Healthy Development Depends on Healthy Relationships

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The true measure of a nation's standing is how well it attends to its children – their health and safety, their material security, their education and socialization, and their sense of being loved, valued, and included in the families and societies into which they are born. UNICEF, 2007, p.1

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Executive Summary
Healthy Development Depends on Healthy Relationships

Canada does not compare well to other countries in the quality of relationships experienced by its children. In a recent World Health Organization (WHO) survey, Canadian children, aged 11 to 15, reported the quality of their relationships with their parents and peers such that Canada ranked near the bottom; between 29th and 34th of 38 countries (Currie et al., 2012). This ranking is cause for concern as research has shown that healthy development depends on healthy relationships.

This report, *Healthy Development Depends on Healthy Relationships,* specifically outlines what research has shown in terms of the links between children's health and their relationships in the home, school, community, and more broadly. In addition, results of analyses conducted using data from the 2009-2010 Canadian Health Behaviour in School-Aged Children study (HBSC) demonstrate this link between healthy relationships and healthy development in the Canadian context.

Healthy development begins at home. Children who form secure attachments and feel a loving bond with a caregiver fare well in terms of many measures of health and well-being and those whose attachments are insecure or disorganized fare more poorly. This discrepancy demonstrates the need for adults involved in the care of children to establish healthy relationships with them and provide a balance of warmth and control aligned with the children's developmental capacities.

Healthy habits start to develop early. Children's good and poor health habits begin to develop in the early years of life. Through positive interactions and positive, deliberate learning opportunities, children in healthy families develop the self-regulation, social, and coping skills that enable them to develop in healthy ways. Conversely, children in troubled families experience highly stressful relationships that fail to provide the supports for healthy habits and development.

Health problems emerge from stressful relationships. Pathways to chronic health concerns such as hypertension, heart disease, diabetes, and cancer may begin in the early years when the child's neurological and endocrine systems become dysregulated in response to a highly stressful family environment. When children are exposed to adverse childhood experiences, the cumulative effect of these experiences is linked to long-term health risk behaviours, chronic diseases often associated with death, and generally poor health status (Felitti et al., 1998).

Health problems are linked to unhealthy peer relationships. There is a strong link between involvement in bullying and significant health problems. Bullying is a disrespectful and destructive relationship for both parties. Both children who bully and those who are victimized experience elevated levels of physical and mental health problems; those who are involved in both bullying and victimization experience the highest rates of problems.

Vulnerable groups experience higher health problems. Some groups of children and youth are exposed to more stress in their peer relationships than others. For example, lesbian, gay, bisexual, transgender and queer (LGBTQ) youth experience being marginalized, bullied, and sexually harassed more frequently than their heterosexual peers, which takes a toll on their health. Compared to their straight peers, LGBTQ youth report higher levels of both depression and externalizing problems. Evidence suggests that if LGBTQ youth were to have support from family and support rather than victimization from peers, they might suffer no higher rates of mental health problems than their heterosexual peers (Williams et al., 2006).

Developing relationship skills is important. Children who grow up in healthy family relationships develop relationship skills that form the foundation for healthy relationships through adolescence and into adulthood. A substantial proportion of Canadian youth do not develop the capacity for healthy relationships. Nearly a quarter of Canadian youth report having experienced aggression with a dating partner (Connolly et al., 2010). Both girls and boys who are involved in an aggressive romantic relationship have a range of emotional and behaviour problems that have a potentially strong and negative impact on health and well-being as they move into adulthood (Wolfe et al., 2003).

Positive school and neighbourhood relationships are protective. Dropping out of school places children at a disadvantage as school connectedness has been shown to be a protective factor for health. Interestingly, a lack of caring relationships is a primary reason that youth drop out of school. In addition, healthy relationships are part of the protective processes that keep children and youth engaged with school. In the broader context of neighbourhoods, promotion of positive and reduction of negative interactions among children and youth relate to lower levels of violence in the community.

Genes and environment interact to influence health. Although children may be born with a genetic predisposition to develop a certain trait, behaviour, or disease, the relationship environments in which they develop have the potential to affect whether or not genes are expressed (Barr et al., 2004). Ongoing exposure to stressful relationships places children at risk for physical, mental, and social health problems (McEwen, 2008). The mechanisms through which the stress of unhealthy relationships affects health are based in the stress-response system. Children who live in stressful family, peer, or other relationship contexts have dysregulated stress responses that may be associated with changes in the brain (Repetti et al., 2002). Research is revealing that stress can undermine children's health even at the cellular level. For example, cumulative exposure to violence is linked with accelerated erosion of children's telomeres, which protect DNA (Shalev et al., 2012). Telomere length naturally declines with age, but has been found to do so prematurely in children exposed to violence.

This paper shows that the provision of healthy relationships for all Canadian children and youth is a critical public health concern. When children and youth do not grow up in caring, supportive, predictable, and positive relationships, they experience stress in many different contexts, which in turn undermines their physical, mental and social health.

Healthy Development Depends on Healthy Relationships

Human relationships, and the effects of relationships on relationships, are the building blocks of healthy development. (Shonkoff & Phillips, 2000,p.4)

Introduction

In a recent report (Currie et al., 2012), the World Health Organization (WHO) highlighted the importance of relationships in children's lives. By bringing together disparate research studies and analyses of data on Canadian youth, this paper provides an integrated conceptual and empirical foundation to start a conversation about the critical importance of healthy relationships for healthy development, not just in childhood (birth to 18), but also throughout the lifespan.

- Drawing from analyses of the Health Behaviour in School-aged Children (HBSC) study, the 2012 WHO report indicates that family, peers and school can provide support for healthy development. The link between healthy relationships and healthy development is a critical public health concern for Canada because of the poor quality of children's relationships relative to other countries. Part I of the paper begins with a brief conceptual perspective on the role that relationships play in shaping children's development. It provides a review of research on the links between the relationships and healthy development that can last into adulthood. It further breaks down how the quality of relationships in the family, school, peer group and neighbourhood specifically influence child health and development.

> The poor rankings for Canadian children's relationships raise concerns because "relationships are the "active ingredients" of the environment's influence on healthy human development" (NSCDC, 2004, p. 1).

- Part II of the paper provides comprehensive analyses of the Canadian HSBC data to assess links between diverse aspects of children's healthy development and the quality of relationships with parents, teachers, peers, school, and in the neighbourhood within the Canadian context.

The table below summarizes Canada's rankings from the international report of the 2009-10 HSBC data (Currie et al., 2012). As can be seen, compared to youth from 38 countries, Canadian youth generally rank poorly on most measures of the quality of their relationships.

Canada's Results and Ranking for Family, Peer and School Relationships in 2009-10 HSBC Survey

Relationship Quality		11 year old girls	11 year old boys	13 year old girls	13 year old boys	15 year old girls	15 year old boys
Communication with mother	%	87	87	76	80	73	74
	RANK	**30/38**		**34/38**		**29/38**	
Communication with father	%	61	76	52	71	50	66
	RANK	**34/38**		**25/38**		**21/38**	
Classmates are kind and helpful	%	65	63	55	35	56	53
	RANK	**27/38**		**30/38**		**32/38**	
Bullying others	%	5	7	9	12	6	14
	RANK	**20/38**		**21/38**		**21/38**	
Being victimized	%	17	17	15	17	8	12
	RANK	**29/38**		**30/38**		**24/38**	
Liking school	%	40	27	31	21	24	19
	RANK	**23/38**		**15/38**		**17/38**	

Note: % represents the % of youth who answered this question positively
RANK represents Canada's ranking out of 38 countries, with 1 being the most positive and 38 being the most negative ranking

Canada's rankings on the quality of youths' relationships were generally poor:

- On the ease of communication with parents, Canadian youth rank in the bottom half, between 21st and 34th of 38 countries;
- On the quality of relationships with classmates, Canadian youth rank in the bottom third, between 27th and 32rd of 38 countries;
- On rates of bullying, Canadian youth rank in the bottom half, between 20th and 21st of 38 countries;
- On victimization, Canadian youth rank between in the bottom half, between 24th and 30th of 38 countries;
- On liking school, a measure of school connectedness, Canadian youth rank in the lower two thirds, between 15th and 23rd of 38 countries.

