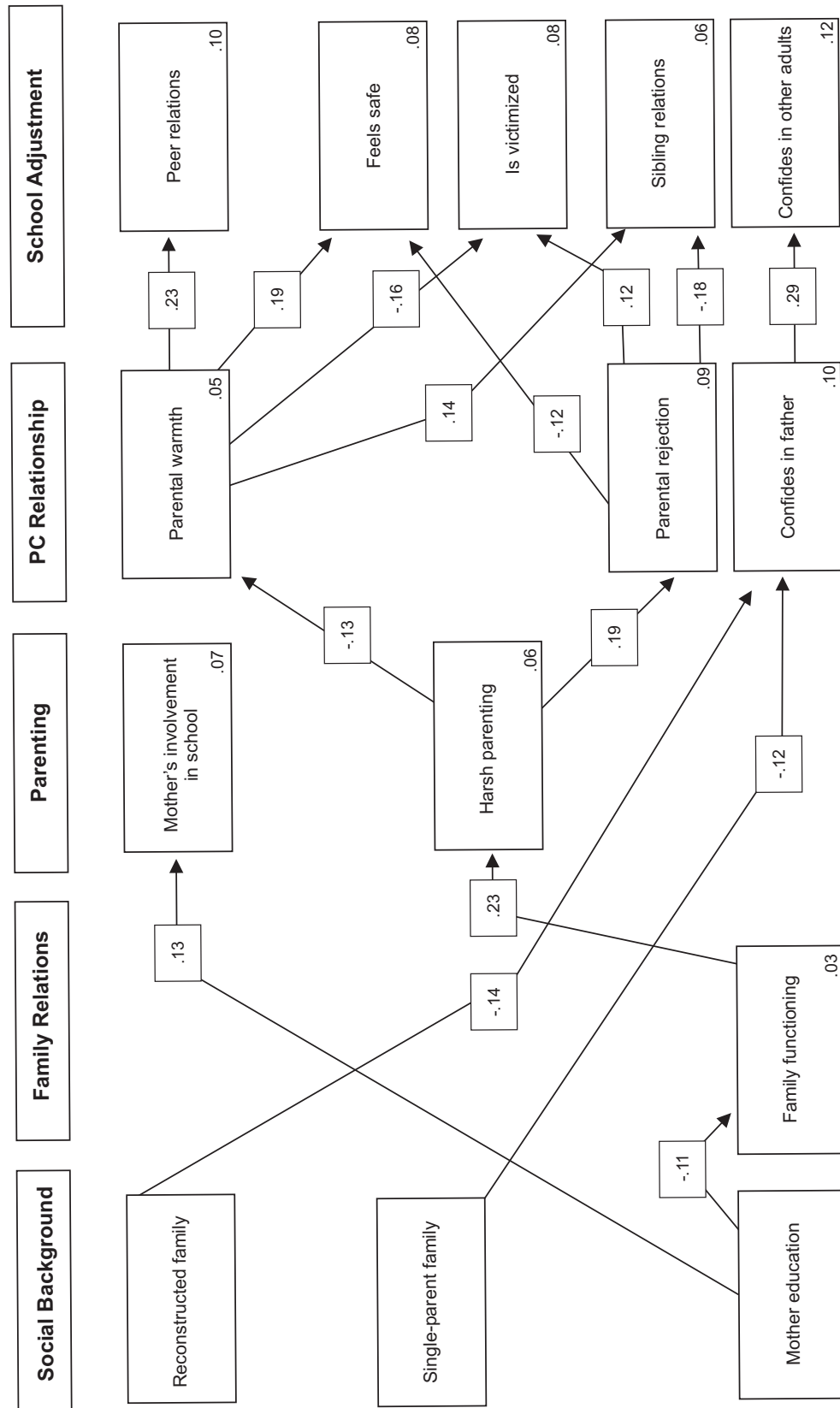


Figure 21: Social Adjustment Path Model: NLSCY Sample



Even where the measures in the two data sets were comparable, however, there were some differences in predictions from the parent–child relationship to adjustment. Only in the HBSC sample did ease of confiding in father independently predict positive aspects of adjustment, such as higher self-esteem, lower internalizing problems, higher school identification, better peer relations and more ease in confiding in siblings. Ease of confiding in mother was also independently associated with ease of confiding in siblings in this data set. In the NLSCY data set, confiding in father was independently associated with confiding in other adults but not with other aspects of adjustment. As noted earlier, this difference is not surprising, given the limitations in the NLSCY measure of confiding.

***How are social contexts that are often assumed to be high risk (e.g. income inadequacy, poor maternal education, maternal employment, single-parent families, divorce) related to child adjustment? Do these factors affect children directly or are the effects of high-risk contexts due to their impact on parenting strategies and the quality of the parent–child relationship?***

As summarized in Appendix C, regression analyses of the HBSC data set showed that income inadequacy was associated with a wide range of poor child adjustment outcomes, including internalizing problems, low self-esteem, poor peer relationships, lower school identification and less use of helmets. Children from single-parent families were also found to smoke more than children from intact families. However, regression analyses also confirmed that maternal employment had no effect on child adjustment, but that the quality of the parent–child relationship was associated with child adjustment.

Consistent with predictions, HBSC path analyses revealed that much of the impact of income inadequacy on child adjustment *was likely due to its effect on the quality of the parent–child relationship* (see Figures 12–16). That is, a path model in which income adequacy predicted children’s relationship with their parents, which in turn predicted child adjustment, provided an excellent fit to the data. Low income was associated with less positive child perceptions of the parent–child relationship, which in turn were associated with a host of negative child adjustment outcomes. Similarly, lower income was associated with less ease in confiding in fathers and this in turn was associated with poor child adjustment. Income inadequacy directly and independently predicted only higher levels of bullying (see Figure 12). In contrast to regression analyses, the path analyses, which control for other relationships, did not indicate that children in single-parent families displayed more problems in adjustment than children in intact families.

Similar results emerged from regression (see Appendix D) and path analyses of the NLSCY data set (see Figures 17–21). Regression analyses showed that, while maternal employment was again not associated with adjustment, low income was associated with more conduct problems and property offences. Low maternal education, meanwhile, was associated with more conduct problems, hyperactivity/inattention, property offences, smoking and less academic involvement. Children in intact two-parent families reported less smoking and more academic involvement than those in reconstituted families. Family climate (i.e. poor family functioning, maternal depression) and parenting style (i.e. harsh parenting) were also associated with child adjustment.

However, path analyses of the NLSCY data suggest that the social and family background factors influence child adjustment through their effects on family climate, which in turn influenced parenting and the quality of parent–child relationships (see Figures 17–21). A path model of these relationships provided an excellent fit to the data. Specifically, for all measures of adjustment, low maternal education<sup>2</sup> was associated with poorer family functioning (i.e. inability to share feelings, lack of acceptance, inability to make decisions because of misunderstandings) and less involvement in the child’s school. Poor family functioning in turn predicted harsh parenting, which predicted the child’s perceptions of parental rejection and lack of warmth. As noted above, these in turn were strongly associated with child adjustment.

Other family and social climate variables often thought to be important were not associated with child adjustment when other variables were taken into account. That is, in the NLSCY data set, income adequacy was not a noteworthy independent predictor of child adjustment when mother’s education (which was not measured in the HBSC sample) was included.<sup>2</sup> Family configuration factors (i.e. single-parent, reconstituted family) were important predictors only of the child’s confiding in the biological father. This association is not surprising given the differences between these family configurations in how much contact children likely have with their biological fathers. Moreover, as noted above, confiding in father was associated only with children’s tendency to confide in other adults.

### ***Does the degree and nature of these associations change with the age and/or gender of the child?***

Regression analyses indicated that the relationships between parenting, parent–child relationships and child adjustment did not differ with age or gender. In other words, for both girls and boys of all ages, harsher parenting (i.e. low use

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2 Further analyses of the NLSCY data subsequent to this report indicate that, consistent with the HBSC findings, income adequacy, rather than maternal education is the important social background variable associated with family functioning. Income adequacy and maternal education were moderately correlated (.42) in the NLSCY sample.

of reasoning) was associated with a poorer parent–child relationship (i.e. child perceptions of parents as less warm and more rejecting) which in turn was associated with poorer child adjustment.

### ***How do child age and gender affect adjustment?***

As noted above, both multivariate analyses of variance and regression analyses of the HBSC and NLSCY data sets indicated that child adjustment differed somewhat with age and between boys and girls. For the HBSC data set, the path analyses described above also revealed that the impact of age and gender on child adjustment may be partly mediated through the parent–child relationship (see Figures 22–26). For example, younger children perceived their relationship with their parents as more positive, and they reported more ease in confiding in both mothers and fathers. As previously noted, positive parent–child relationship quality in turn was associated with a wide range of positive outcomes in child adjustment. Age differences in drug use, self-esteem and risk-taking behaviour could be attributed to changes in parent–child relationship quality in this way. However, age differences in smoking, alcohol use, affiliation with deviant peers, school identification, peer relations, victimization and sibling relations remained independent of the parent–child relationship quality. Similarly, girls reported less comfort confiding in their fathers, which in turn was associated with a range of child adjustment problems. Notably, however, the gender differences in bullying, self-esteem, internalizing problems, school identification and victimization could not be fully accounted for by the father–child relationship because the direct effects of gender on these aspects of child adjustment remained significant in the path analyses.

In contrast to path analyses of the HBSC data set, path analyses of the NLSCY data revealed that effects of age and gender on child adjustment were almost all direct rather than mediated (see Figures 27–31). As reviewed previously, there were direct effects of age on all substance use measures except drug use. Age was also directly related to feelings of safety, which increased, and to victimization, academic involvement and prosocial behaviour, all of which decreased. In the path analyses, with other factors controlled, age was also directly related to increases in all four externalizing behaviours (i.e. conduct problems, property offences, hyperactivity/inattention, indirect aggression). Moreover, age was also directly related to decreases in emotional problems and increases in the quality of peer relations. Consistent with the HBSC results, age decreases in self-esteem were mediated by age-related changes in the parent–child relationship. Age was also related to mothers' involvement in school; however, mothers' involvement in school was not directly associated with child adjustment.

Figure 22: HBSC Substance Use/Externalizing Path Model: Paths Involving Age and Sex