This is a critical public health concern because Canadian youth are not as strongly connected within the relationships that are critical for promoting healthy development and well-being.

The HBSC survey has been conducted in Canada every four years for over two decades in partnership with the WHO Regional Office for Europe. The national sample in the present analyses includes students from 436 Canadian elementary and high schools. Schools were selected using weighted probabilities to ensure different regions and demographics were represented. Classes within schools were chosen by a similar technique to ensure that students were equally likely to participate. There were two versions of the questions: one for students in grades 6-8 and one for students in grades 9 and 10. Parental consent was obtained from children under the age of 18. Detailed information regarding the survey and data collection methods can be found at www.hbsc.org.

Part I - Literature Review on Health and Healthy Relationships

An Overview of Research on the Links Between Healthy Development and Healthy Relationships

The science of child development has advanced rapidly, with comprehensive theories, methods, and analyses now shedding light on the complex and dynamic influences on children's development. Starting with attachment theory (Bowlby, 1951) that focused on the parent-child relationship, understanding of the importance of children's relationships has been extended through Bronfenbrenner's (1979) ecological model of development, which highlights that children's relationships with their family, friends, teachers, and neighbours also shape their development. Through their longitudinal research, Cairns and Cairns (1994) showed that children are continuously adapting as they develop in different relationships, with diminishing opportunities for shifting from a troubled pathway to a healthy pathway as they grow older. The importance of reciprocity in children's relationships has also been highlighted by Sameroff (2010) and Lerner (2005), who emphasize not only the influence that relationships have on children's development, but also the influence that developing children have on those with whom they interact, such as their parents and friends.

Research on development

A recent advancement to the understanding of how children develop in the context of relationships has emerged in the articulation of a *dynamic cascading model of development* (Dodge et al., 2009). Research supporting this theoretical model highlights six aspects of children's development that are important for guiding practices and policies related to promoting healthy development for all children and youth. The six developmental principles as outlined by Dodge and colleagues are:

<u>1. Relationships influence children and children influence their relationships over time</u>

Parents shape their children's development through their loving interactions and discipline. If these are lacking, children will develop problem behaviours and, in turn, make it more difficult for their parents to be effective in guiding their healthy development. These same reciprocal influences unfold over time in children's other relationships with friends, teachers, recreation leaders, and others to promote development along positive or negative pathways.

<u>2. Early influences are important</u>

Children's early experiences tend to have a significant and lasting influence because they set the stage for the pathways that follow. Although there is considerable plasticity in development, the opportunities for change decrease as children grow older.

3. Development is shaped by many small influences

Although relationships are emerging as the most important influence on children's development, no single major factor places children onto a healthy or unhealthy pathway. Children's development is continually shaped by the moment-to-moment interactions within dynamic relationship experiences that affect their biological makeup, which in turn shapes their relationship experiences, and so on through the childhood and adolescent years. The accumulation of many small influences paves the pathway for healthy or unhealthy development.

4. Developmental pathways are relatively continuous

Once children's behaviour patterns become established, they tend to follow along predictable pathways to healthy or unhealthy development. This stability is, in part, because the qualities of their relationships with parents, peers, and others tend to be relatively consistent across time.

5. Problem behaviours can emerge very quickly

Children's experiences in different relationship contexts can quickly move them into problem behaviours because of the accumulation of biological and social influences during sensitive periods. For example, if children have maladaptive relationship experiences within the family and peer group, they may quickly accelerate into antisocial behaviour and substance use as they enter adolescence – a period characterized by rapidly changing brain development.

Although neural pathways and behaviour patterns become increasingly consolidated, new relationship experiences arise that can influence development in substantial ways, depending on the child.

6. Opportunities for change

Children's development is highly complex. While opportunities for change become limited over time, new opportunities arise that may promote changes in the way children adapt. Although neural pathways and behaviour patterns become increasingly consolidated, new relationship experiences arise that can influence development in substantial ways. For example, change can occur when a caring adult steps into a child's life and is able to guide him or her from a deviant to a productive pathway (Rutter, Maughan, Mortimore & Ousten, 1979). Opportunities for change can also come through programmatic interventions focused not only on the child, but also on the child's important relationships (e.g., Pepler et al., 2010).

The National Scientific Council on the Developing Child states, "Young children experience their world as an environment of relationships, and these relationships affect virtually all aspects of their development," (NSCDC, 2004, p.1).

Research on attachment

The critical importance of relationships for children's survival was brought to light by Rene Spitz in the 1940s, based on his observations of children in orphanages. Spitz (1945) found that children who were given the basic necessities for survival, but not held and engaged in caring relationships, were dying at high rates.

Through his seminal research on monkeys, Harry Harlow (1958) showed that a loving relationship between mother (or mother-surrogate) and child is absolutely essential for healthy development. In subsequent experiments, Harlow found that partial isolation of young monkeys produced abnormal behaviours such as staring, stereotyped repetitive circling in their cages, and even self-injurious behaviour. Total isolation produced severe psychopathology. Since Harlow's experiments, numerous developmental researchers have established links between experiences of relationships in childhood with multiple health outcomes including physical, psychological, and social health, brain development, stress responses, and immune system functioning.

Early in his career, John Bowlby studied the effects of mother-child separation by observing evacuees and orphans of World War II. Based on these observations, he developed the concept of attachment (Bowlby, 1951; 1988) – the evolutionary and ethologically supported idea that children seek proximity to a specific attachment figure(s) when distressed or alarmed as a means of survival. It is a deep bond that forms with the primary caregiver(s) and which forms the basis for future relationships.

Attachment is strongly implicated in brain activity (Dawson et al., 2001) and the development of hormonal responses to stress (Nachmias, Gunnar, Mangelsdorf, Parritz & Buss, 1996; Bernard & Dozier, 2010). Attachment is also related to social–emotional competence, cognitive functioning, physical health, and mental health outcomes (see Ranson & Urichuck, 2008, for a review). Furthermore, changes in family circumstances and quality of care can influence changes in attachment status (Thompson, 2000), highlighting that it is the relationship(s) that children have with their primary caregiver(s) that forms the foundation of attachment. Essentially, children who form secure attachments and feel a loving bond with a caregiver fare well and those whose attachments are insecure or disorganized fare more poorly.

The loving bond between a caregiver and child is important beyond providing safety and the necessities of life. Children's primary relationships provide the blueprint for relating with other family members, peers, neighbours, teachers, and coaches – with anyone who has an impact on children's development as they interact and find their roles in the human community. The field has moved from considering children's environments as comprising shelter, nutrition, and other basic needs to now recognizing that children's critical environments comprise their relationships.

As demonstrated in the following sections of this report, secure and stable relationships not only assure that children are adequately nourished, protected, and nursed through illnesses (Shonkoff & Phillips, 2000), but are also protected from excessive stress and

provided with a sense of security (Gunnar, Brodersen, Nachmias, Buss & Rigatuso, 1996).

Summary

There are strong theoretical frameworks and principles to guide research, practices, and policies related to the importance of healthy relationships in fostering children's development. Healthy relationships are those that provide children with:

- a sense of security and stability,
- basic needs,
- a sense of being valued and belonging,
- support and guidance to learn essential skills and understanding, and
- protection from excessive stress.

There are many opportunities to ensure that children are provided with healthy relationships in the diverse contexts where the live, learn, and play. Through continual moment-to-moment interactions within their diverse relationship experiences, children's physical, cognitive, emotional, and social development is shaped through the childhood and adolescent years. Although there is increasing stability in children's development, there are possibilities of fostering new relationships or repairing existing ones that can promote changes in the way children adapt.

Research on stress

To understand why healthy development depends on healthy relationships, it is important to understand the stress response system. Stress models (e.g., Repetti, Taylor, & Seeman, 2002) suggest that when relationships with primary caregivers are poor, the development of children's neural and endocrine systems is diverted from healthy pathways. These diversions increase children's emotional reactivity, as well as the responses of children's autonomic nervous system and endocrine (hormonal) systems (known as 'defensive responses').

The quality of parenting that children receive relates to their stress responses. For example, young children's cortisol levels (hormone released in response to stress) are significantly correlated with the level of their mothers' depressive symptoms (Lupien et al., 2000). Maternal depression during children's first two years predict elevations in cortisol at age seven; those children with heightened hormonal stress systems also showed internalizing symptoms, such as anxiety, at age seven (Ashman et al., 2002). Maltreated children also have abnormal patterns of cortisol production even after being moved to a loving environment. This disturbed stress response is of particular concern if the relationship between parent and child is already stressed due to the effects of poverty (Lupien et al., 2001).

It is not only the quality of the parent-child relationship that has implications for unhealthy responses of the stress response system. In studying children in daycares, Gunner and colleagues found that 40% of children aged 3 to 4.5 years showed a rise in cortisol levels sufficient to be classified as a stress response; these increases were associated with intrusive and overcontrolling care (Gunnar, Kryzer, Ryzin & Phillips, 2010). Children's heightened stress responses were associated with anxious, vigilant behaviour in girls and angry, aggressive behaviour in boys.

Healthy relationships with caring adults in a childcare setting can also protect children against the physiological effects of impaired mother-child relationships.

Peer relationships are also implicated in HPA axis functioning. Adolescents who are bullied by their peers show disturbed stress responses that are in turn linked to health problems (Knack, Jensen-Campbell & Baum, 2011). Changes to HPA axis functioning for adolescents who have been chronically bullied tend to be long-term (Hamilton, Newman, Delville & Delville, 2008). In a study comparing victimized to non-victimized children, Vaillancourt and colleagues (2011) found that the victimized youths' dysregulated stress responses were linked to poorer memory functioning. They contend that victimized children may do poorly in school because of a structural change to their brain associated with functional differences (i.e., poor memory) that are caused by repeated activation of the stress response system.

Adolescents who are bullied by their peers show disturbed stress responses that are in turn linked to health problems.

If the stress response is chronically activated, children experience persistent emotional arousal, increased blood sugars and fats, sleep disturbances, and decreased cognitive and emotional functioning. It is the combination of these responses to ongoing stress in children's lives that places them at risk for a range of health problems (Repetti et al., 2002). Ongoing exposure to stressful relationships and the stressful biological responses that they create places children at risk for a range of physical, mental, and social health problems throughout the lifespan.

Repairing after stressful relationships

There is emerging evidence to support the efficacy of relationship-based interventions for children exposed to unhealthy relationships. Improvements in caregiving following early adversity appear to have the potential to reverse or prevent disruptions in HPA axis functioning (Fisher et al., 2006). Healthy relationships with caring adults in a childcare setting can also protect children against the physiological effects of impaired mother-child relationships (Chryssanthopoulou et al., 2005).

Research on genes

Ongoing exposure to stressful relationships and the stressful biological responses that they create places children at risk for a range of physical, mental, and social health problems throughout the lifespan.

Recent research on epigenetics, the study of the changing expression of genes, also sheds light on how genes and environment interact to shape development. Epigenetic research is revealing that although children may be born with a genetic predisposition to develop a certain trait, behaviour, or disease, the environments in which they develop have the potential to affect whether or not these genes are expressed. Research has highlighted vulnerable genes, which make it more likely that early stressors will lead to problems in stress hormone regulation. The stress that results from unhealthy relationships and interrupts HPA axis functioning can remodel neural circuitry and affect cognitive, autonomic, and neuroendocrine functioning leading to a host of negative health outcomes (for a review see McEwen, 2008). For children who carry vulnerable genes, early positive relationships with caregivers can moderate the impact of genetic vulnerability and decrease the likelihood of unhealthy outcomes (Barr et al., 2004). The National Scientific Council on the Developing Child (2005) noted that frequent or ongoing activation of the brain systems that respond to stress can lead to vulnerability to both physical and behavioural disorders across the lifespan and that some of these developmental consequences may last well past the time of stress exposure.

In a recent longitudinal study, Shalev and colleagues (2012) assessed the effects of children's exposure to violence on telomere erosion. Telomeres are the ends of linear chromosomes and their diminishing length can be used as a biomarker of biological aging and stress. Shalev and colleagues assessed children's telomere length at two time-points, at 5 years of age and again at 10 years of age. They assessed children's exposure to three forms of violence during this five-year period: domestic violence between the child's mother and partner, physical maltreatment by an adult, and frequent bullying victimization. They found that cumulative exposure to violence was associated with accelerated telomere erosion, already at this young age.
These changes in genetic expression can also be transmitted to the next generation of offspring. The expression of a gene, which can be established through relationships experiences, is potentially reversible. An enriched social environment can counteract the detrimental effects of poor mothering (Champagne & Meaney, 2008).

Summary

The quality of early caregiver-child relationships is strongly implicated in the epigenetic effects on gene expression that lead to various physical, mental, and social health outcomes. Research reviewed above with children and adolescents reveals how

unhealthy relationships at any stage of development can contribute to the development of health problems and how healthy relationships can be protective against health problems. This research highlights the need to intervene early to ensure that all children and youth are developing in healthy ways and in healthy relationships to lay the foundation for lifelong health.

The Importance of Family Relationships to Health Outcomes

What do children need from their relationships within the family to launch them onto a healthy pathway throughout the lifespan? Baumrind (1991) developed a model of parenting styles that described two critical dimensions of parenting: warmth and control. As Bowlby described in attachment theory, the dimensions of warmth and caring in parent-child relationships are important in providing children with a sense of security, of being valued, and with the confidence to approach new relationships and experiences. The dimension of control refers to the important role that parents play in regulating children's behaviours and emotions, providing support for their developing competencies, behaviours and social responsibility, monitoring their activities, and setting limits for them. Parental control diminishes as children gradually become independent and assume responsibility for their own behaviours. Research, clinical observations, and practice reveal that not only parents, but all adults involved in children's lives need to establish healthy relationships with them, with a balance of these two dimensions of warmth and control attuned to children's developmental stages.

The models of Baumrind and Bowlby suggest that children growing up in families with unhealthy relationships are exposure to hostile, unpredictable, and/or unresponsive social environments and therefore, experience high levels of stress.

Through positive interactions and positive, deliberate learning opportunities, children in healthy families develop the self-regulation, social, and coping skills that enable them develop in healthy ways.

Development of aggression

Children who develop in the context of dysfunctional families often develop aggressive behaviour problems as a function of ineffective parenting (Patterson, 1982). They do not receive the consistent support they require to develop the capacity for emotional and behavioural regulation in addition to other developmental issues. For example, Pagani and colleagues (2006) conducted analyses on family dysfunction and children's adjustment. They found that both boys and girls living in dysfunctional families exhibited low prosocial behaviour, aggression, and depression problems; however, girls experienced more problems than boys related to dysfunction within the family context.