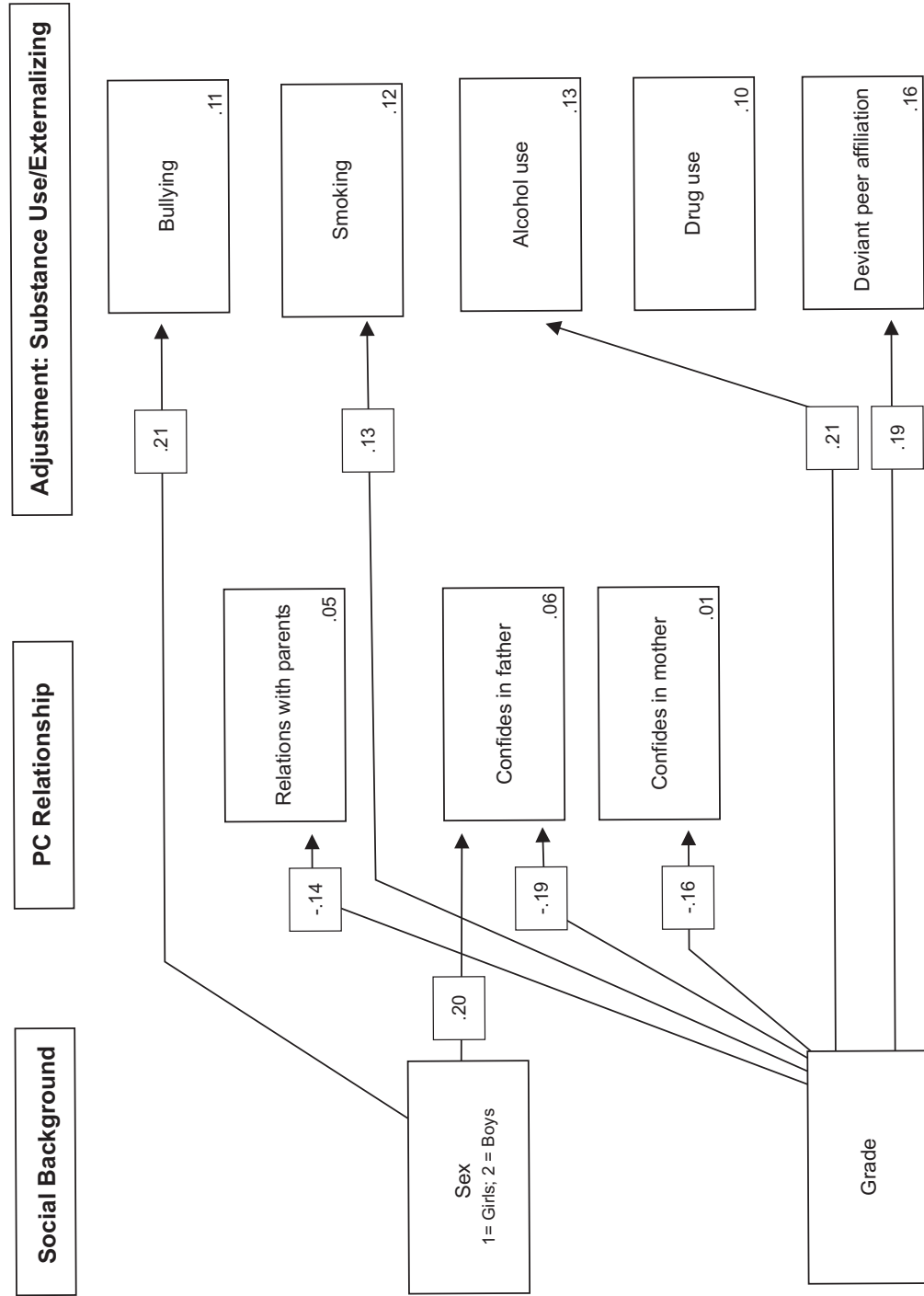




Figure 23: HBSC Internalizing Path Model: Paths Involving Age and Sex

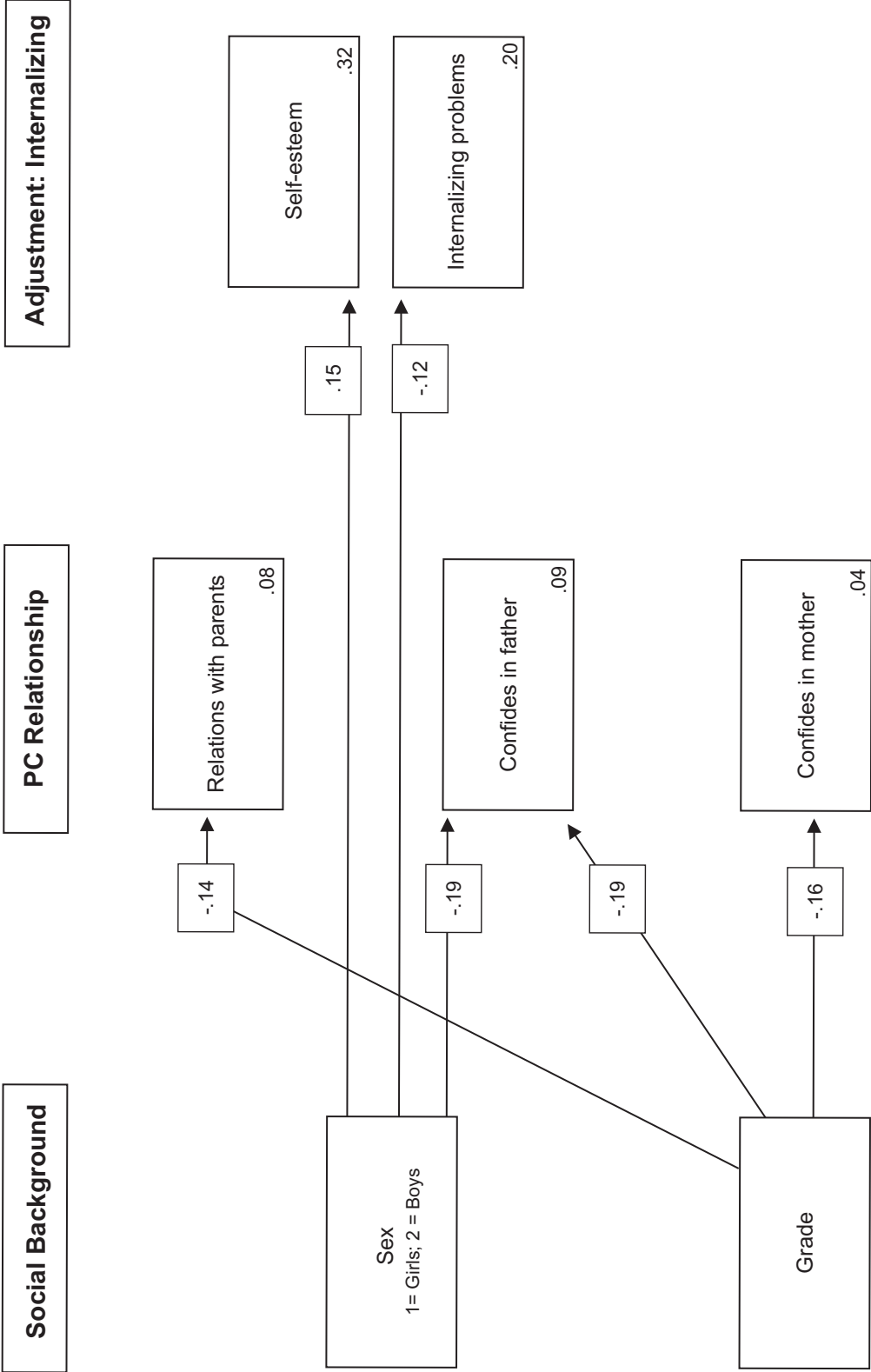
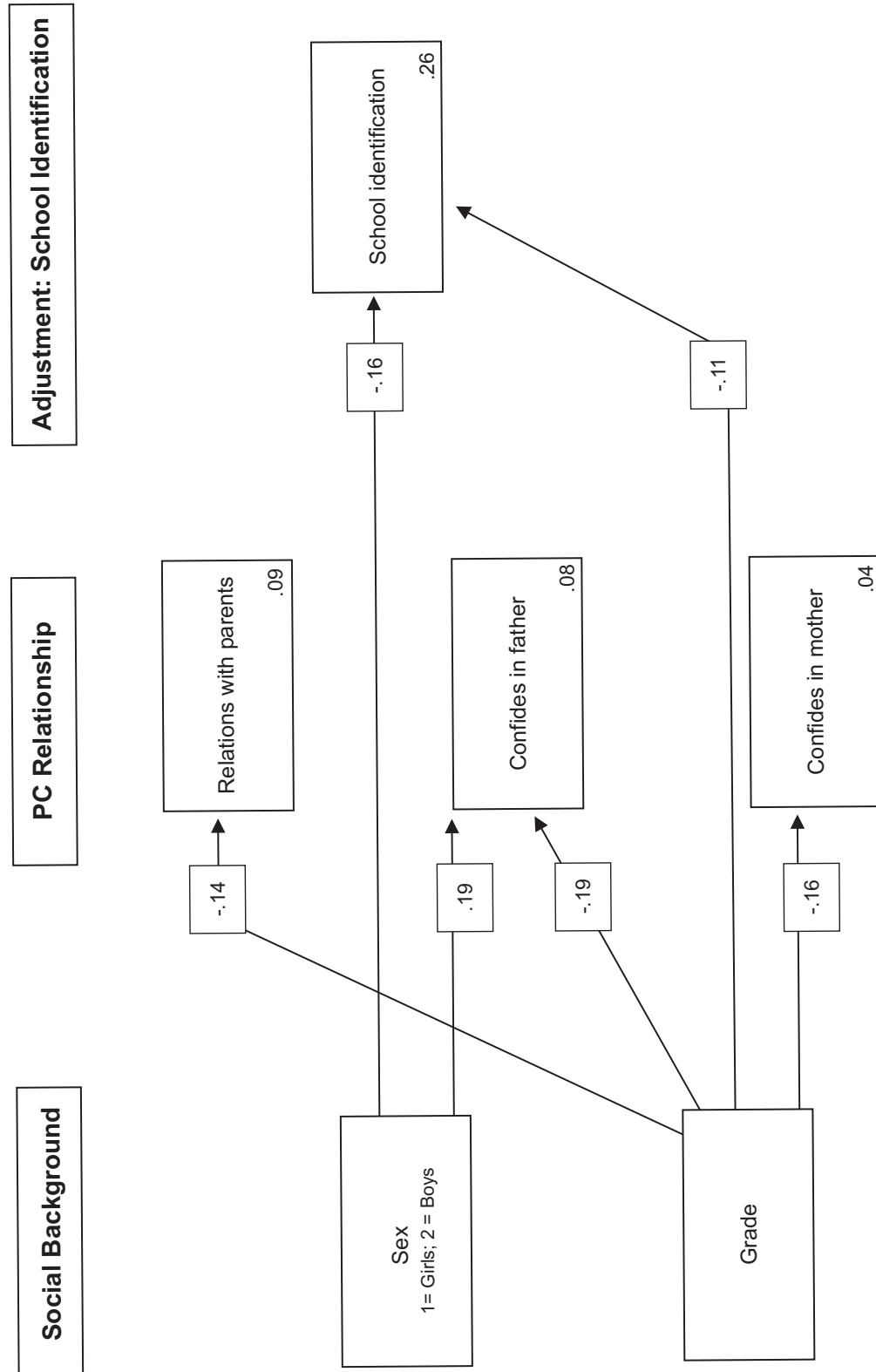


Figure 24: HBSC School Identification Path Model: Paths Involving Age and Sex



**Figure 25: HBSC Risk Taking Path Model: Paths Involving Age and Sex**

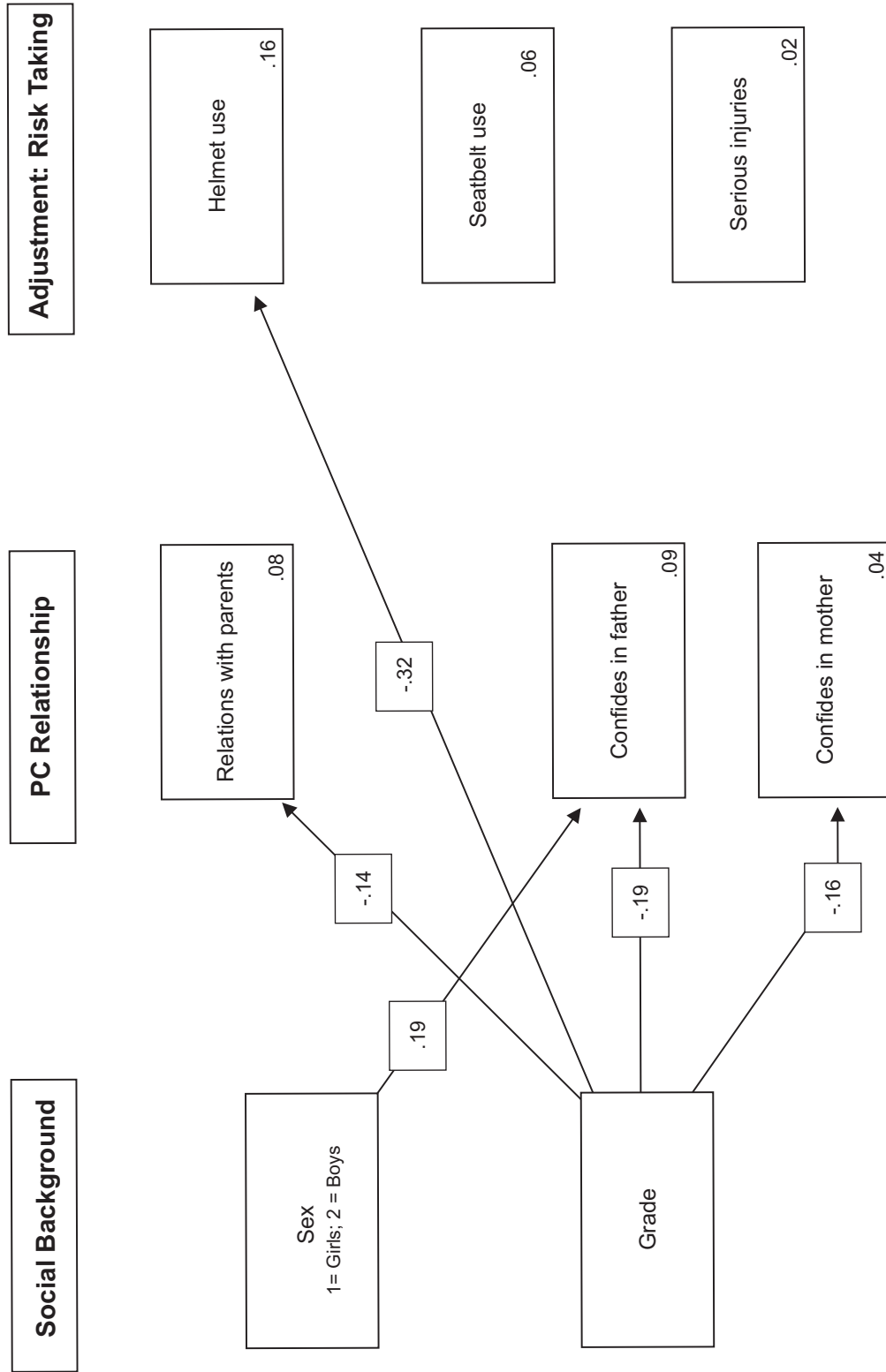
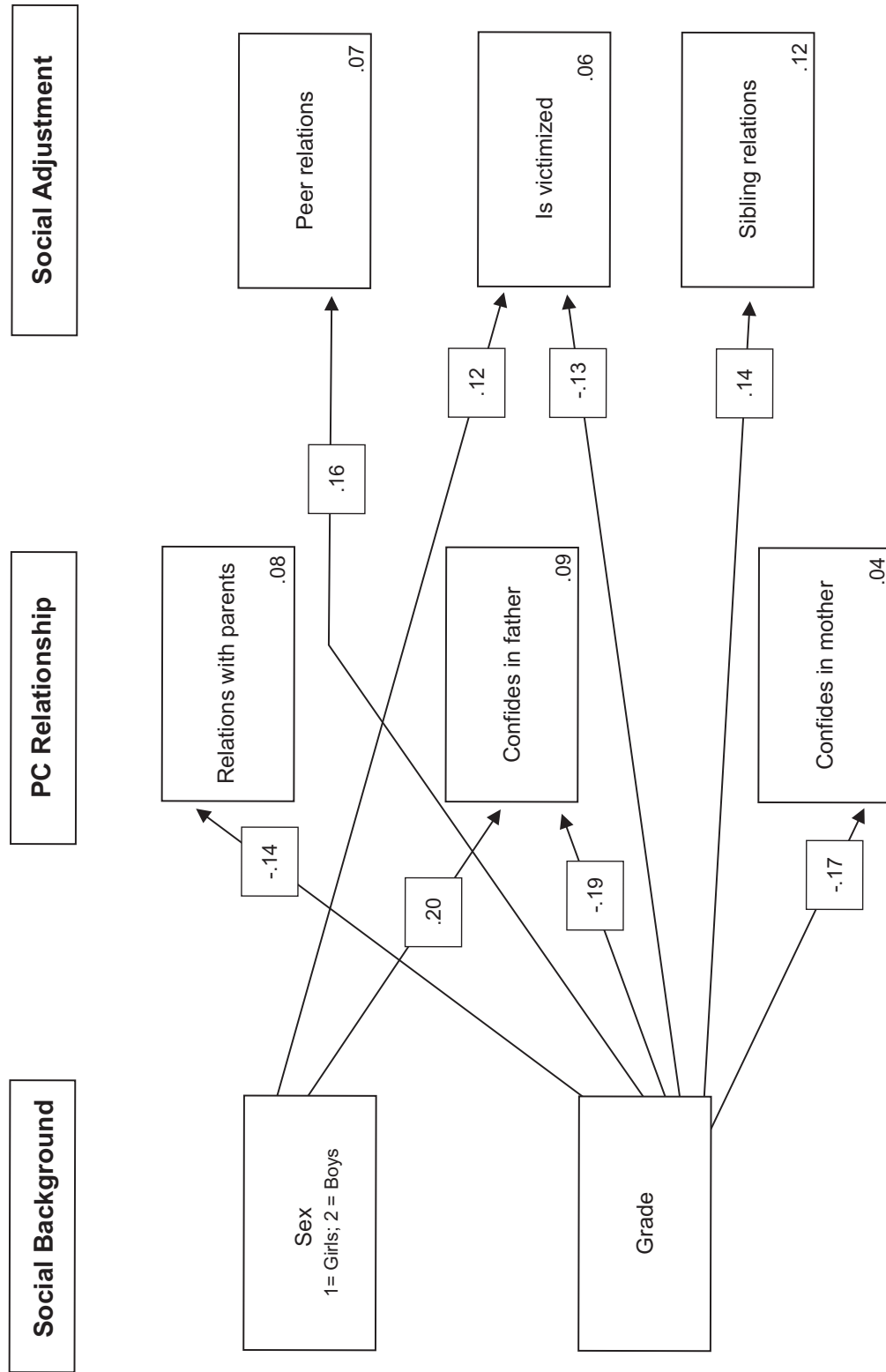


Figure 26: HBSC Social Adjustment Path Model: Paths Involving Age and Sex



Path analyses in the NLSCY data set also indicated that, when other factors were held constant, boys continued to have more conduct problems, to be less academically involved, to be more victimized and to confide more in their fathers than girls. Girls' lower self-esteem, meanwhile, became apparent. Interestingly, while girls' tendency to perceive parents as warmer than boys was still evident, the difference was no longer large enough to be noteworthy.