Children who develop in the context of dysfunctional families often develop aggressive behaviour problems as a function of ineffective parenting (Patterson, 1982).
In a study comparing highly aggressive girls to non-aggressive girls, Pepler and colleagues (2006b) linked aggression to health problems and found that highly aggressive girls were:

- 4.7 times more likely to experience physical health problems;
- 2.0 times more likely to experience eating problems;

- 1.8 to 3.3 times more likely to be anxious, have depressive symptoms, or low self esteem; and
- 1.3 times more likely to use substances.

The health problems found for aggressive girls were associated with the quality of relationships they had with their mothers. If aggressive girls had a positive relationship with their mothers, they were much less likely to experience these health problems (Pepler et al., 2006b).

Development of behaviours for physical health

Families that are not able to provide the stability and learning opportunities for the development of self-regulation may also fall short in providing the stable and consistent environments that teach regulated health behaviours as well (e.g., regular meals, oral health care). Therefore, in addition to the stress that aggressive children experience in their family and peer relationships, they may also lack important skills and health behaviours that are essential to healthy development (Pepler et al., 2006b).

Violence in the family

Because of the centrality of family relationships in children's lives, when they experience violence in the home, it undermines their healthy development. For example, Wolfe and colleagues (2003) conducted a meta-analysis of studies of children exposed to family violence and concluded that children exposed to violence between their parents consistently experienced more emotional and behavioural difficulties than those not exposed to inter-parental violence. If these children were also maltreated, the effects were even more marked.

There is also evidence that child maltreatment predicts a child's subsequent violence toward a dating partner. In a study of the links between family violence and dating aggression, Laporte and colleagues (2011) found different patterns for girls and boys. Although being victimized by parents was a significant risk factor for victimization within dating relationships, high-risk girls who had been victimized by either of their parents were at greater risk than boys for revictimization within their dating relationships. In addition, girls who hit their parents were at the highest risk for being aggressive with their dating partners. High-risk boys who reported childhood victimization were at a particularly high risk of

Are girls more sensitive to troubled relationships than boys?

- Girls experience more problems than boys related to dysfunction within the family context
- Girls who have been victimized by their parents are at greater risk than boys for revictimization in dating relationships
- Girls who were aggressive to their parents are most aggressive with dating partners
- Boys who have been harshly disciplined by fathers are at high risk for being aggressive with girlfriends

being aggressive toward their girlfriends, especially if they had been harshly disciplined by their fathers. The research revealed the reciprocal dynamics of aggression in relationships: the extent of aggression toward and from parents predicted aggression toward and from dating partners, with somewhat different effects for girls and boys.

Short-term effects of dysfunctional family relationships

In an analysis of health outcomes of children growing up in healthy and unhealthy families, Repetti, Taylor and Seeman (2002) pointed to the possibility that the primary harm inflicted by growing up in aggressive and unsupportive families may arise from children's development of dysregulated responses to stress. They suggest that the pathways to major chronic health concerns such as hypertension, cardiovascular disease, diabetes, and some cancers, may begin in the early years when the child's neurological and endocrine systems become dysregulated in response to living in a highly stressful environment. Substantial support for this process of dysregulation beginning early in the family and undermining healthy development is described more fully below.

It is important to consider the nature of parenting in a larger social context of well-being and stress. Families today, especially disadvantaged families, experience many stresses related to work demands, financial pressures, family status, and experience difficulties in being able to provide for the well-being of their children (Bradley & Corwyn, 2002, Raphael, 2010). Putnam recently highlighted the importance of the time and resources that parents have available for their children. He attributes the increasing equity gap between children from upper/middle- and lower-class families in part to the children's experiences in the family and community. Putnam (2012) argues that children from advantaged families are well connected in their families, where they receive a lot of attention and support, as well as in their communities. In contrast, children in disadvantaged families lack time with their parents and are increasingly disconnected from caring community organizations, such as schools and community groups. Putnam argues that these relationship connections with parents and others in the community provide important opportunities to children growing up in advantaged families that are just not available to those in disadvantaged families and this is what is widening the inequality gap among youth today. In a recent review, Raphael (2010) provided a Canadian perspective of income inequity and the well-being of Canada's children. He concluded that Canada has higher levels of income inequity than many other developed countries, which are reflected in poorer indicators of the health of Canada's children.

Long-term effects of dysfunctional family relationships

The impact of childhood experiences within the family on long-term health outcomes has been highlighted by the Adverse Childhood Experiences (ACES) study (Felitti et al., 1998; Felitti, 2004). This study assessed the health implications and risk behaviours associated with eight adverse childhood experiences, all of which may have been

related to strained relationships within the family. The eight adverse childhood experiences were:

- Psychological abuse
- Physical abuse
- Sexual abuse
- Violence against mother
- Living with household members who were substance abusers
- Living with household members who were mentally ill or suicidal
- Living with household members who were or had been in prison
- Both biological parents not present

> ... adverse childhood experiences are common and the cumulative effect of these experiences is linked to long-term health risk behaviours, chronic diseases often associated with death, and generally poor health status.

Felitti and colleagues found strong intercorrelations among the risk behaviours and health outcomes. Those adults who had experienced multiple adverse experiences during their childhood were at much greater risk for health problems. When compared to adults who had not reported any adverse childhood experiences, Felitti and colleagues found that adults who had reported four or more of these adverse childhood experiences had:

- 4 to 12 times higher increased risk for alcoholism, drug abuse, depression, and suicide attempts;
- 2 to 4 times higher risk for smoking, poor self-rated health, sexual intercourse partners, and sexually transmitted disease; and
- 1.4 to 1.6 times higher risk for physical inactivity and severe obesity.

There were similarly strong relationships between adverse childhood experiences and chronic diseases. When compared to adults who had not reported any adverse childhood experiences, Felitti and colleagues found that adults who had reported four or more of these adverse childhood experiences had:

- 1.6 to 3.9 times higher risk for diabetes, chronic bronchitis or emphysema;
- 1.6 to 2.3 times higher risk for skeletal fractures, hepatitis or jaundice, and poor self-rated health; and
- 1.9 and 2.4 times higher risk for cancer and stroke, respectively.

Felitti and colleagues have proposed a model of impaired development following exposure to adverse childhood circumstances. They propose that adverse childhood experiences “produce neurodevelopmental and emotional damage, and impair social and school performance” (Felitti, 2004, p. 8). Cognitive, social, and emotional impairment and living in stressful families leads individuals to adopt risky health behaviours (e.g., substance use). These in turn lead to disease, disability, and early death (see ACES website: http://www.cdc.gov/ace/index.htm).

Based on their findings, Felitti and colleagues call for primary, secondary and tertiary prevention efforts. They raise concerns about the challenge of primary prevention given the pervasiveness of adverse childhood experiences for children. They argue that

societal changes will be required to improve the quality of family environments for children in order to address this critical link between adverse childhood experiences in the family and health across the lifespan.

HBSC data on parent-child relationships and child health

The quality of the parent-child relationship, as reported by youth in the Canadian 2009-2010 HBSC study, relates significantly to all but one (birth control use) of the following measures of health: injuries, overweight/obese, overall health, healthy eating, physically active, high quality of life, psychosomatic symptoms, mental health well-being, behaviour problems, prosocial behaviour, bullying, victimization, delinquent friends, fighting, smoking, drinking alcohol, cannabis use, hard drug use, prescription drug use, sexual activity, helmet use, drinking and driving, and academic achievement. Full details of these findings are provided in Part II.

Summary

Two dimensions of parenting have been identified as important for child development: warmth and control. Children growing up in families in which they are consistently loved and guided within developmentally appropriate limits develop self-regulation, social skills, understanding and coping skills, which are the foundation of healthy development. In contrast, children growing up in families where relationships are strained, inconsistent, and stressful fail to develop the necessary prosocial skills and develop behavioural problems (e.g., aggression) and emotional problems (e.g., depression). For example, violence experienced by children within the family lays down patterns of violence in subsequent relationships. In addition, children growing up in dysfunctional families develop dysregulated responses to stress, which undermine healthy development. As well, there are long-term and significant detrimental health effects of growing up in adverse family relationship experiences.

The Importance of Peer Relationships to Health Outcomes

Involvement in bullying peers or being bullied by peers is linked to a range of poor health outcomes.

Peer relationships are important for children's well-being and development. Peer relationships provide children with developmental and social opportunities that are not available in children's relationships with adults (Scholte & Van Aken, 2006). A recent analysis of the Canadian HBSC data highlighted the association between having positive friendships and well-being (McCuaig & Craig, 2011). Young people who found it hard to talk to best friends about things that bothered them tended to have higher levels of emotional problems than young people who found it easier to talk to friends. This was especially true for girls. Bullying is the opposite of a healthy peer relationship – it is a destructive relationship. Children who bully learn to use power and aggression to control and distress others. Children who are persistently victimized become increasingly powerless and unable to defend themselves from this form of abuse at the hands of peers.

Children who are victimized

Research points to a strong association between involvement in bullying and significant health problems. Both children who bully and those who are victimized experience elevated levels of physical and mental health problems; those who are involved in both bullying and victimization experience the highest rates of problems (Craig, 1998; Kaltiala-Heino et al., 2000).

Victimization is highly distressing to children and youth. Emerging brain research reveals that the experiences of social rejection and pain share a common response in the somato-sensory and emotional areas of the brain. In other words, social rejection is experienced as hurting in a similar way to physical pain (Kross et al., 2011). With repeated experiences of the pain of social rejection through victimization, we would expect children to experience similar health problems to those associated with chronic stress.

In fact, chronically victimized children are at an increased risk for a range of psychosomatic and psychological health problems compared with non-victimized children. These include being:

- 1.3 to 3.4 times more likely to experience headaches and stomach aches (Due et al., 2005; Williams et al., 1996);
- 1.2 to 5.2 times more likely to experience difficulties sleeping and bedwetting (Due et al., 2005; Williams et al., 1996);
- 1.6 to 6.8 times more likely to report depressive symptoms (Due et al., 2005; Kaltiala-Heino et al., 2000; Williams et al., 1996).

Longitudinal research reveals that poor health symptoms emerge following involvement in bullying and may also contribute to further victimization (Fekkes et al., 2006).

Children who are aggressive and bully

Aggressive behaviour in children and adolescents is related to unhealthy behaviour patterns such as risk-taking and substance abuse. Early adolescents who bully others are almost five times more likely than their non-aggressive peers to report alcohol use (Pepler et al., 2001). Research has shown that alcohol serves as a gateway to the use of other illegal substances, such as marijuana and heroin (Loeber et al., 1998). Young adolescents who bully others are approximately seven times more likely than their peers to report using drugs (Pepler et al., 2001).

Physical aggression is a behaviour that children exhibit at a high rate around the age of two and three, which then gradually decreases (Tremblay et al., 2004). Girls and boys who persist in being physically aggressive in elementary school may have experienced a significant gap in their socialization, which may in turn put them at a disadvantage as they meet new developmental challenges in childhood, adolescence, and adulthood.

In the peer environment, a significant challenge for children with tendencies to be aggressive is that they are pushed away from peers who might have the capacity to promote and reward prosocial behaviours and they are drawn toward peers who may reinforce and encourage aggressive and other antisocial behaviours. Craig and Pepler's observational research reveals the salience of peers in bullying dynamics. Peers are present in 85% of bullying episodes, their attention to the children who are bullying serves as a strong reinforcer for aggressive behaviour, and when they join in bullying, the aggression and arousal of the child who initiated the bullying is exacerbated (Craig & Pepler, 1997; O'Connell et al., 1999). Children who maintain high levels of bullying over the course of elementary and high school associate with peers who are also involved in bullying (Pepler et al., 2008).

In schools, aggressive children tend to associate at the margins of their social groups; however, in our current systems of education, aggressive children are often put together in behavioural or remedial classes. The dangers of placing aggressive children together are highlighted in an issue of the *SRCD Social Policy Report* by Dodge, Dishion, and Lansford (2006). Dodge and colleagues noted that the processes through which deviant peers reinforce each other become one of the most potent risks for the development of antisocial behaviour. When children and youth who are aggressive are together, there are increased opportunities for reinforcement and modeling of problem behaviours. Dodge and colleagues caution that there are many practices within education and youth justice that place deviant peers together, which can reduce any potential effects of interventions in these settings. Rather than helping these youth who are at risk for a lifetime of social and health difficulties, these practices of aggregating aggressive youths

The practice of aggregating aggressive youths (e.g., in special classes) can lead to less positive and even negative outcomes, particularly if they are placed into contexts with poor adult supervision and structure.

can lead to increased behaviour problems.

LGBTQ youth

Youth who do not fit into the mainstream of the peer group whether due to a disability (e.g., autism) or some other difference (e.g., race, sexual orientation, socioeconomic disadvantage) are vulnerable to victimization because of their marginalization and lack of support from peers. The example of Lesbian-Gay-Bisexual-Transgendered-Queer (LGBTQ) youth is provided to illustrate the effects of this type of vulnerability on health and well-being.

Recent tragic suicides by homosexual youth have highlighted the unbearable stresses that these youth experience in their peer relationships. Taylor, Peter, and Paquin (2011) conducted the first national climate survey on homophobia in Canadian schools. Their findings reveal high levels of abuse that LGBTQ students experience at the hands of their peers:

- Most participants reported hearing homophobic language every day at school.
- Most LGBTQ students and some straight students reported being verbally harassed about their sexual identity or gender expression.
- Smaller but significant numbers reported being physically harassed or harassed through graffiti and mean rumours or lies spread in person or through electronic media.
- Transgender students reported the highest frequencies of exposure to homophobic language and direct victimization, followed by LGB students and then straight students (Taylor et al., 2011, p.66).

A positive finding that emerged from this otherwise sobering study was that LGBTQ students who were in a school with anti-homophobia policies were significantly more likely to report feeling attached to their school and less depressed about school than students whose schools did not have these protective policies. For example, students from schools with policies or procedures for reporting incidents of homophobia were more likely than those from schools without such policies to agree that:

- There is at least one adult they can talk to in their school,
- They felt like a real part of their school, and
- They were treated with as much respect as other students.

LGBTQ youths' experiences of being marginalized, bullied, and sexually harassed by peers are associated with health problems. In Canadian research by Williams and colleagues (2005), LGBTQ youth report higher levels of both depression and externalizing problems (e.g., aggression, delinquency) compared to their straight peers. These differences in mental health problems appear to arise from experiences of victimization and lack of support from family and peers, rather

... if LGBTQ youths were to have support from family and support rather than victimization from peers, they might suffer no higher levels of mental health problems on average than their heterosexual peers.

than from youths' sexual orientation. Another way of conceptualizing this set of findings is that if LGBTQ youths were to have support from family and support rather than victimization from peers, they might suffer no higher levels of mental health problems on average than their heterosexual peers (Williams et al, 2005).

Romantic relationships

Children who learn how power and aggression can be used to control and distress others, and who use this knowledge in the context of peer relationships, tend to begin with same-sex peers, then transfer this problem behaviour to opposite-sex peers, and then to dating partners (Pepler et al., 2006a).

In the same way that family and peer relationships influence development, the quality of romantic relationships also influences development . Research on heterosexual Canadian adolescents indicates a high rate of dating aggression: nearly a quarter of the adolescents surveyed reported that they had experienced aggression with a dating partner in the last six months, with little difference between boys and girls in reported rates (Connolly et al., 2010). These researchers found that youth from diverse ethnic backgrounds were at higher risk for dating aggression, suggesting that minority status is a marker variable for social environments that increase the risk of aggression between adolescents in a dating relationship.