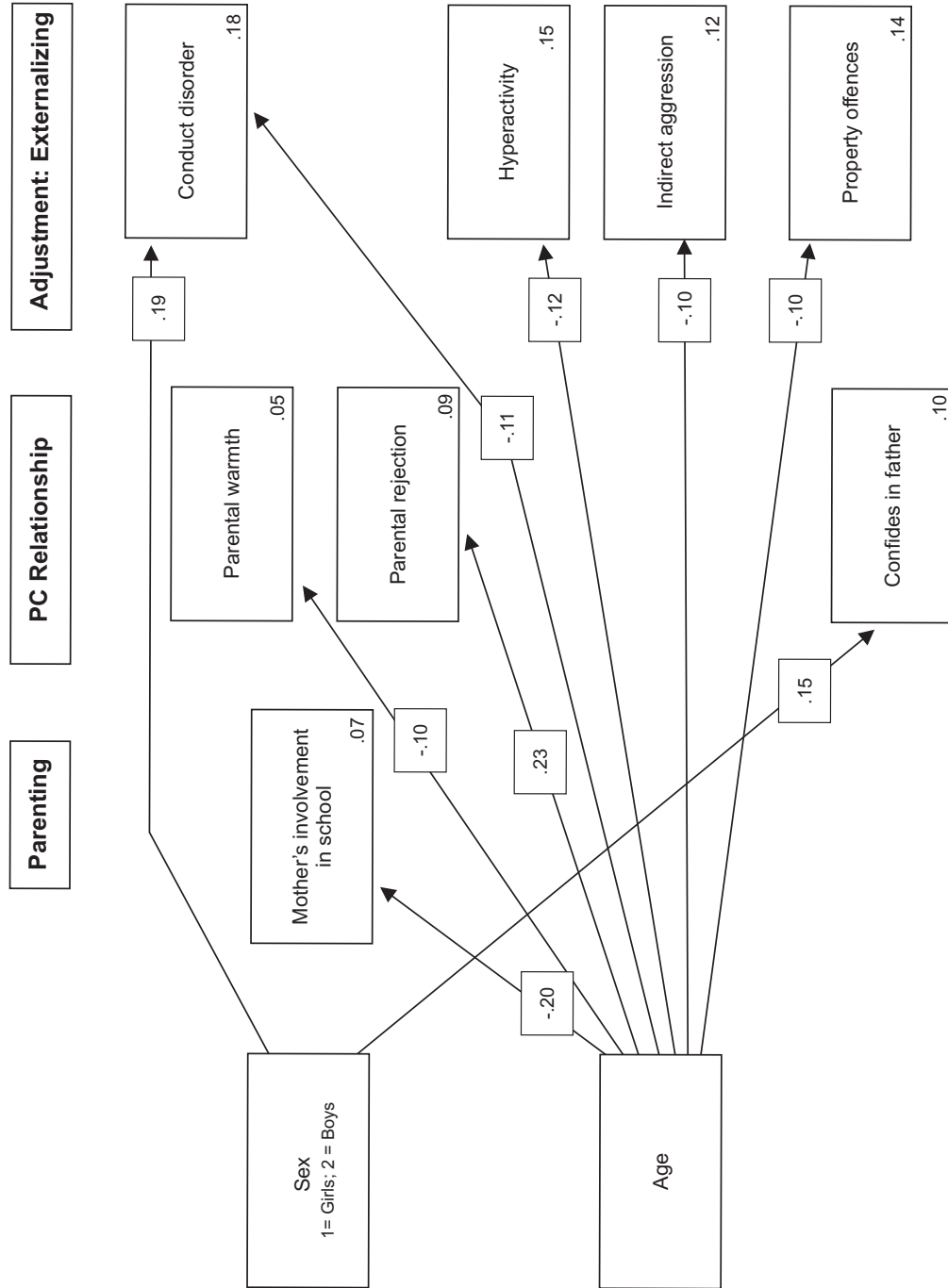
### ***Is there evidence of differential importance of positive relationships with mothers versus fathers?***

Unfortunately, in both the HBSC and NLSCY data sets, only one question assessed the differential importance of relationships to mothers versus fathers in predicting child adjustment. Path analyses of the HBSC data suggest, however, that children who feel more comfortable discussing problems with their mothers also feel more comfortable discussing problems with their siblings. Ability to confide in fathers was an important predictor of a wide range of outcomes: better quality peer relations, ease in confiding in siblings, higher self-esteem, fewer internalizing problems and greater school identification.

Path analyses of the NLSCY data did not show that discussing problems with mothers predicted child adjustment. Discussing problems with fathers only predicted talking to other adults about problems. These differences between data sets are not surprising given limitations in the measure. As noted previously, in the HBSC sample, children indicated, on a 5-point scale, how easy it was to confide in each parent about problems or themselves. In the NLSCY sample, children could mention mother, father and/or other adults when asked to specify to whom, other than friends, they talked about problems. Given the very limited information obtained in the NLSCY data set, it is not surprising that little differential contribution of mothers and fathers was found.

Research has consistently identified maternal depression as a risk factor for child adjustment. Based on this research, we had anticipated in the NLSCY sample that maternal depression would be associated with problems in parenting strategies (i.e. greater parental harshness), and child perceptions of lower parental warmth and higher rejection. Surprisingly, we found that maternal depression was not independently related to problems in parenting or the parent–child relationship once all other factors in the model were controlled. It is unlikely that this finding reflects inadequacy in the 12-item measure of depression. Rather, it likely reflects the fact that depression operates through effects on family functioning, which was associated with parenting. With respect to factors contributing to maternal depression, single family status was identified as important (see Appendix G). In addition, maternal unemployment and low maternal education tended to be associated with maternal depression, although these associations were too small to be noteworthy.

Figure 27: NLSCY Externalizing Path Model: Paths Involving Age and Sex



**Figure 28: NLSCY Substance Abuse Path Model: Paths Involving Age and Sex**

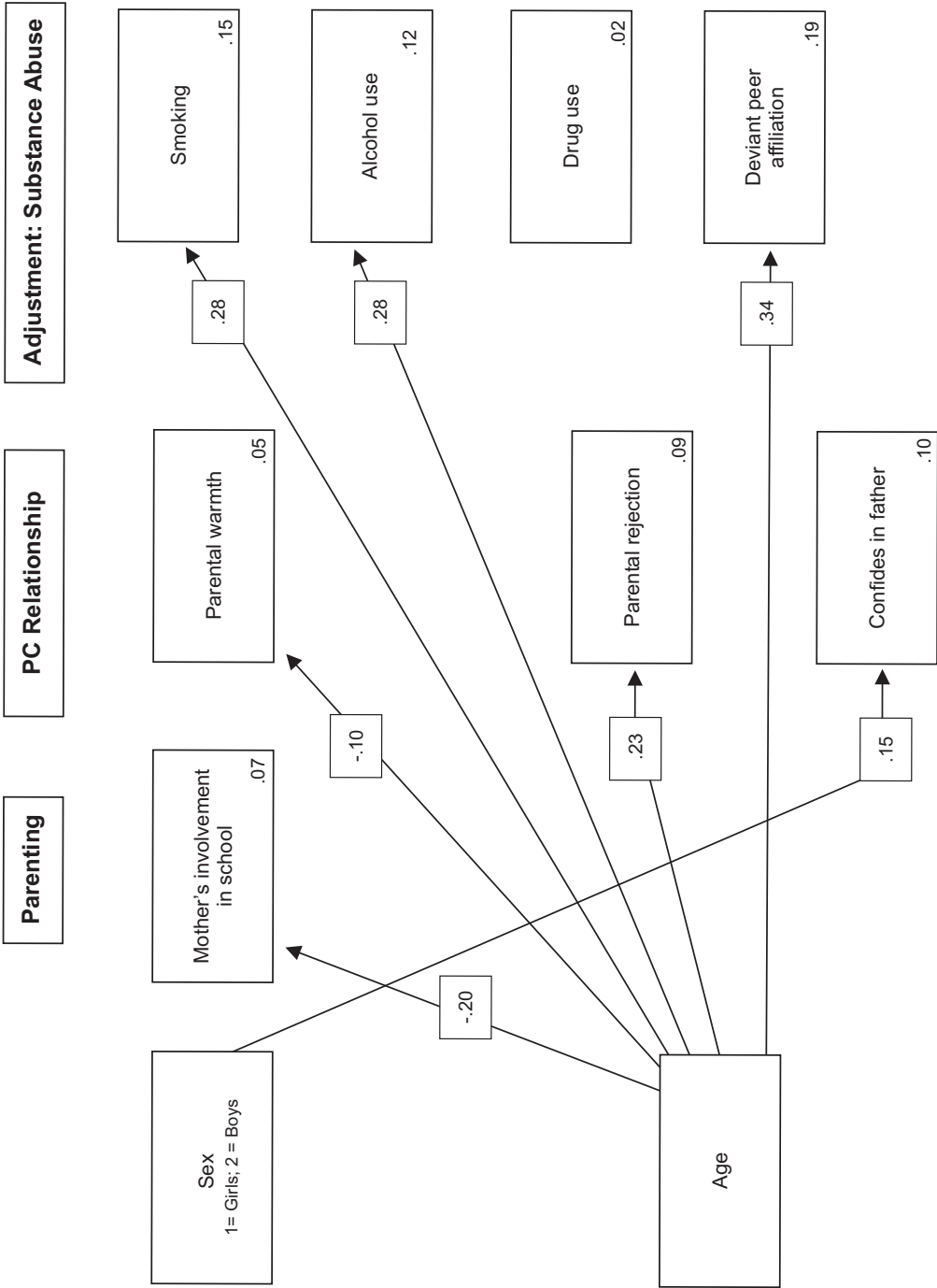
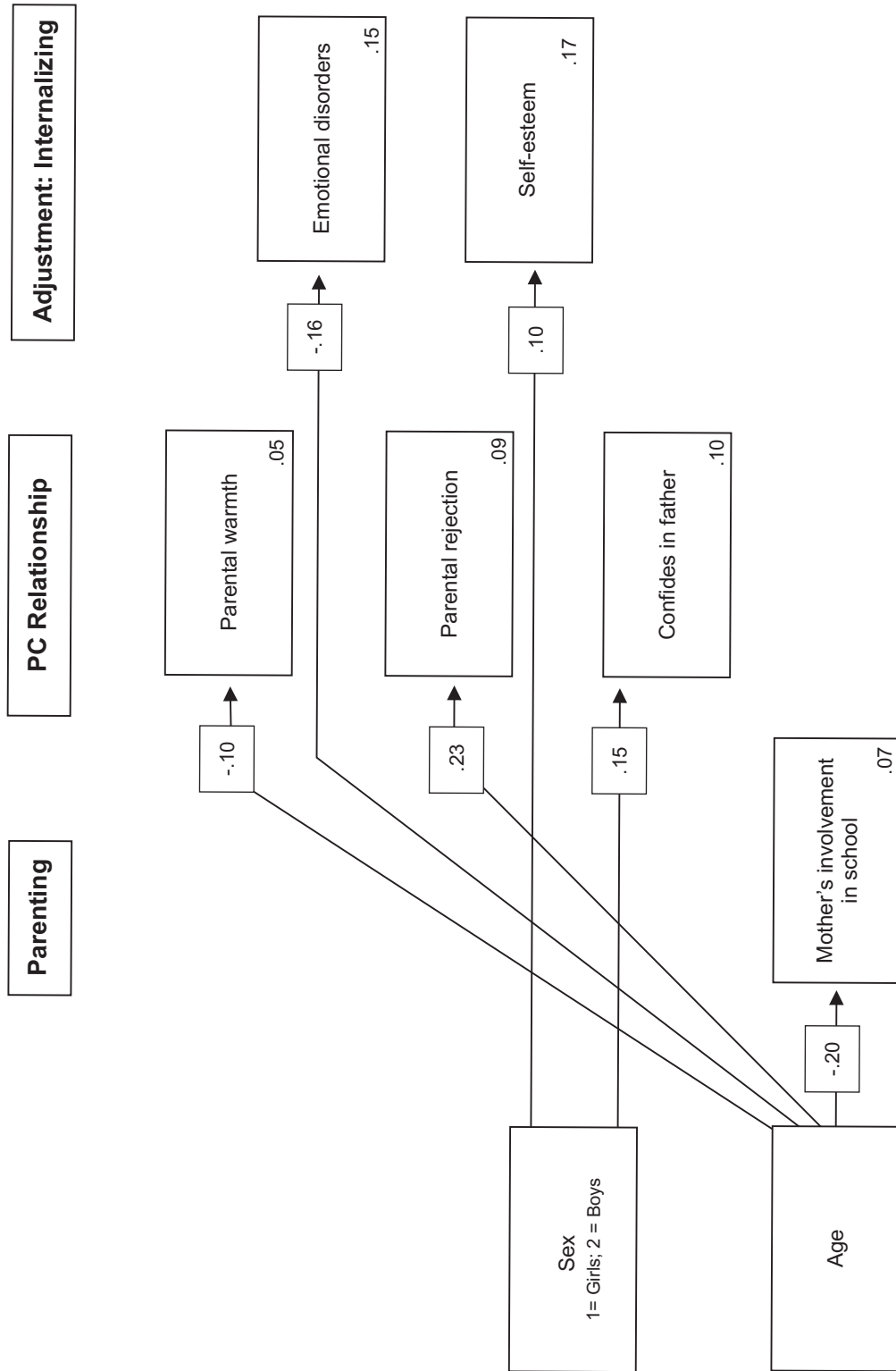


Figure 29: NLSCY Internalizing Path Model: Paths Involving Age and Sex





**Figure 30: NLSCY School Adjustment Path Model: Paths Involving Age and Sex**

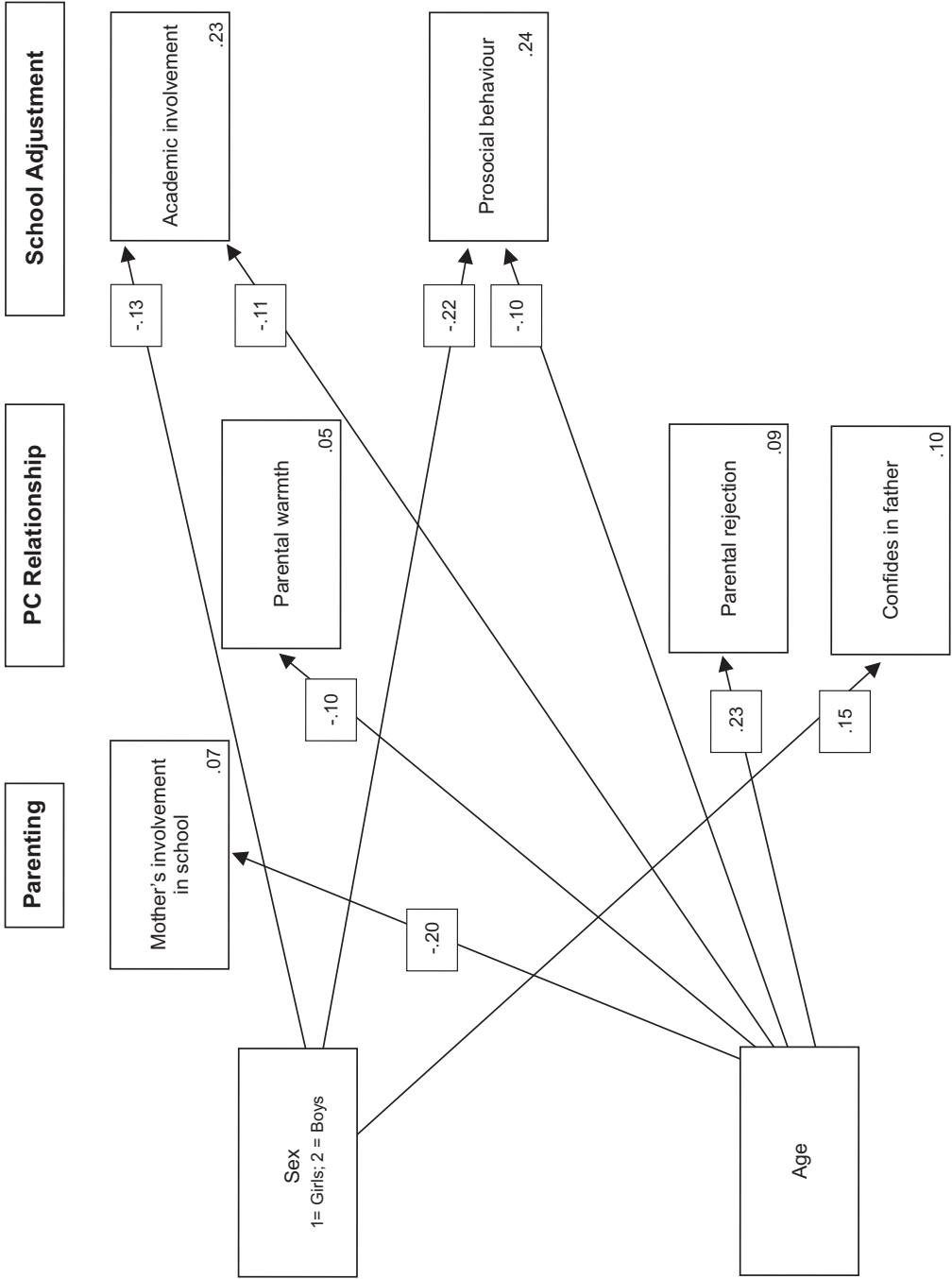
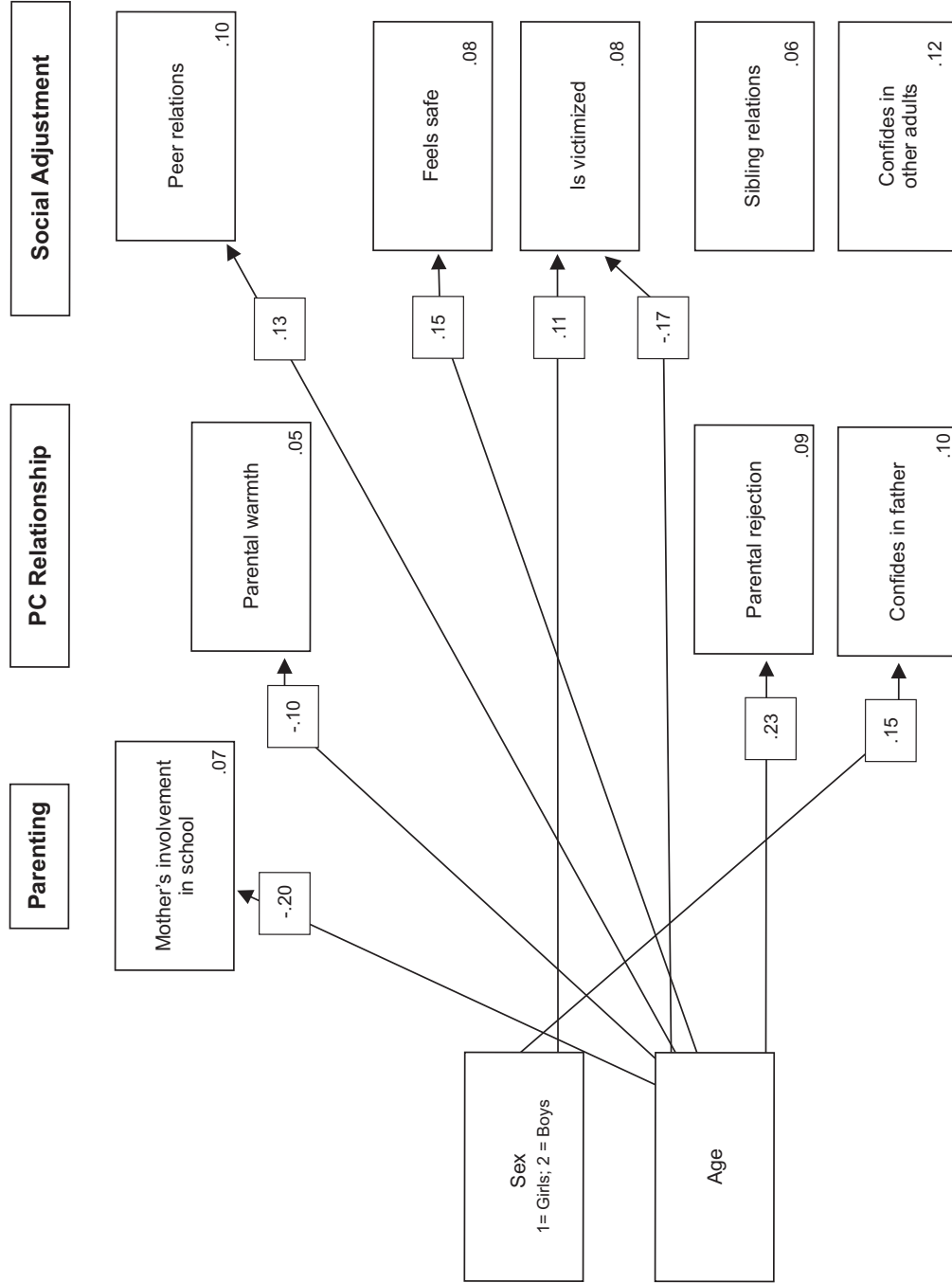


Figure 3 1: NLSCY Social Adjustment Path Model: Paths Involving Age and Sex



## **VI Discussion**

The primary focus of this investigation was to examine developmental changes in parenting and the parent–child relationship, and their contributions to child adjustment, between late childhood and mid-adolescence. Results confirm that the period of adolescence presents unique developmental challenges for adjustment and new opportunities for identity development and growth in parent–child relationships.

### **I. Age Changes**

Results from the analysis of two large data sets confirmed previous research showing that some aspects of parenting and the parent–child relationship changed while others remained stable (e.g. Lieberman et al., 1999). Although mothers reported less involvement in school activities (e.g. attendance at school events and meetings, visits to class), in general, children perceived their parents' availability for help in school as remaining constant across age. Parents' reports of harsh punishment did not differ for older and younger children; however, children's perceptions of the quality of their relationship with parents declined with age. Older children perceived their parents as less warm and more rejecting than younger children.

The discrepancy between the child and parent reports of parenting should not be interpreted as indicating that only children's perceptions, rather than the quality of parents' actual parenting behaviour, decrease with the transition to adolescence. The NLSCY parent measure of harsh parenting comprised only four questions (see Appendix A1). As such, parents may have under-reported their use of harsh punishment (yelling, physical punishment) and over-reported their use of reasoning in order to present themselves in a positive light (Schwarz, Barthon-Henry & Pruzinsky, 1985). Children's reports have been found to be objectively more accurate and more closely related to overall child adjustment than parents' own reports of their parenting behaviour (Schaefer, 1965; Moskowitz & Schwarz, 1982).

Results also confirmed that children's vulnerability to negative health outcomes increased between late childhood and mid-adolescence. Consistent results from both samples revealed that smoking, alcohol use and affiliation with deviant peers increased, and self-esteem decreased with the onset of adolescence. Changes in other indicators of adjustment were not consistently found across both samples. For example, the HBSC sample showed an increase in bullying from age 10–15, whereas the NLSCY sample did not show significant increases from age 10–13 in related behaviour problems (conduct/aggression problems, property offences, drug use), despite extensive measures. In fact, conduct problems, property offences, hyperactivity/inattention and indirect aggression decreased slightly with age in the NLSCY sample.

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These latter findings are consistent with the findings of other non-Canadian studies (Achenbach, 1991). The HBSC sample (where substance use questions were asked only at ages 13–15) also showed an increase in drug use with age. The lack of age increases in drug use in the NLSCY sample may be due to the younger age (10–13 years), where drug use was very low, or to the fact that NLSCY children responded to an interviewer in the home, rather than on an anonymous questionnaire at school, as the HBSC children did.

A few age-related changes in social relationships were found in both samples. Although the quality of sibling relationships did not change with age, older children reported better peer relations and, as noted above, were more likely to affiliate with deviant peers. Older children also experienced less victimization by others and felt safer around school than younger children. All age-related changes in adjustment occurred uniformly for girls and boys.

The age increase in both samples in tendency to affiliate with deviant peers who smoke and use alcohol is noteworthy. Affiliation with deviant peers has been found to be a significant causative factor in substance abuse (Wills et al., 1995). Further research in these data sets, in particular longitudinal analyses of the NLSCY data, can assess whether affiliation with deviant peers contributes to adolescents' increasing substance use with age.

## **2. Gender Differences**

Although age changes in adjustment were similar for boys and girls, some gender differences in parenting and adjustment across all ages were observed. Compared to boys, girls were less aggressive/conduct disordered, bullied others less frequently, were less often victimized by others, and engaged in fewer property offences. Girls also experienced more positive peer relationships, engaged in more prosocial behaviour and were more involved in school than boys. Only in the HBSC sample did girls clearly report lower self-esteem and more internalizing problems (depression/anxiety). In the younger NLSCY sample, these gender differences were too small to be noteworthy, although girls' lower self-esteem became evident in the final analyses. Nevertheless, these results are highly consistent with other literature, including Canadian studies (Offord, Alder & Boyle, 1986): although more girls than boys suffer from anxiety disorders throughout childhood, gender differences in depression begin to appear only between ages 13 and 15 (Nolen-Hoeksma & Girgus, 1994).

There were more similarities than differences in the parenting of girls and boys. Parents reported equal levels of school support and harshness in parenting daughters and sons. In the HBSC sample, boys and girls were equally positive in describing their

relationships with parents. However, in the NLSCY sample, girls tended to perceive their parents as more warm and less rejecting than boys. These results could be due to parental reactions to boys' more disruptive behaviour. Moreover, although boys and girls were equally at ease confiding in their mothers, girls confided less in their fathers than boys. As noted earlier, this last finding is highly consistent with the literature, in which, compared to younger girls, adolescent girls perceived their fathers as less available (Lieberman et al., 1999), and reported feeling more distant, uncomfortable and withdrawn from their fathers, who the girls felt did not meet their emotional needs (Youniss & Smollar, 1985).

### **3. Importance of Parenting and the Parent–Child Relationship**

What role did parenting play in determining child adjustment? How harshly parents punished was an important determinant of how children perceived their relationships with parents. Harsher discipline was related to children's perceptions of their parents as less warm and more rejecting. In turn, as predicted, the quality of parent–child relationships was an important predictor of child adjustment throughout this period of development. Children who enjoyed positive relationships with their parents were less likely to engage in overt or indirect aggression, bully others, commit property offences, or affiliate with deviant peers. They also were more involved in their schoolwork, had higher self-esteem and fewer internalizing problems, and were less likely to be victimized by others. In addition, they reported fewer hyperactivity-attention problems, were more likely to use safety precautions (i.e. seatbelts and helmets), and experienced fewer serious injuries. Children who perceived their parents as rejecting were especially likely to use alcohol, to smoke and to affiliate with deviant peers.

These results are consistent with a recent analysis of NLSCY data on the role of parenting in predicting behaviour problems in younger children. Miller, Jenkins and Keating (2002) found that harsh parenting was the primary determinant of behaviour problems for both 2–3 and 8–9 year-olds; indeed, a one-point increase on a 10-point scale of harsh parenting was related to a 50% increase in risk for behaviour problems. Similarly, in analyses of the NLSCY data on 2–11 year-olds, Chao and Willms (2002) found that positive parenting practices (i.e. responsive, rational, firm parenting) had a variety of positive effects on children's outcomes, including levels of behaviour problems and prosocial behaviour. Moreover, the positive influence of responsive parenting on child adjustment increased with children's age. Our findings extend this work by showing that the quality of parenting continues to play a significant role in determining social and emotional adjustment as children move from late childhood to adolescence. Overall, these findings are consistent with other research on the importance of a positive parent–child relationship for adjustment (Aseltine, 1995;

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Smith & Krohn, 1995). These results are also consistent with previous findings that hostile punishment and coercive interactions between parents and children combined with poor parental monitoring contribute to conduct problems in preadolescence and antisocial behaviour in adolescence (Dishion, Patterson, Stoolmiller & Skinner, 1991; Conger, Patterson & Ge, 1995).