Research on homosexual adolescent relationships indicates very similar rates of dating aggression as heterosexual adolescent relationships. In a study by Halpern et al. (2004), almost one-quarter of adolescents with same-sex romantic or sexual partners reported some type of violence from their same-sex partner; about 1 in 10 of the youths reported being physically victimized. Adolescent females were more likely to report victimization than adolescent males.

In an analysis of violent dating relationships, Chiodo and colleagues (2012) found that of the 29% of girls that reported being in a violent dating relationship,, 53% reported being in a mutually violent relationship (i.e., both the girl and her dating partner were aggressive to each other), 26% were only victimized, and 21% were only perpetrators. Girls who were in mutually violent relationships differed from those in non-violent relationships on a range of indicators of health and adjustment. For example, a third of the girls in mutually violent relationships had considered suicide, compared to 15% of girls in the non-violent relationships. Girls in mutually violent relationships were higher on delinquency, lower on condom use, and lower on connectedness to school and community than girls in non-violent relationships. There is evidence that both girls and boys who are involved in an aggressive romantic relationship have a range of emotional and behaviour problems that have a potentially strong and negative impact on health and well-being as youth move into adulthood (Wolfe et al., 2003).

HBSC data on peer relationships and child health

The quality of peer relationships, as reported by youth, relates to many measures in the domains of physical health, healthy life style, emotional health, and aggression. The following health outcomes were significantly related to the quality of relationships with peers: overweight/obese, overall health, healthy eating, physically active, high quality of life, psychosomatic symptoms, mental health well-being, prosocial behaviour, bullying, victimization, cannabis use, and academic achievement. Full details of these findings are provided in Part II.

... both girls and boys who are involved in an aggressive romantic relationship have a range of emotional and behaviour problems that have a potentially strong and negative impact on health and well-being as youth move into adulthood.

Summary

Peer relationships influence developmental and social behaviours in ways that adult-child relationships do not. For example, bullying is a peer relationship that impacts negatively on the well-being of both the children who are being victimized and those who bully. Victimized children experience a range of psychosomatic difficulties that appear to be related to the chronic stress that they experience. Children who are aggressive and those who bully not only lag behind non-aggressive children in their social development, but they tend to associate with others peers that are similar to themselves, and take on a range of risky health behaviours. In aggressive romantic relationships with youth, the youth are not only at risk for psychological and physical injury, but they are also more likely to engage in a range of risky health behaviours. Canadian HSBC data supports these types of links between the quality of peer relationships and adolescents' physical, emotional, and behavioural health.

The Importance of School Relationships to Health Outcomes

Youths' connectedness to school refers to their sense that they matter and belong in the school and that the adults in the school know and care about them. Schools that provide a safe, inclusive climate have youth who feel connected to their schools. Those who are connected, compared to those youth who do not feel connected, have more positive mental health. In a landmark study on protecting adolescents from harm, Resnick and colleagues (1997) found that school connectedness was protective for all the health outcomes that were measured in the United States of America National Longitudinal Study of Adolescent Health. Recent Canadian data provide the same picture (Klinger, Mills, & Chapman, 2012). In addition, the level of educational attainment is also linked to positive health outcomes; therefore, keeping youth in school is a strong health promotion strategy.

Drop-out rates

In a study of early school leavers in Ontario, Ferguson and colleagues (2005) found that the process of disengagement from school is generally protracted and multi-faceted. Relationships, however, figured prominently in students' perceptions why they had dropped out of school. Many youths reported that they received both direct and indirect messages from principals, vice-principals, teachers guidance counselors indicating to them that they were wanted in the school system. Relationships with other students also contributed to the process of disengagement from school. According to Ferguson colleagues, "young people described troubled school cultures due to severe and ongoing bullying and violence. When these issues were not clearly and swiftly addressed, students began the process of skipping school, detentions, suspensions and early leaving (2005, p. 27)". Relationships were also part of the protective processes that kept youth engaged with school including caring and supportive teachers and caring, flexible, and proactive school climates.

... school connectedness was protective for all the health outcomes ... keeping youth in school is a strong health promotion strategy.

Bullying and school violence

The supportive function of healthy relationships in British Columbia schools was illustrated in a recent paper by Danbrook, Hymel, and Waterhouse (2012). They assessed the associations between fear and physical aggression and weapon carrying among victimized students and examined whether positive relationships helped to address these issues for victimized students. They tested three aspects of school climate: school involvement, perceived peer support and perceived adult support. They found that perceived peer and adult support, but not school involvement, moderated the relationship between victimization and school violence. Specifically, they found that highly victimized students were more likely to engage in physical violence as their

perceived levels of peer and adult support at school diminished. With regard to weapon carrying, highly victimized students were also more likely to bring weapons to school as perceived peer support decreased, whereas low victimized students were less likely to bring weapons to school the more they felt supported by adults at school. They concluded that support from both adults and peers in the school context appeared to mitigate the link between victimization and school violence. For marginalized and victimized students, high quality school relationships can reduce the likelihood of high-risk behaviours, including the use of physical aggression and carrying weapons to protect themselves from the ongoing abuse of their peers.

HBSC data on teacher-child relationships and child health

The quality of the teacher-child relationship, as reported by youth, relates significantly to six outcome variables including: healthy eating, high quality of life, mental health well-being, prosocial behaviour, cannabis use, and academic achievement. Full details of these findings are provided in Part II.

Summary

Schools are a significant part of children and youths' lives, playing a particularly important role in learning and development. The quality of relationships with both peers and adults in the school environment has been shown to be associated with their well-being. Positive relationships at school can be protective: youth who are connected to school are more likely to stay in school, less likely to be involved in violent relationships, and more likely to have better outcomes in many aspects of health and well-being relative to those who are not connected to school. Students who have negative experiences at school, in which they do not feel safe and connected are more likely to be increasingly absent from school and are more likely to engage in high-risk behaviours, such as aggression.

The Importance of the Neighbourhood Context to Health Outcomes

Neighbourhoods, the areas in which children live and go to school, can support children's sense of security and belonging and provide a basis for healthy development when the relationships within the neighbourhood are positive. Conversely, in negative, violent and stressful neighbourhoods with poor quality relationships, children may experience a range of health problems (Pickett, Janssen, & Rosu, 2011). The impact of neighbourhood or community contexts is less readily identified than the more proximal effects of family, peers, and school relationships. When neighbourhood effects are evident, these likely operate because of the healthy or unhealthy relationships that youths have with peers and mentors in their communities.

Bullying

With national data from Colombia, Chaux and colleagues (2009) were able to conduct the first study linking community and school factors to the rates of bullying and victimization. They examined socio-economic, socio-political and social-emotional factors related to the prevalence of bullying among 1,000 schools in Colombia and found associations at both the school and community levels. When there were more males in a school, lower levels of empathy among students, more authoritarian (high control/low warmth) and violent families, and higher levels of community violence, among other variables, there was more bullying among the students.

Violence

Sampson, Raudenbush, & Earl (1997) conducted a seminal study of neighbourhood characteristics and levels of violence. Moving beyond research that showed strong links between levels of poverty and crime, they focused on the collective efficacy of neighbourhoods, which they described as "the capacity of residents to control group level processes and visible signs of social disorder …a key mechanism influencing opportunities for interpersonal crime in a neighborhood "(1997, p. 918). They provided examples of informal social control including: " monitoring of spontaneous play groups among children, a willingness to intervene to prevent acts such as truancy and street-corner "hanging" by teenage peer groups, and the confrontation of persons who are exploiting or disturbing public space " (1997, p. 918). They found that the links between neighbourhood disadvantage and violence can be explained by the level of collective efficacy in the neighbourhood.