Though neither the HBSC nor NLSCY studies included measures of child–parent attachment, many of the above associations between parent–child relationships and adjustment are strikingly parallel to findings in the attachment literature. Securely attached adolescents are those who perceive their parents as available and themselves as worthy of love. Insecurely attached adolescents either view themselves as unlovable or their parents as unavailable or rejecting (Kobak, Cole, Ferenz-Gillies, Fleming et al., 1993). Specifically, securely attached adolescents have been found to be less aggressive, to have fewer conduct problems, to be less anxious and lonely, more attentive and less hyperactive, and to have better peer relations (e.g. Kobak & Sceery, 1988; Nada-Raja et al., 1992; Kerns & Stevens, 1996). Securely attached adolescents have also been found to use substances less (Cooper et al., 1998). In sum, these results suggest strongly the importance of secure adolescent–parent attachment for adolescent adjustment.

Moreover, these results clarify the meaning of some age differences in adjustment. Age differences in drug use, self-esteem and risk-taking behaviour could be attributed to the quality of the parent–child relationship.

As noted earlier in this report, though attempting to cope with difficult, distressing child behaviour may lead parents to punish more harshly, and to be more rejecting and less warm, parental rejection is likely to have stronger negative effects on child adjustment than the reverse (e.g. Simons et al., 1989). The fact that previous analyses of younger NLSCY children have linked parenting and child adjustment in a similar way (Chao et al., 2002; Miller et al., 2002) supports the present findings that parenting may play a causal role in determining child adjustment. Nonetheless, to assess the directionality of these associations, analyses of parenting and children’s development over time are necessary.

It is also possible that both parents’ and children’s behaviour may be a result of another factor, such as their genetic makeup. Analyses of NLSCY longitudinal data taking into account the shared family background of children in the same family will provide the opportunity to clarify both these issues regarding the link between parenting and child adjustment.

The present results also attest to the importance of father–adolescent relationships to adolescent adjustment. Independent of the overall parent–child relationship, ability to confide in father was associated with better sibling and peer relationships, higher self-esteem, less internalizing problems and more academic involvement. These findings are again consistent with the literature reviewed above, in which positive father–child relationships in middle childhood and adolescence appeared to protect against depression and contribute to good coping strategies, academic achievement, peer competence and self-esteem (Amato, 1986; Suess, Grossman & Sroufe, 1992; Wagner & Phillips, 1992; Kerns & Barth, 1995; Kerns & Stevens, 1996; Grossmann et al., 1999).

Overall, these results highlight the continued importance of the parent–child relationship as a determinant of child adjustment in adolescence. Although parent–child relationships undergo a transformation during adolescence, the quality of the parent–child relationship remains important in guiding adolescent behaviour choices and determining psychological health. The availability of fathers to their adolescents appears to be of added importance. A major implication of these findings is that parents, including fathers, need to recognize the continued importance of their relationship with their adolescents, despite the fact that adolescents spend less time with their families than younger children. The findings contained in this report highlight the importance of parenting skills, such as negotiated, rather than arbitrary, limit setting, listening to adolescents' opinions and ideas, appreciating adolescents' efforts and consistent, rather than harsh, discipline for adolescent adjustment.

### **4. The Effects of Social Context**

We also investigated whether the relationships between parenting, parent–child relationship quality and child adjustment were similar in contexts assumed to be high risk (e.g. income inadequacy, poor maternal education, maternal employment, single–parent families, divorce). Results again confirmed the central importance of the nature of parenting and the quality of parent–child relationships for adjustment in all contexts: although children who lived in some high-risk contexts were at greater risk for negative adjustment, the impact of high-risk factors could most often be attributed to the quality of parent–child relationships, which operated similarly in both low- and high-risk contexts.

That is, it was noteworthy that maternal employment and single-parent family status did not affect child adjustment independent of parenting and the parent–child relationship. Moreover, although analyses of the HBSC data indicated that low income was a significant contextual factor associated with child adjustment, results in the NLSCY data set suggested that maternal education, which was positively associated

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with family income, was the most significant determinant of adjustment.<sup>3</sup> In both data sets, however, the direct effects of these risk factors (low income or low maternal education) on adjustment were often too small to be noteworthy (see Appendices C and D). Moreover, when all factors were examined together, the effects of these contextual factors seemed to operate primarily through their impact on the parent–child relationship. In the case of the HBSC data, children in low-income families were more likely to perceive their relationship with their parents negatively, and this in turn predicted poor adjustment (see Figures 12–16). In the NLSCY data, low maternal education predicted poor family organization, which in turn predicted harsh parenting (see Figures 17–21). As previously discussed, harsh parenting predicted child perceptions of low parental warmth and high rejection, which in turn predicted a host of negative adjustment outcomes.

Nevertheless, there were some direct effects of social context on child adjustment, at least in the HBSC data set. Specifically, children’s perceptions of their family’s economic hardship were directly related to their frequency of bullying and difficulty in peer relations. In the NLSCY data set, however, neither income adequacy nor maternal education was associated with child adjustment independent of parenting and the parent–child relationship. In this regard, our results differ somewhat from previous analyses on younger children in this data set. Miller et al. (2002) concluded that the relationship between socio-economic status and childhood internalizing and externalizing disorders did not significantly decline when parenting factors were taken into consideration. Both socio-economic status and parenting had independent and significant effects on childhood adjustment. Chao and Willms (2002) reached a similar conclusion; although parenting practices were found to mediate the relationship between socio-economic factors and child outcomes, mediating effects were generally small. Both Miller et al. (2002) and Chao and Willms (2002) conclude that children who grow up in poverty or under the influence of poor parenting practices are equally at risk. Based on their findings, they call for greater social investment in healthy child development through a blend of targeted and universal programs (Keating and Hertzman, 1999).

As previously noted, our results indicate that the direct effect of socio-economic factors, such as income, on child adjustment is limited once other family factors are taken into consideration. There are several reasons that may account for the difference between our results and previous analyses of the NLSCY data. First, our work focused on a later developmental period – late childhood to adolescence – rather than early to middle childhood. It is possible that the influence of social factors,

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3 Further analyses of the NLSCY data subsequent to this report indicate that, consistent with the HBSC findings, income adequacy, rather than maternal education is the important social background variable associated with family functioning. Income adequacy and maternal education were moderately correlated (.42) in the NLSCY sample.



such as income adequacy, on child adjustment changes with development. In this case, our findings suggest that adjustment in late childhood to adolescence is more strongly determined by parenting practices and less strongly determined by socio-economic factors than is adjustment in early to middle childhood. Another factor to consider is that our conclusions regarding the relative importance of parenting practices versus socio-economic factors are based on the use of path analyses rather than regression procedures. Like Miller et al. (2002) and Chao and Willms (2002), our regression analyses also suggested that socio-economic factors and parenting practices exerted independent effects on child adjustment. The limited direct role of socio-economic factors only became clear when we used path analytic procedures. Finally, our results were based on reports of parenting and adjustment from different sources, with adjustment reported by the children themselves, rather than by parents as in previous analyses. Parents' perceptions of their children's adjustment may be coloured by parents' socio-economic situation as well as by the parents' behaviour, but child reports of adjustment are coloured only by the parenting they receive.

Although our results on the role of socio-economic influences on child adjustment differ somewhat from previous NLSCY analyses, we reached similar conclusions regarding the role of maternal employment. Cook and Willms (2002) found that although maternal employment status and family structure influenced parental engagement with children, the overall influence of family structure and socio-economic factors on parental engagement, and hence child adjustment, was weak. Even though child adjustment outcomes appeared to be largely determined by parenting and the quality of parent–child relationships, not all changes in adjustment between late childhood to mid-adolescence could be explained in this way. Independent of socio-economic and family factors, parenting practices and the quality of parent–child relationships, age and gender made a difference. Older children were more likely to have higher levels of externalizing behaviour problems, lower levels of school involvement, to engage in alcohol use and smoking, and to affiliate with deviant peers. On the other hand, older children felt safer going to and from and at school, were less victimized by others, enjoyed more positive peer relationships and were more prosocial in their behaviour. Obviously, adolescent adjustment is determined by factors outside the family and parent–child relationship. Further research is required to determine whether parenting and the quality of parent–child relationships play a role in determining how other factors – such as peer influences – contribute to determining child adjustment. Even if parents only indirectly affect how peers, romantic partners and other social influences determine the adjustment of their children, the support of parents through the stressful challenges of adolescence remains important.

## **VII Limitations**

Interpretation of the current findings is limited by several factors. First and most importantly, is the fact that we were unable to analyse longitudinal data. Thus, it is possible that some of the age-related differences we observed in parenting/parent–child relationship and child adjustment are artefacts of other factors. For example, younger children may have been exposed to different social and school contexts than older children and this in turn could influence their adjustment. Thus, although unlikely, the recent introduction of bullying programs in schools could possibly account for younger children showing fewer problems than older children in this domain.

The lack of longitudinal analyses also limits our conclusions regarding the causal role of parenting on child adjustment. As previously noted, difficult children can provoke ineffective parenting, rather than the reverse. Longitudinal analyses are essential to confirm the directionality of effects between parenting and child adjustment. In addition, the transactional quality of parent–child interaction and child adjustment will require that we develop more sophisticated models that help us to understand how parenting influences child adjustment, and how in turn, child adjustment influences parenting practices.

Finally, our conclusions regarding the importance of parent–child attachment on child adjustment are limited by the fact that the items included in the HBSC and NLSCY questionnaires are limited in assessing the nuances of parenting and of attachment relationships. Parenting is measured independent of the child’s view of the parent–child relationship only by four questions pertaining to harshness of discipline directed to NLSCY mothers. In both samples, the questionnaire items provide adequate measures of the positive and negative dimensions of parenting from the child’s point of view (i.e. parent relations in general, perceived rejection, perceived warmth), which are likely correlated with child attachment security. Nevertheless, the parenting dimensions do not assess the child’s security of attachment to parents and the various ways in which children can be insecurely attached. Some insecurely attached children are anxious and preoccupied in their relationship with their parents; others are anxious, avoidant and fearful. These different forms of insecure attachment typically are related to different problems in child adjustment. Thus, the present findings serve to indicate the need for more research on these issues utilizing more extensive, sophisticated and detailed measures of parenting and attachment.

## ***VIII Parenting Implications***

The findings contained in this report have several important implications for positive parenting practices. These results show that adjustment in late childhood and adolescence cannot be predicted by parenting practices and the quality of parent–child relationships alone, because of widening circles of social interaction and new developmental tasks. Many other factors are likely to interact with parent–child attachment in complex ways to predict child adjustment during this period. Nonetheless, our findings highlight the importance of parent–child relationships in adjustment at this age. The implications of these findings for parenting are discussed below.

### ***Is adolescence naturally a period of strife and storm?***

Our results confirm that vulnerability to negative health outcomes increases between late childhood and mid-adolescence. Adolescence is a challenging developmental period. Transition to high school is frequently associated with increased vulnerability to low self-esteem and feelings of incompetence, combined with greater risk for depression and antisocial behaviour. Engagement in some types of delinquent activity is normative during adolescence (e.g. Shedler & Block, 1990) and may be related to adolescent exploration of social rules and norms. Social pressures on adolescents to conform to peer group expectations also contribute to engagement in delinquent activity.

Most adolescents do not suffer from significant negative health outcomes. Our results show that the quality of parent–child relationships plays an important role in adolescent adjustment. Secure attachment is important in providing a safe haven during times of stress and in promoting exploration during times of growth. Evidence shows that secure attachment buffers adolescents from the stress associated with transitions such as high school entry (Papini & Roggman, 1992). Adolescents benefit from parental accessibility for emotional support, structure and monitoring regarding their engagement in delinquent behaviour and their association with peers who support this behaviour.

### ***Parenting is important for adjustment in adolescence.***

A common misperception in society is that adolescence is a time of moving toward *detachment* from parents. Many parents believe that because the amount of time that adolescents spend with their families decreases dramatically (Larson et al., 1996), parents no longer matter and have little effect on how their

adolescents function. Our findings show that although parent–child relationships undergo transformation during adolescence, the adjustment of adolescents depends in good measure on the quality of their relationships with their parents.

Parents need to recognize the continued importance of their relationship with their adolescents, despite the changes that occur in the nature of their interactions.

### ***In what ways do parents contribute to healthy adolescent development?***

Parenting practices are an important determinant of adjustment in late childhood and adolescence. Parents who use harsh discipline are perceived by their children as cold and more rejecting. Children who perceive their parents as cold and more rejecting suffer from a wide range of poorer adjustment outcomes, including aggression, bullying, property offences, smoking and alcohol use.

Adolescents need to feel that their parents are engaged and supportive of them. Adolescents are more independent than children in many aspects of their lives. Nonetheless, parents should support their adolescents by remaining psychologically available to them while, at the same time, fostering their autonomy. Specific parenting skills include warmth, acceptance of individuality, active listening, behaviour monitoring, limit setting and negotiation.

### ***Do mothers and fathers each play important roles in promoting healthy child adjustment?***

The data limited how deeply we could investigate the unique roles of mothers and fathers in determining the adjustment of their children. Nonetheless, our findings point out that fathers play an important role in child adjustment, but that girls find it harder than boys to confide in their fathers. If families can take steps to support the relationship between fathers and daughters, girls may benefit from this.

### ***Is the influence of parenting on child adjustment the same in high- versus low-risk contexts? Do some factors like poverty and maternal employment cause poor child adjustment independent of what parents do?***

Many parents worry that their child may suffer because of low family income or maternal employment. Our findings show that the impact of risk factors like low income and low maternal education on child adjustment is related in large part to how these risk factors influence parenting practices.

## ***Parent–Child Relationships and Adjustment in Adolescence***

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***Are girls or boys more vulnerable during adolescence? Do parents need to use different strategies in parenting their daughters versus their sons?***

Some differences in child adjustment were observed between girls and boys. Nonetheless, the impact of parenting was similar for girls and boys. Effective parenting produces positive outcomes for both girls and boys alike.

## **IX Recommendations for Intervention Programs**

### ***Target the Myth of Adolescent Detachment***

- ◆ Educational efforts to dispel the myth of adolescent detachment may be beneficial for parents and adolescents. Many adults hold inaccurate beliefs about adolescence and undervalue the importance of parents' relationship with their child. Steps should be taken by educators and social service and mental health providers, in conjunction with government agencies at all levels, to develop universal programs to target these myths.
- ◆ Community parenting programs that adopt concepts of attachment and transformation rather than dissolution of the parent–adolescent relationship should be developed. Parenting programs should assist parents in identifying significant periods of transition in the lives of their adolescents, and developing effective communication and support of their adolescents, as outlined above.
- ◆ With respect to universal programs, speakers, group leaders, reading lists and materials, and videos for junior high and high school parent groups, community centres, libraries, TV, radio, would be valuable in increasing awareness and education. Television commercials, similar to those developed to increase awareness of bullying and drug use (e.g. Olweus, 1992, 1997) would be an ideal method to communicate information to parents and adolescents. Pamphlets delivered through schools and doctors' offices would also be helpful in providing information that could be widely distributed. Such information could be sent to all parents of teens entering high school with information on support centres to contact for further information.

### ***Support Parents of Adolescents***

- ◆ Assisting parents in the development of parenting skills that support the quality of their relationship with their adolescent can be beneficial in ensuring healthy adjustment during this developmental period. As outlined above, specific parenting skills include warmth, acceptance of individuality, active listening, behaviour monitoring, limit setting and negotiation.
- ◆ In particular, working with families to support the relationship between fathers and daughters may benefit girls.

## ***Parent–Child Relationships and Adjustment in Adolescence***

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- ◆ Few attempts have been made to apply attachment theory to interventions with adolescents and their families, or to adapt intervention models for younger children so that they can be applied with adolescents. Yet attachment principles clearly apply across the life span and interventions can be adjusted to be developmentally appropriate to adolescents and their families. Supporting parents in the development of sensitive parenting of their adolescents may be a productive intervention that warrants investigation.
- ◆ Community-based and/or school-based parenting programs that focus specifically on the importance of parent–child attachment relationships may be helpful. These programs would be most successful if provided by trained professionals, who could work with groups of parents, or groups of parents and adolescents, to educate, facilitate improved communication and role-play problem solving.
- ◆ Programs of this nature may be best placed at important junctures in adolescent development, where change in attachment is most likely and risk is highest. Thus, programs targeting early adolescence, or entry into high school, would be ideal. For example, school-based programs that offer such groups for all parents and adolescents upon entry to high school may assist in preventing the development of family and adolescent difficulties associated with this transition.
- ◆ With respect to targeted programs, research shows that adolescents from clinical populations tend to be insecurely attached and it may be valuable to develop attachment-focused interventions for the special needs of these adolescents and their families. Research on therapy with adolescents shows that efficacy is enhanced when interventions target multiple factors in the youth’s ecology, such as individual problems, family issues, and school or vocational issues. Attachment theory can be used as a guiding principle in multi-systemic intervention with high-risk adolescents (Moore, Moretti & Holland, 1998; Moretti, Holland & Moore, 1999).
- ◆ This approach requires a shift from a primary position of “control” to one of “connection” in interventions with high-risk youth. Such a shift is challenging given social pressures to “control” the alarming behaviour of high-risk youth. Adopting an attachment perspective entails a willingness to understand and connect with youth despite their behaviour, combined with clear limit setting regarding problematic behaviour. The ultimate goal of such an approach is to assist youth in the development of “internal control” rather than extended reliance on “external control” through mental health or youth forensic services.
- ◆ Research that focuses on the articulation of programs and evaluation of their efficacy is also warranted.

## ***X Policy Implications***

- ◆ The provision of funds for the development and evaluation of the efficacy of intervention programs such as those outlined above is a crucial role for government.
- ◆ Supporting families both in terms of income adequacy and parenting practices, through both universal and targeted programs as outlined above, is important in ensuring child health.
- ◆ Support of efforts to understand the value of attachment for intervention with adolescents and families, for both normative and clinical samples, is required.
- ◆ Support of research on the causative factors for the findings outlined above is necessary.



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# **Appendix A**

## **Variables Used in HBSC and NLSCY Data Sets**

### **A I. HBSC Variables Used for Analyses**

(High scores reflect more, except where otherwise indicated)

#### **Sex Q1**

Female=1 Male=2 (RECODED)

#### **Age Q2**

#### **Grade Q3**

#### **Family status Q35**

“One-parent vs. Biological Two-parent”;

“Reconstructed Two-parent vs. Biological Two-parent”

#### **Income adequacy Q39**

“How well off is family” (“not at all well off “ to “very well off”)

#### **Mother work status Q5**

“Mother working Yes/No”

#### **Parent relations in general (mean z score)**

Alpha = .79, original item, range 1–3

Q41B my parents understand me

Q41D I have a happy home life

Q41H my parents expect too much of me

Q41I my parents trust me

Q41K I have a lot of arguments with my parents

Q41L there are times I would like to leave home

Q41N what my parents think of me is important

#### **Confide in mother**

q65br (very difficult to very easy), range 0–4

#### **Confide in father**

q65ar (very difficult to very easy)

#### **Confide in siblings**

(mean score) q65dr q65cr, range 0–4

#### **Parental support with school (mean score)**

Alpha = .74

Q62A parents help with school problems if needed

Q62B parents talk to teachers if needed

Q62C parents encourage me to do well at school

**Smoking** (Grades 8-10 only) (mean z score)

Alpha = .84, range -0.53 to 3.26

- Q10 have you ever smoked tobacco
- Q11 how often smoke at present
- Q12 number of cigarettes a day
- Q13 age when started smoking daily

**Alcohol** (Grades 8-10 only) (mean z score)

Alpha = .79, range -.99 to 2.98

- Q14 ever tasted an alcoholic drink
- Q15A how often drink beer
- Q15B how often drink wine
- Q15C how often drink liquor
- Q16 how often been really drunk

**Drugs** (Grades 8-10 only) (mean z score)

Alpha = .83, range 0-18

- Q74A use marijuana-hashish (never, once or twice, three times or more)
- Q74B use solvents
- Q74C use cocaine
- Q74D use heroin-opium-morphinel
- Q74E use amphetamines (uppers, speed)
- Q74F use LSD-acid
- Q74G use E or ecstasy
- Q74H use medical drugs to get stoned
- Q74I use anabolic steroids

**Risk-taking behaviour**

- Seatbelt use Q24, range 0-3
- Helmet use Q25, range 0-3
- Frequency of injuries Q42, range 0-4

**Externalizing behaviour** (bullying)

q60, range 0-4

**Self-esteem** (mean z score)

Alpha = .78, range -2.35 to 1.28

- Q27 In general how do you feel about your life
- Q41A I like myself
- Q41F I have confidence in myself
- Q41G I often wish I were someone else
- Q41J I would change how I look if I could
- Q72 think you are good looking
- Q73B feel helpless
- Q73C feel confident in yourself

**Internalizing problems** (mean z score)

Alpha = .73, range -1.29 to 2.49

- Q28 Do you ever feel lonely
- Q73A felt left out of things
- Q29D felt depressed in last six months
- Q29E been in bad mood in last six months
- Q29F felt nervous in last six months

**Victimization** (sum)

Alpha = .87, range 0–22

- Q57 Have you been bullied at school this term  
(1= not this term to 4= several times a week)
- Q58A made fun of you because of religion or race
- Q58B made fun of you for way you look or talk
- Q58C hit, slapped or pushed you
- Q58D threatened you
- Q58E spread rumours or mean lies about you
- Q58F made sexual jokes, comments or gestures

**School identification** (mean z score)

Alpha = .83, range -2.19 to 1.34

- Q7 your work in school compared to others
- Q8 How do you feel about school
- Q51A In our school students take part in making rules
- Q51B The students are treated too severely
- Q51C The rules in this school are fair
- Q51D Our school is a nice place to be
- Q51E I feel I belong at this school
- Q52A am encouraged to express my views
- Q52B Our teachers treat us fairly
- Q52C When I need extra help, I can get it
- Q52D My teachers are interested in me as a person
- Q52 My teachers expect too much of me at school
- Q53 how often think school is boring
- Q55 how many days skipped classes this term
- Q64 how much pressure because of work to do

**Peer relations** (mean z score)

Alpha = .66, range -2.48 to 1.66

- Q61 end up being alone
- Q68 how often spend time with friends after school
- Q69 how many evenings per week with friends
- Q65E easy to talk with same-sex friends
- Q65F easy to talk with other-sex friends

- Q66 how many close friends
- Q67 easy to make friends
- Q54C Other students accept me as I am

**Deviant peer affiliation (Grades 8-10 only) (mean score)**

Alpha = .75, range 0–4 (none to all)

- Q75A friends smoke cigarettes
- Q75B friends like school
- Q75C friends think marks are important
- Q75D friends get along with parents
- Q75E friends carry weapons
- Q75F friends use drugs to get stoned
- Q75G friends have been drunk

**All. NLSCY Variables Used in Analyses (High scores reflect more, except where otherwise indicated)**

**Personal Descriptors:**

- Chldage BMMCQ01
- Chldsex BMMCQ02 (RECODED) Female=1 Male=2

**Social and Family Background (parent report):**

- Family configuration** BDMCD16 (dummy coded)
- FAMST1 “Intact vs. reconstructed two-parent”
- FAMST2 “Intact vs. single-parent”
- Income adequacy** BINHD07 5-point scale, lowest to highest
- Mother’s education** BEDPD04 years of education
- Amount mother works** BLFPD38 4-point scale, not at all to full time

**Family Climate (parent report):**

- Family functioning** BFNHS01 12 items,  
e.g. (Alpha=.87, see NLSCY codebook p. 78) range 0–36
  - “There are lots of bad feelings in our family”
  - “We don’t get along well together”
  - “Making decisions is a problem in our family”
- Maternal depression** BDPPS01 12 items,  
e.g. (Alpha=.80, see NLSCY codebook p. 79) range 0–36
  - “I felt depressed”
  - “I had crying spells”

**Parenting (parent report):**

- Harsh parenting** NLSCY rational vs. punitive/aversive parenting scale  
BPRCS06, 4 items, each rated on a 5-point scale from “never” to “always”,  
e.g. range 4–20

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“When (child) breaks the rules or does things that he/she is not supposed to, how often do you:

raise your voice, scold or yell at him/her?”

use physical punishment?”

discuss things calmly?”

describe alternative ways of behaving?”

**Mother’s school involvement** (aggregate score) PARINVSC 8 items (median Alpha=.90), range 0–8

During this school year have you done any of the following:

BEDCB21A Spoken, visited, corresponded with teacher

BEDCB21B Visited child’s class?

BEDCB21C Attended a play, sports competition?

BEDCB21E Volunteered in class/on a trip?

BEDCB21F Helped in library, computer room?

BEDCB21G Attended a parent-school association?

BEDCB21I Fund raising?

BEDCB21K No activities?

### **Parent–Child Relationship (child report):**

**Parental warmth** BPMCbS1A (10–11 years, alpha = .81), BPMCbS1B (12–13 years, alpha=.86) 6 items, range 1–5 each, range 0–24

“My parents listen to my ideas and opinions”

“My parents speak of good things I do”

**Parental rejection** BPMCbS2A (10–11 years, alpha=.58)

BPMCbS2B (12–13 years, alpha= .72) 6 items, range 0–24

“My parents nag me about little things”

“My parents enforce rules depending on their mood”

**Confide in mother** BFFCQ08A “Other than your friends, do you have anyone else in particular you can talk to about yourself or your problems”

Mother: Yes No

**Confide in father** BFFCQ08B “Other than your friends, do you have anyone else in particular you can talk to about yourself or your problems”

Father: Yes No

### **Externalizing Behaviour:** (rs>.40) NLSCY scales

**Conduct disorder** BFBCS03 6 items (e.g. “I get into many fights”), range 0–12

**Hyperactivity** BFBCS04 8 items

(e.g. “I can’t sit still, am restless or hyperactive”), range 0–16

**Indirect aggression** BFBCS01 5 items

(e.g. “I try when I am mad at someone, to get others to dislike him or her”), range 0–10

**Property offences** BFBCbS07 6 items

(e.g. “I steal at home”), range 0–12

**Substance use:**

**Alcohol use** (mean z score) Alpha = .83

BDRCQ06 Have you ever had a drink of alcohol? (RECODED)

BDRCQ07 How old first time you drank? (RECODED)

BDRCBQ08 How often do you drink? (RECODED)

BDRCBQ9C # times drunk in past 12 months (RECODED 12–13 years)

BFBCBQ2D Past year - how many times got drunk? (10–11 years)

**Tobacco use** (mean z score) Alpha = .73

BDRCQ01 Have you ever tried cigarette smoking? (RECODED)

BDRCBQ02 How often do you smoke? (RECODED)

BDRCQ03 How old when you started smoking? (RECODED)

BDRCQ04 How many cigarettes a day do you smoke?

**Drugs** (mean z score) alpha = .71, .66 4 items

BDRCB11A How often do you use marijuana? (RECODED)

BDRCB11B How often do you sniff glue? (RECODED)

BDRCB11C How often do you use other drugs? (RECODED 10–11)

BDRCQ12 Age first time you tried drugs? (RECODED 10–11)

BDRCB14E How old were you when first took drugs? (12–13)

BDRCB11 How often do you use other drugs? (DERIVED 12–13)

**Deviant peers** (mean score) Alpha = .52, .76

BDRCQ05 Number of friends who smoke

BDRCQ09 # of friends who drink alcohol

BDRCQ13 # friends who have tried drugs (10–11)

BDRCB15 # friends who have tried drugs (DERIVED 12–13)

**Internalizing Problems:**  $r = .40$

**Self-esteem** (mean score)  $r = .62$ , range 0–16

BAMCS02 General Self-esteem (NLSCY scale), 4 items

(e.g. “a lot of things about me are good”)

BAMCS01 Physical Appearance esteem (NLSCY scale), 4 items

(e.g. “I am good looking”)

**Emotional disorder**

BFBCS02 Depression/anxiety (NLSCY scale), 12 items,

alpha = .78, range 0–16



**Social Relations:**

**Relations with peers** (mean score)

BFFCS01/tcpeer2, 4 items, alpha=.53, e.g. range 1–5

“I have a lot of friends”

“Other kids like me”

**Victimization** (mean score) 4 items, alpha .78, range 1–5

BSCCQ07 Children say nasty and unpleasant things to me at school

BSCCQ08 I am bullied in school

BSCCQ09 I am bullied on my way to and from school

BSCCQ10 I feel like an outsider (or left out of things) at my school

**Feels safe** (mean score) 2 items,  $r=.70$ , range 1–5

BSCCQ05 I feel safe at school

BSCCQ06 I feel safe on my way to and from school

**Sibling relations**

BFFCQ12 During the past 6 months, how well have you gotten along with your brothers and sisters? (5-point scale, Not well at all to Very well)

**Confides in other adults** (aggregate score) 6 items, range 0–6

BFFCQ08i-j, l, m “Other than your friends, do you have anyone else in particular you can talk to about yourself or your problems” Relation to you?