Mental health

A similar analysis of neighbourhood effects was conducted by Xue and colleagues (2005), who examined variations in mental health problems by neighbourhood. They found that the prevalence of mental health problems of elementary school children varied by the socioeconomic status of the neighbourhood. In low, middle, and high income neighbourhoods, 21.5%, 18.3%, and 11.5% of children, respectively, had mental health problems in the clinical range. As with the Sampson et al. (1997) study, neighbourhood collective efficacy and organizational participation were associated with better mental health. They raised concerns that a large proportion of children in disadvantaged neighbourhoods experience mental health problems. Their findings suggest that the mechanism that accounts for the effects of neighbourhood socioeconomic levels on children's mental health was community social control and cohesion.

...the mechanism that accounts for the effects of neighbourhood socioeconomic levels on children's mental health was community social control and cohesion.

HBSC data on neighbourhood relationships and child health

The quality of the neighbourhood relationship, as reported by youth, relates significantly to 11 of 24 health outcomes in most of the domains including: injuries, healthy eating, physically active, high quality of life, psychosomatic symptoms, mental health well-being, behaviour problems, prosocial behaviour, helmet use, drinking and driving, and academic achievement. Full details of these findings are provided in Part II.

Summary

In summary, these studies of children's well-being in diverse neighbourhoods suggest that the dimensions of neighbourhood that appear to support children's positive development are similar to the dimensions of parenting that are required for healthy child development: warmth and control (Baumrind, 1991).

The Importance of Social Media and Electronic Social Networking to Health Outcomes

The world that children and youth are growing up in has changed over the past decade, resulting in a potential shift in the balance of socializing influences in their lives. With social networking, children and youth can be connected to their peers 24 hours a day, seven days a week. The home is no longer an insulated and ideally secure base for children and youth immersed in the 21st century culture of connectivity. In the 2010 HSBC report (Currie et al., 2012), connecting with friends through electronic media was increasingly prevalent with age and girls were more connected than boys. The rates of daily electronic media contact with friends for Canadian youth was:

- 32% of girls and 22% of boys among 11 year olds,
- 55% of girls and 35% of boys among 13 year olds, and
- 67% of girls and 49% of boys among 15 year olds.

Social media

There are many advantages to social networking for children and youth (Blais et al., 2008); however, there are also physical, mental and social health risks associated with being immersed in this modern culture. Huesmann and Taylor (2006) conducted a review of media effects and concluded that the impact of the mass media during the elementary school years lasts through adolescence and into adulthood. They provide evidence that children learn about aggressive behaviours and develop positive attitudes about aggression from their exposure to many forms of media. They also develop gender and racial stereotypes which shape their behaviours and judgements. The effects of exposure to the media are related in complex ways to healthy development, sometimes for the better and sometimes for the worse.

The effects of exposure to the media are related in complex ways to healthy development, sometimes for the better and sometimes for the worse.

Gaming and correspondence

In a study of adolescents, Blais, Craig, Pepler & Connolly (2008) examined whether using the Internet for general entertainment or participating in online gaming predicted changes in the youths' quality of relationships with best friends and romantic partners. They found that the preferred Internet activity of adolescents influenced later best friendships and romantic relationship quality. Using the Internet to play games and for general entertainment predicted decreases in relationship quality with best friends and with romantic partners. Similarly, visiting chat rooms was negatively related to best friendship quality. On the other hand, using instant messaging (ICQ) was positively associated with most aspects of romantic relationship and best friendship quality. They conclude that these findings reflect the important and complex functions of online socialization for the development and maintenance of relationships in adolescence.

Bullying

Electronic bullying has become a critical issue with youth being connected continually to their peers through the Internet and/or text messaging. In the 2010 HSBC data, the rates of victimization through electronic means were fairly consistent across age. For girls, the rates ranged from 17 to 19%; for boys they started a bit lower in Grades 6 at 11% and rose steadily to 19% in Grade 10, match the rates for girls (Craig, 2011).

A recent report from the Pew Research Center (Lenhart et al., 2011) highlights the extent to which teens are immersed in social networking and their experiences within these online interactions. They found that 95% of all youth aged 12-17 are online and 80% of online youth use social media sites (e.g., facebook). On balance their experiences of online interactions are generally positive: 69% of youths who used social media indicated that their peers were “mostly kind to one another”; 20% indicated that their peers are “mostly unkind”, and 11% indicated that “it depends”.

The experience of stress can occur whether it is a direct experience of victimization or by being a witness to victimization. In the Pew study, Lenhart and colleagues found that 88% of youths who used social media indicated that they had witnessed other people be mean or cruel on social network sites. There is considerable work to be done to ensure that children and youth are respectful and safe both on and off-line.

Aggression

In a study of romantic relationships, Connolly and colleagues (2010) studied media as a potential channel for learning about social values and norms about relationships. They found a link between adolescents’ preferences for aggressive media content and aggressive interactions with a romantic partner. Aggressive media use was associated with involvement in dating aggression for both genders. Connolly and colleagues found the link appears to be mediated by violence-tolerant attitudes, meaning that the media exerts its effects by changing adolescents’ attitudes to be more tolerant of aggression and this, in turn, influences the dating couples’ likelihood of acting aggressively.

HBSC data on electronic relationships and child health

Electronic bullying has become a critical issue with youth being connected continually to their peers through the Internet and/or text messaging. In the 2010 HSBC data, the rates of victimization through electronic means were fairly consistent across age. For girls, the rates ranged from 17 to 19%; for boys they started a bit lower in Grades 6 at 11% and rose steadily to 19% in Grade 10, match the rates for girls. (Craig, 2011).

Summary

In summary, social media and electronic social networking are now a prevalent part of youths’ lives and can have a positive or a negative effect on their behaviours and

attitudes that can extend into adulthood. Various forms of electronic interactions have been found to be influential on attitudes, romantic and friend relationships, bullying and other forms of aggression. Therefore, it is important to develop and assess the effectiveness of prevention and intervention programs related to electronic media and electronic social networking use.

Part II - Health and Healthy Relationships in the Canadian Context

Analyses from the Health Behaviour in School-Aged Children (HBSC) Survey

The literature review in Part I of this report highlights the importance of relationships to physical, social, psychological, behavioural, and academic health. However, few studies have comprehensively examined parent, peer, teacher, school, and neighbourhood relationships in a single research project using a large sample size.

The Canadian Health Behaviour in School-Aged Children (HBSC) survey, conducted with children in grades 6 through 10, provides a unique data set to conduct a comprehensive analysis and provides the opportunity to investigate results in a Canadian context. The HBSC study is a school-based survey conducted every four years in over 40 countries in partnership with the WHO Regional Office for Europe. Funded primarily by PHAC, the Canadian component is administered by a research team at Queen's University and is a key source of information on the health attitudes and behaviours of young people.

Detailed information regarding the survey and data collection methods can be found at www.hbsc.org.

The primary goals of this study were to:

1. Develop relationships scales by conducting psychometric analyses.
2. Assess the extent to which the health of children is associated with the quality of their relationships with parents, teachers, peers, school, and neighbourhood.

Method

Data collection

Data were collected using the 2009-10 Canadian Health Behaviour in School-Aged Children (HBSC) survey. The 2009-10 survey was a comprehensive questionnaire with 24 health and well-being outcomes, representing diverse domains of physical health, emotional health, positive behaviours, aggression, substance use, risky behaviour, and academic achievement. The questionnaire also asked about relationships with parents, teachers, peers, school, and the neighbourhood. These questions formed the basis of the relationship scales.

There were two versions of the questions: one for students in grades 6-8 and another for students in grades 9 and 10. Parental consent was obtained from children under the age of 18 prior to collecting data.