Grandparents, other relatives, friend of family, sitter, teacher, coach or leader: Yes No

**School Adjustment:**

**Academic involvement** (mean z score) 6 items, alpha = .64, .76

BSCCQ01 How do you feel about school

BSCCQ02 How well are you doing in school

BSCCQ03 How important to do well in school

BSCCQ12 Your teacher treats you fairly

BSCCQ17 You do your homework

BSCCQ04 I like mathematics (REVERSED, 10–11 yrs.)

BSCCB21A How do you like math (REVERSED, 12–13 yrs.)

**Prosocial behaviour**

BFBCS05 (NLSCY scale) 10 items, alpha=.80, e.g. range 0–20

“I offer to help other kids who are having difficulty with a task”

# Appendix B

## HBSC and NLSCY Variable Clusters

Predictors	HBSC	NLSCY
Personal descriptors, Social and family background	Child Sex SEX Child Grade GRADE Mother working or not MWORK Family Configuration (dummy coded): Two vs. one-parent NCONF1 Intact vs. Reconstructed 2-parent NCONF2 Income adequacy Q39	Child age CHLDAGE Child sex CHLDSEX Amount mother works AMTPMKW Family Configuration (dummy-coded): Intact vs. reconstructed FAMST1 Two vs. one parent FAMST2 Income adequacy BINHD07 Maternal education
Family climate		Family functioning BFNHS01 Maternal depression BDPPS01
Parenting		(parent report) Harsh parenting PARHRSH School involvement PARINVSC
Parent-child relationship	Relation with parents PARREL3 Confide in mother Q65BR Confide in father Q65AR	(child report) Parental nurturance PARNURC* Parental rejection PARREJC* Confide in mother BFFCQ08A Confide in father BFFCQ08B

Dependent Cluster	HBSC	NLSCY
Externalizing	Bullying Q60 (analysed in substance use cluster)	Conduct disorder BFBCS03 Hyperactivity BFBCS04 Indirect aggression BFBCS01 Property offences BFBCbS07 ( $r > .40$ )
Substance use	Alcohol FREQALC Tobacco SMOKE Drugs FREQDRUG ( $r > .50$ ) Deviant friends FRDEVIAN	ALCOHOL TOBACCO DRUGS ( $r > .50$ ) Deviant friends DEVPEER
Internalizing	Self-esteem SELFEST Internalizing INTERNAL ( $r = -.62$ )	Self-esteem (PAP +GSE) SELFEST Emotional disorder BFBCS02 ( $r = .40$ )
School adjustment	School identification SCHOOLID	(Academic involvement ACADINV Prosocial behaviour BFBCS05 ( $r = .41$ ))
Risk-taking behaviour	Helmet use Q24R Seatbelt use Q25R No. of injuries sustained Q42	
Social relations	Peer relations PEERREL Victimization VICTIM ( $r = -.30$ ) Sibling communication (combine brother and sister $r = .58$ ) SIBCOM	Peer relations TCPEER2 Victimization TCVICT ( $r = -.50$ ) Feel safe TCSAFE Sibling relations BFFCQ12 Adult communication OADULT ( $r = .0$ to $.5$ )

## **Appendix C**

### **Multiple Regression Analyses: Significant<sup>a</sup> HBSC Family and Social Climate Predictors of Functioning in Children in Grades 6 Through 10**

Hierarchical multiple linear regressions were computed to examine the unique and interactive predictive relations from family and social climate to child adjustment outcomes. For the HBSC data set, variables entered in the first step (Block 1) of each regression included child and family *background variables*, i.e. child sex and grade as well as mother’s work status (working vs. non-working), family configuration (one- vs. biological two-parent family, reconstructed vs. biological two-parent family) and income adequacy. In the second step (Block 2), we entered the *family relations variables*, i.e. child perceptions of parent–child relationship quality, ability to confide in mother, ability to confide in father, and parental support with school. In the last step, interaction terms, including each of the family relations variables and child sex, age, mother’s work status, family status and family socio-economic background, respectively, were included in the model.

Regressions were computed separately for each outcome. Interaction terms were most often not statistically significant, and almost exclusively were too small to meet the inclusion criterion of accounting for 1% or more of the variance in outcome. Thus, predictions from parenting and parent–child relationships to adjustment did not differ depending on the child’s age, whether the child was a boy or girl, or for children from different social climates and family backgrounds.

a. Individual predictors listed are those accounting for  $\geq 1\%$  variance in highest significant block in regression.

Domain of HBSC Child Functioning

Predictor	Smoking	Drug Use	Alcohol Use	Seatbelt Use	Helmet Use	Injuries Suffered
<b>Block 1<sup>b</sup></b>	<b>11%</b>	<b>3%</b>	<b>16%</b>	<b>7%</b>	<b>14%</b>	<b>2%</b>
Age	Older children more likely to smoke; 7%	Older children more likely to use drugs; 1%	Older children more likely to drink; 10%		Older children less likely to wear helmets; 1%	
Gender						
Family Status	Children from single-parent family more likely to smoke; 1%					
Mother Working						
Income Adequacy					Children from lower SES families less likely to wear helmets; 1%	
<b>Block 2</b>	<b>7%</b>	<b>7%</b>	<b>6%</b>	<b>4%</b>	<b>2%</b>	<b>2%</b>
Parent-Child Relationship	Children with poorer parent relations more likely to smoke; 4%	Children with poorer parent relations more likely to use drugs; 4%	Children with poorer parent relations more likely to drink; 3%	Children with poorer parent relations less likely to use seatbelts; 1%	Children with poorer parent relations less likely to wear helmets; 1%	Children with poorer parent relations more likely to suffer injuries; 1%
Confide in Father						
Confide in Mother						
Parental Support with School	Children with less parental support for school more likely to use drugs; 1%					

b. % variance accounted for by each significant block of predictors where  $\Delta R^2 \geq .01$ .

**Domain of HBSC Child Functioning  
(continued)**

Predictor	Self-esteem	Internalizing Problems	Bullying	Deviant Peer Affiliation	Peer Relations	Sibling Relations
<b>Block 1<sup>b</sup></b>	<b>11%</b>	<b>5%</b>	<b>4%</b>	<b>7%</b>	<b>4%</b>	<b>1%</b>
Age	Older children have lower self-esteem; 1%			Older children are more likely to have deviant friends; 4%	Older children have better peer relations; 2%	
Gender	Girls have lower self-esteem; 4%	Girls have more internalizing problems; 3%	Boys are more likely to bully others; 3%			
Family Status						
Mother Working						
Income Adequacy	Children from lower SES families have lower self-esteem; 4%	Children from lower SES families have more internalizing problems; 1%			Children from higher SES families have better peer relations; 2%	
<b>Block 2</b>	<b>20%</b>	<b>15%</b>	<b>6%</b>	<b>11%</b>	<b>3%</b>	<b>11%</b>
Parent–Child Relations	Children with poorer parent relations have lower self-esteem; 8%	Children with poorer parent relations have more internalizing problems; 6%	Children with poorer parent relations are more likely to bully others; 3%	Children with poorer parent relations are more likely to have deviant friends; 6%		
Confide in Father	Children less at ease confiding in father have lower self-esteem; 2%	Children less at ease confiding in father have more internalizing problems; 1%			Children more at ease confiding in father have better peer relations; 1%	Children more at ease confiding in father have better sibling relations; 3%
Confide in Mother						Children more at ease confiding in mother have better sibling relations; 2%
Parental Support with School						

b. % variance accounted for by each significant block of predictors where  $\Delta R^2 \geq .01$ .

Domain of HBSC Child Functioning  
(continued)

Predictor	Victimization	School Identification
<b>Block 1<sup>b</sup></b>	<b>2%</b>	<b>7%</b>
Age	Younger children more likely to be victimized; 2%	Younger children have higher school identification; 3%
Gender	Boys more likely to be victimized; 1%	Girls have higher school identification; 2%
Family Status		
Mother Working		
Income Adequacy	Children from lower SES families more likely to be victimized; 4%	Children from higher SES families have higher school identification; 1%
<b>Block 2</b>	<b>4%</b>	<b>19%</b>
Parent-Child Relations	Children with better parent relations are more likely to be victimized; 1%	Children with better parent relations have higher school identification; 8%
Confide in Father		
Confide in Mother		
Parental Support with School		Children with more parental support for school have higher school identification; 1%

b. % variance accounted for by each significant block of predictors where  $\Delta R^2 \geq .01$ .

## **Appendix D**

### **Multiple Regression Analyses: Significant<sup>a</sup> NLSCY Family and Social Climate Predictors of Functioning in Children**

Hierarchical multiple linear regressions were computed to examine the unique and interactive predictive relations from family and social climate to child adjustment outcomes. For the NLSCY data set, variables entered in the first two steps (Blocks 1 and 2) of the equation included *child and family background variables*, i.e. child sex and grade, family configuration (one- vs. two-parent family, intact vs. reconstructed family), amount of maternal employment (full time, part time/more than half-time, part time/less than half-time, does not work), income adequacy and maternal education. (Preliminary analyses indicated that the father's work status [full time, part time] or the joint parental work status did not affect adjustment.) In the third step of the analysis, we entered *family climate variables* (family functioning, maternal depression). *Parenting behaviour* was entered in the fourth step of analysis (parent report of harsh parenting practices and school involvement) and *parent–child relationship quality* (child report of parental nurturance, parental rejection, confiding in mother, confiding in father) was entered in the fifth step (Block 5). Again, in the last step, interaction terms, including each of the family demographics and relations variables (e.g. work status, family configuration, income adequacy, maternal education) and child sex and age, were included in the model.

Regressions were computed separately for each outcome. Interaction terms were most often not statistically significant, and almost exclusively were too small to meet the 1% criterion for inclusion. Thus, predictions from parenting and parent–child relationships to adjustment did not differ depending on the child's age, whether the child was a boy or girl, or for children from different social climates and family backgrounds.

a. Individual predictors significant at  $p < .01$  in block 1 when entered.

Domain of NLSCY Child Functioning

Predictor	Conduct Problems	Hyperactivity/ Inattention	Indirect Aggression	Property Offences	Tobacco Use	Alcohol Use	Drug Use	Deviant Peers	Emotional Problems	Self-esteem
<b>Block 1<sup>b</sup></b>	5%	1%		2%	11%	8%		15%	1%	1.5%
Age					Younger smoke less, 11%	Younger consume less alcohol, 7%		Younger less, 15%	Younger have more EP, .9%	Younger have higher GSE, 1%
Gender	Girls less likely to aggress 5%	Girls less likely HIA; 1%		Girls less likely to commit PO, 2%		Girls use less alcohol, 0.6%				
<b>Block 2</b>	1%	2%		.9%	2.6%	0.7%	0.7%		1%	
Family Status: Intact vs. Reconstructed					Children from intact families smoke less, 1%	Children from intact families use alcohol less, 0.3%	Children from intact families use drugs less, 0.2%			
Family Status 2 vs. 1										
Mother's Education	.3%	Higher mother's education linked with less HIA, 1%		Fewer PO, .2%	Less smoking, 0.4%					
Income Adequacy	Less income linked with more aggression 0.4%			Less income linked to more PO, .2%						

b. % variance accounted for by each significant block of predictors where  $\Delta R^2 \geq .01$ .



**Domain of NLSCY Child Functioning  
(continued)**

Predictor	Academic Involvement	Prosocial Behaviour	Peer Relations	Feeling Safe	Victimized	Sibling Relations	Confide in Adult
<b>Block 1<sup>b</sup></b>	<b>7.6%</b>	<b>10%</b>	<b>2.5%</b>	<b>0.8%</b>	<b>3.4%</b>		<b>0.7%</b>
Age	Younger more academically involved, .4%	Younger more pro-social, 3%	Younger have better PR, 0.6%	Younger feel less safe, .8%	Younger more victimized 1.5%		Younger confide more in other adults, 0.6%
Gender	Girls more academically involved, 3.7%	Girls more pro-social, 7%	Girls have better PR, 1.7%		Girls less likely to be victimized, 1.9%		
<b>Block 2</b>	<b>1.2%</b>		<b>0.8%</b>	<b>0.6%</b>	<b>0.7%</b>	<b>0.7%</b>	<b>0.6%</b>
Family Status: Intact vs. Reconstructed	Children from intact homes more academically involved, .4%						
Family Status 2 vs. 1							
Mother's Education	More AI, .4%						
Income Adequacy							

b. % variance accounted for by each significant block of predictors where  $\Delta R^2 \geq .01$ .

Domain of NLSCY Child Functioning  
(continued)

Predictor	Conduct Problems	Hyperactivity/Inattention	Indirect Aggression	Property Offences	Tobacco Use	Alcohol Use	Drug Use	Deviant Peers	Emotional Problems	Self-esteem
<b>Block 3</b>		<b>.8%</b>	<b>.5%</b>		<b>0.5%</b>				<b>.7%</b>	<b>0.8%</b>
Family Functioning		Poor family functioning linked with more HIA, 0.4%	Poor family functioning linked to more indirect aggression, .2%							Poorer family functioning linked with lower SE, .2%
Maternal Depression					Maternal depression linked with more smoking, 0.4%				Maternal depression linked with EP, 0.5%	
<b>Block 4</b> (parent report)	<b>.6%</b>	<b>.5%</b>	<b>.5%</b>	<b>.7%</b>						
Harsh Parenting		More HIA, .4%	More indirect aggression, .5%	More property offences, .6%						
Mother's School Involvement										
<b>Block 5</b> (child report)	<b>12%</b>	<b>13%</b>	<b>11%</b>	<b>12%</b>	<b>3.5%</b>	<b>4%</b>	<b>1.9%</b>	<b>3.2%</b>	<b>12%</b>	<b>14.6%</b>
Parental Rejection	More CD, 6%	More HIA, 8.2%	More IA, 2.7%	More PO, 5.3%	More smoking, 1.9%	More alcohol, 3.7%	More drug use, 1%	More deviant peers, 2.9%	More EP, 4.9%	Lower SE, 1.3%
Parental Nurture	Less CD, 5.1%	Less HIA, 2.8%	Less IA, 6%	Fewer property offences, 4.3%	Less smoking, 1.2%		Less drug use, 0.5%		Fewer emotional problems, 4%	Higher self-esteem, .8%

**Domain of NLSCY Child Functioning  
(continued)**

Predictor	Academic Involvement	Prosocial Behaviour	Peer Relations	Feeling Safe	Victimized	Sibling Relations	Confide in Adult
<b>Block 3</b>		.5%					
Family Functioning		Poor family functioning linked with less PB, 0.5%					
Maternal Depression							
<b>Block 4</b> (parent report)	.7%	.7%				<b>1.6%</b>	
Harsh Parenting	Less AI, 0.8%					Poorer sibling relations, 1.5%	
Mother's School Involvement		Linked with more PB, .6%					
<b>Block 5</b> (child report)	<b>14.7%</b>	<b>15%</b>	<b>6.3%</b>	<b>5.6%</b>	<b>4.4%</b>	<b>5.3%</b>	<b>2.1%</b>
Parental Rejection	Lower AI, 3.2%				More victimized, 1.2%	Poorer sibling relations, 2.5%	Less confiding in other adults, .9%
Parental Nurturance	Greater academic involvement, 10%	More PB, 14.4%	Better PR 4.9%	Feel more safe, 3.5%	Less victimized, 2.3%	Better sibling relations, 1.7%	

# Appendix E

## HBSC Zero-Order Correlations

Intercorrelations Among HBSC Predictor Variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Sex	1.00								
2. Grade	.01	1.00							
3. Mother Working	.03	.03	1.00						
4. Single-Parent Family	.02	.02	-.03	1.00					
5. Reconstructed Family	.02	.00	.00	-.15	1.00				
6. Income Adequacy	.07	.09	-.03	.13	.04	1.00			
7. Parent-Child Relationship	-.06	-.16	.04	-.10	-.08	-.23	1.00		
8. Confide in Father	-.19	-.20	-.01	-.03	-.02	-.15	.37	1.00	
9. Confide in Mother	-.02	-.17	.01	-.05	-.02	-.12	.47	.47	1.00

**Intercorrelations Among HBSC Child Outcome Variables**

	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.
10. Bullying	1.00													
11. Smoking	.22	1.00												
12. Alcohol	.30	.56	1.00											
13. Drugs	.30	.51	.49	1.00										
14. Deviant Friends	.31	.55	.57	.50	1.00									
15. No. of Injuries	.15	.13	.18	.14	.17	1.00								
16. Seatbelt Use	-.20	-.22	-.20	-.19	-.21	-.06	1.00							
17. Helmet Use	-.17	-.34	-.35	-.20	-.31	-.03	.29	1.00						
18. Self-esteem	-.08	-.17	-.14	-.10	-.18	-.03	.13	.12	1.00					
19. Internalizing Problems	.09	.12	.12	.10	.16	.08	-.06	-.03	-.62	1.00				
20. Peer Relations	.10	.24	.25	.14	.26	.10	-.05	-.15	.29	-.30	1.00			
21. Victimization	.18	.01	.03	.10	.06	.10	-.02	.05	-.24	.33	-.27	1.00		
22. Sibling Relations	-.02	.04	.04	.02	.00	.01	.02	-.04	.20	-.18	.25	-.10	1.00	
23. School Identification	-.34	-.36	-.39	-.37	-.44	-.13	.23	.26	.37	-.28	.03	-.19	.10	1.00

Correlations Between HBSC Predictor Variables and Child Outcome Variables

	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.
1. Sex	-.17	.02	-.07	-.08	-.03	-.07	-.07	.03	-.21	.17	.02	-.10	-.05	.12
2. Grade	.05	.28	.39	.10	.20	.03	-.07	-.34	-.14	.06	.13	-.10	.06	-.20
3. Mother Working	.00	.02	.07	.01	.03	.03	.05	-.01	.02	-.01	.07	-.02	.03	.02
4. Single-Parent Family	.03	.10	.04	.07	.08	.02	-.04	-.06	-.07	.04	.02	.02	-.02	-.09
5. Reconstructed Family	.05	.09	.05	.09	.09	.01	-.01	-.03	-.05	.05	.02	.06	.00	-.03
6. Income Adequacy	-.03	.12	.09	.08	.10	-.03	-.01	-.16	-.24	.15	-.12	.01	-.06	-.13
7. Parent-Child Relationship	-.23	-.32	-.29	-.27	-.34	-.10	.22	.22	.50	-.40	.07	-.16	.17	.46
8. Confide in Father	-.08	-.15	-.16	-.04	-.15	-.01	.09	.13	.36	-.30	.12	-.08	.28	.25
9. Confide in Mother	-.14	-.15	-.17	-.09	-.18	-.04	.13	.12	.31	-.25	.11	-.10	.28	.28

# Appendix F

## NLSCY Zero-Order Correlations

Intercorrelation of NLSCY Outcome Measures

	Conduct Problems	Hyperactivity/Inattention	Indirect Aggression	Property Offence	Alcohol Use	Drug Use	Tobacco Use	Deviant Peers	Emotional Problems
Conduct Disorder									
Hyperactivity/Inattention	.45								
Indirect Aggression	.49	.40							
Property Offence	.54	.43	.43						
Alcohol Use	.19	.15	.13	.18					
Drug Use	.18	.11	.09	.18	.27				
Tobacco Use	.24	.17	.16	.24	.45	.33			
Deviant Peers	.16	.12	.09	.15	.41	.27	.49		
Emotional Disorder	.36	.50	.36	.36	.04	.06	.08	.05	
Self-esteem	-.19	-.28	-.23	-.20	-.08	-.07	-.12	-.08	-.40
Peer Relations	-.23	-.25	-.18	-.15	.02	-.01	.02	.09	-.34
Feeling Safe	-.24	-.23	-.24	-.19	-.02	-.07	-.04	.02	-.33
Victimized	.29	.30	.25	.21	-.04	.03	-.03	-.07	.43
Sibling Relations	-.16	-.18	-.15	-.15	-.03	-.01	-.03	.01	-.20
Confide in Adults	-.05	-.05	-.05	-.03	-.05	-.03	-.07	-.02	-.04
Academic Involvement	-.36	-.38	-.25	-.34	-.25	-.19	-.30	-.23	-.21
Prosocial Behaviour	-.30	-.16	-.22	-.21	-.14	-.12	-.14	-.10	-.04

All correlations  $\geq .05$  are significant at  $p < .01$  (2-tailed).

**Intercorrelation of NLSCY Outcome Measures  
(continued)**

	Self-esteem	Peer Relations	Feeling Safe	Victimized	Sibling Relations	Confide in Adults	Academic Involvement	Prosocial Behaviour
Conduct Disorder								
Hyperactivity/Inattention								
Indirect Aggression								
Property Offence								
Alcohol Use								
Drug Use								
Tobacco Use								
Deviant Peers								
Emotional Disorder								
Self-esteem								
Peer Relations	.48							
Feeling Safe	.30	.36						
Victimized	-.34	-.52	-.44					
Sibling Relations	.20	.21	.15	-.14				
Confide in Adults	.13	.12	.03	-.02	.04			
Academic Involvement	.31	.25	.23	-.17	.18	.14		
Prosocial Behaviour	.27	.23	.14	-.08	.13	.19	.39	

All correlations  $\geq .05$  are significant at  $p < .01$  (2-tailed).



**Intercorrelation of NLSCY Predictors**

Predictors	Individual Characteristics		Family Characteristics					Family Climate		Parenting			Parent-Child Relationships		
	Age	Gender	Family Intact	Family 1 or 2 Parent	Amount Mother Working	Income Adequacy	Mother's Education	Family Functioning	Maternal Depression	Mother's School Involvement	Harsh Parenting	Parental Warmth	Parental Rejection	Confide in Mom	Confide in Dad
Age															
Gender	.01														
Family Intact	.04	-0.02													
Family 1 or 2 Parent	.03	-.04	.71												
Amount Mothers Working	.03	.02	-.02	-.02											
Income Adequacy	.00	.05	-.33	-.38	.39										
Mother's Education	-.02	.01	-.09	-.04	.25	.42									
Family Functioning	.02	-.01	.07	.08	-.03	-.13	-.14								
Maternal Depression	.03	-.02	.20	.21	-.14	-.20	-.16	.31							
Mother's School Involvement	-.20	-.05	-.08	-.09	-.02	.12	.14	-.09	-.05						
Harsh Parenting	-.03	.05	-.02	-.02	.02	-.04	-.06	.23	.09	-.06					
Parental Warmth	-.12	-.09	-.04	-.04	.01	.05	.06	-.13	-.05	.12	-.14				
Parental Rejection	.22	.10	.05	.05	.05	.01	-.03	.08	.08	-.04	.19	-.32			
Confide in Mom	-.07	.01	-.05	-.05	.00	.02	.04	-.07	-.06	.08	-.03	.24	-.18		
Confide in Dad	-.10	.16	-.26	-.25	.06	.15	.07	-.07	-.11	.04	-.02	.21	-.17	.444	

Correlations  $\geq .05$  are significant at  $p < .01$ .

Correlations Between NLSCY Predictors and Outcome Measures

Predictors	Individual Characteristics		Family Characteristics						Family Climate		Parenting		Parent-Child Relationships			
	Age	Gender	Family Intact	Family 1 or 2 Parent	Amount Mother Working	Income Adequacy	Mother's Education	Family Functioning	Maternal Depression	Mother's School Involvement	Harsh Parenting	Parental Warmth	Parental Rejection	Confide in Mom	Confide in Dad	
Conduct Disorder	-.03	.22	.08	.05	.01	-.09	-.08	.07	.08	-.05	.09	-.27	.32	-.10	-.06	
Hyperactivity/Inattention	-.03	.10	.10	.07	-.02	-.10	-.12	.10	.10	-.05	.10	-.25	.33	-.13	-.13	
Indirect Aggression	-.02	.02	.04	.03	.05	-.03	-.03	.08	.07	-.00	.09	-.22	.31	-.10	-.08	
Property Offence	-.02	.13	.03	.00	.01	-.06	-.07	.06	.06	-.05	.09	-.26	.30	-.12	-.07	
Alcohol Use	.25	.09	.08	.04	.01	-.03	-.04	.00	.03	-.08	.02	-.15	.25	-.10	-.09	
Drug Use	.02	-.00	.05	.04	.00	-.02	-.01	.01	.02	-.02	-.03	-.11	.08	-.08	-.05	
Tobacco Use	.32	-.00	.14	.09	-.02	-.08	-.09	.05	.11	-.11	.00	-.18	.22	-.14	-.16	
Deviant Peers	.39	-.02	.04	.02	.00	-.04	-.07	.02	.03	-.12	-.02	-.14	.25	-.11	-.12	
Emotional Disorder	-.08	-.06	.09	.08	.00	-.08	-.05	.06	.11	.01	.06	-.24	.28	-.09	-.15	
Self-esteem	-.10	.06	-.06	-.05	.00	.05	.04	-.06	-.08	.06	-.06	.37	-.23	.14	.18	
Peer Relations	.09	-.13	-.08	-.09	.02	.05	.02	-.03	-.07	.01	-.07	.25	-.13	.03	.07	
Feeling Safe	.10	.00	-.07	-.07	.02	.05	.05	-.04	-.06	.00	-.03	.22	-.14	.06	.09	
Victimized	-.12	.14	.05	.04	-.01	-.06	-.06	.02	.07	.01	.05	-.19	.14	-.04	-.03	
Sibling Relations	.04	-.01	.06	.06	-.03	-.05	-.05	-.03	-.01	-.04	-.13	.17	-.19	.04	.02	
Confide in Adults	-.08	-.03	-.07	-.07	.03	.02	.01	-.03	-.02	.05	.02	.16	-.07	.20	.32	
Academic Involvement	-.19	-.18	-.09	-.05	-.03	.03	.08	-.07	-.05	.10	-.09	.39	-.31	.18	.13	
Prosocial Behaviour	-.16	-.26	-.03	-.01	-.02	-.02	.02	-.07	-.01	.12	-.07	.43	-.21	.10	.08	

## **Appendix G**

### **Path Analyses: Overview and Significant Paths Involving NLSCY Maternal Depression**

#### **Overview**

To examine the unique direct and indirect pathways from parenting and parent–child relationships to child adjustment outcomes, path analyses were performed using EQS (Bentler, 1990). Because the regression analyses indicated that the predictive model applied equally well to boys and girls, and to younger and older children, etc. (i.e. interaction effects were negligible), a single path model was tested for each data set (see Figures 11a and b). A mediational model was tested by which personal and family background factors were hypothesized to exert their effects through changes in parenting (as measured in the NLSCY sample) and the parent–child relationship. For this purpose, we grouped the predictor variables for each data set in the same manner as described above for the regression analyses. In each data set, dependent variables that were conceptually related and/or intercorrelated at 0.3 or greater were grouped into five child adjustment clusters, with parallel clusters for each data set.

In the HBSC sample, child adjustment clusters<sup>4</sup> included externalizing behaviour and substance use problems (bullying; tobacco, alcohol and drug use; deviant peer affiliation), internalizing problems (self-esteem, general internalizing problems), school adjustment (identification with school), risk-taking behaviour (bike helmet use, seatbelt use, number of serious injuries) and social adjustment (peer relationship quality, confiding in siblings).

In the NLSCY data set, child adjustment clusters<sup>2</sup> included externalizing problems (symptoms of conduct disorder, hyperactivity, indirect aggression, property offences), substance use (tobacco, alcohol, and drug use; affiliation with deviant peers), internalizing problems (symptoms of emotional disorder, self-esteem), school adjustment (academic involvement, prosocial behaviour) and social adjustment (peer relation quality, feeling safe at school, being victimized by others, sibling relationship quality, relationships with other adults).

Initial model specification followed the mediational model outlined previously. Specifically, direct paths were estimated from all variables at a particular level of the model to all variables at the immediately subsequent level of the model. Because a mediational process was hypothesized, no direct paths from child and family background variables to outcome variables were initially estimated, with the

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4 Predictor and dependent variable clusters are summarized in Appendix B.

## ***Findings from the HBSC Cycle 3 and NLSCY Cycle 2 Studies***

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exceptions that direct effects of sex and age on all outcome variables were estimated. Variables belonging to the same block were assumed to be correlated (allowed to covary).

Several indices were used to assess goodness of fit: the incremental fit index (IFI, Bollen, 1989), the comparative fit index (CFI, Bentler, 1990), the nonnormed fit index (NNFI, Bentler & Bonnet, 1980), the root mean square error or approximation (RMSEA, Browne & Cudeck, 1993) and the standardized root mean squared residual (SRMSR, Jöreskog & Sörbom, 1996). For the IFI, CFI and NNFI, values of 0.9 or higher are acceptable. For the SRMR and RMSEA, values of approximately 0.5 or less are acceptable. In addition, we examined the standardized model residuals and the results from the Lagrange multiplier (LM) test. If the fit was inadequate and/or the results from residuals and the LM test indicated that additional direct paths had to be estimated to improve fit, an additional model was run that included these additional paths and the fit indices were re-examined. As in previous analyses, only standardized path coefficients at or above .10 (i.e. those explaining 1% or more of the variance in dependent variables) are reported here. The total percent of variance explained in each outcome variable is indicated in the variable box.

**Figure 32: NLSCY Paths Involving Maternal Depression**