Participant Sample

The 2009-10 HBSC sample includes 436 Canadian elementary and high schools. Schools were selected using a weighted probability technique to ensure that different regions and demographics were represented. Classes within schools were chosen by a similar technique to ensure that students were equally likely to participate.

Participants in the 2009-10 Canadian HBSC study were 23,193 students in grades 6 to 10 from across the country. The sample was approximately 48% male, with an average age of 13 years, 10 months; 27% of students lived in single-parent households. With respect to race, 72% of the respondents identified themselves as White or of Western European decent, 6% identified as North American Aboriginal (Métis, Inuit, Dene, First Nations), 6% identified as East or South East Asian, 3% identified as South Asian, and 13% identified as either Black, Hispanic, Middle Eastern, mixed race, or other race. Participants lived in 436 communities where average household income was $68,409, with an average of 62% of the working age population employed (employment-to-population ratio).

Measures

Factor analyses were run using the Statistical Package for the Social Sciences (SPSS) software program to ensure that all relationship and outcome scales had items that assessed a common underlying construct (see Appendix A for full details).

Relationship Scales.

Five relationship scales were identified to represent the significant relationships over the adolescent period of development. The relationship scales developed included the following relationships:

1. parent,
2. teacher,
3. peer,
4. school, and
5. neighbourhood.

The measures for each scale were based on relevant questions in the HBSC survey. For example, questions about parents were part of the Parent Scale. High quality is defined by high scores. Any item on the relationship scales that asked about a negative quality was reversed scored so that all high scores on relationship scales indicated higher quality of relationships. Below, each of the scales is described along with the percentage of children at each grade level by gender in the group with high relationship quality.

To present the results of the analyses in a meaningful way, the participants were grouped into three categories for each scale based on their responses to questions within the scale items indicating:

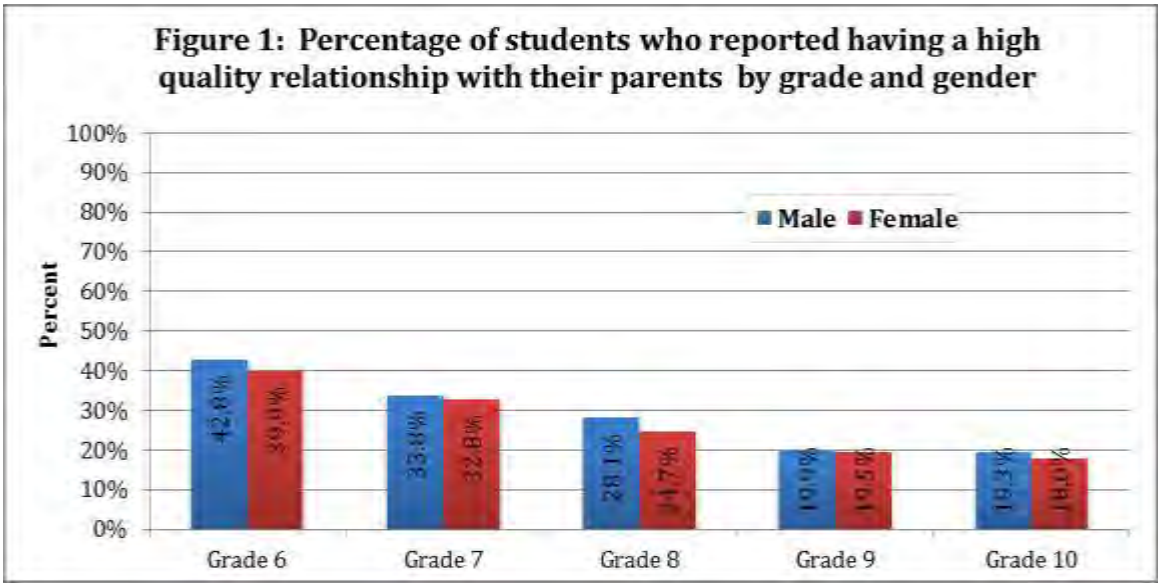
- low,
- medium and
- high relationship quality (also described as a positive relationship).

1. *Parent Relationships.* The Parent Relationship Scale consists of six items (see Table 1) with an internal reliability of 0.78.

Table 1: Parent Relationship Scale Items

Parent Relationship Scale Items
My parents understand me
My parents expect too much of me *(reversed scoring)*
My parents trust me
I have a lot of arguments with my parents (*reversed scoring*)
I disobey my parents (*reversed scoring*)
Have your parents treated you fairly

Figure 1 shows the shows the percentages of students in the group of students who reported having a 'positive relationship with their parents by grade and gender. From this figure, it is evident that there is a higher percentage of boys who report having a high quality relationship with their parents than girls. Further, the percentage of both boys and girls who report having high relationship quality with parents decreases with age.

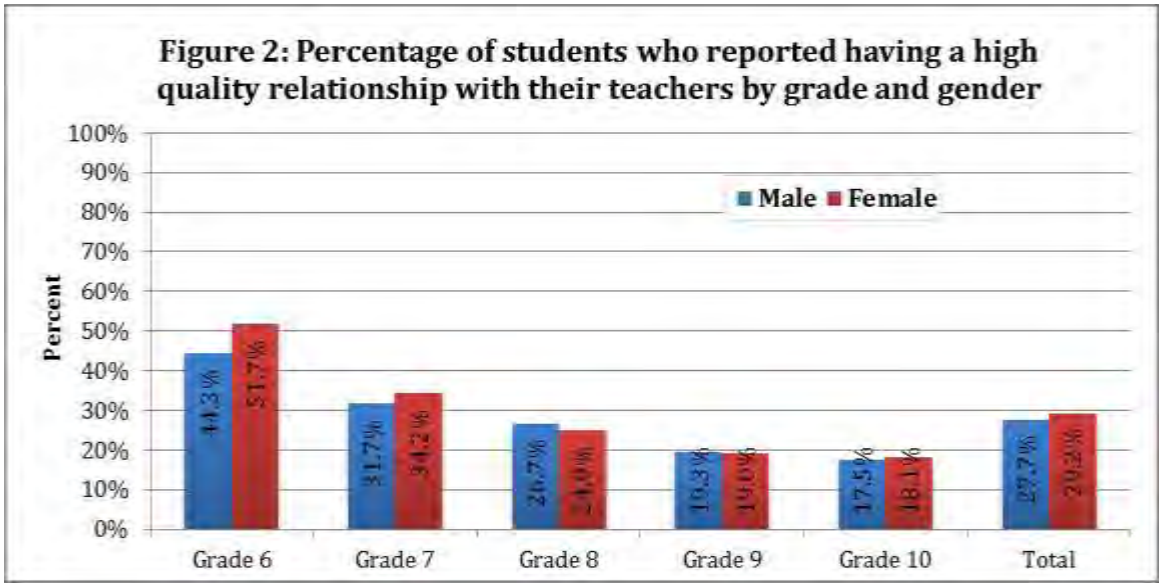


2. *Teacher Relationships.* The Teacher Relationship Scale consists of five items (see Table 2) with a reliability of 0.86.

Table 2: Teacher Relationship Scale Items

Teacher Relationship Items
I feel that my teachers care about me as a person.
I feel that my teachers accept me as I am.
I feel a lot of trust in my teachers.
My teachers are interested in me as a student.
My teachers listen to how I would like to do things.

Figure 2 shows the percentages of students in the top third who reported having a positive relationship with their teachers by grade and gender for the Teacher Relationship Scale. From this figure, it is evident that, the percentage of both boys and girls that report having a high quality relationship with teachers decreases from grade 6 to 9, but increases again in grade 10. In high school, typically, there are many teachers, as opposed to in elementary school, there is one teacher. This difference may explain in part the drop in the percentage of students who report having a high quality relationship with their teachers.

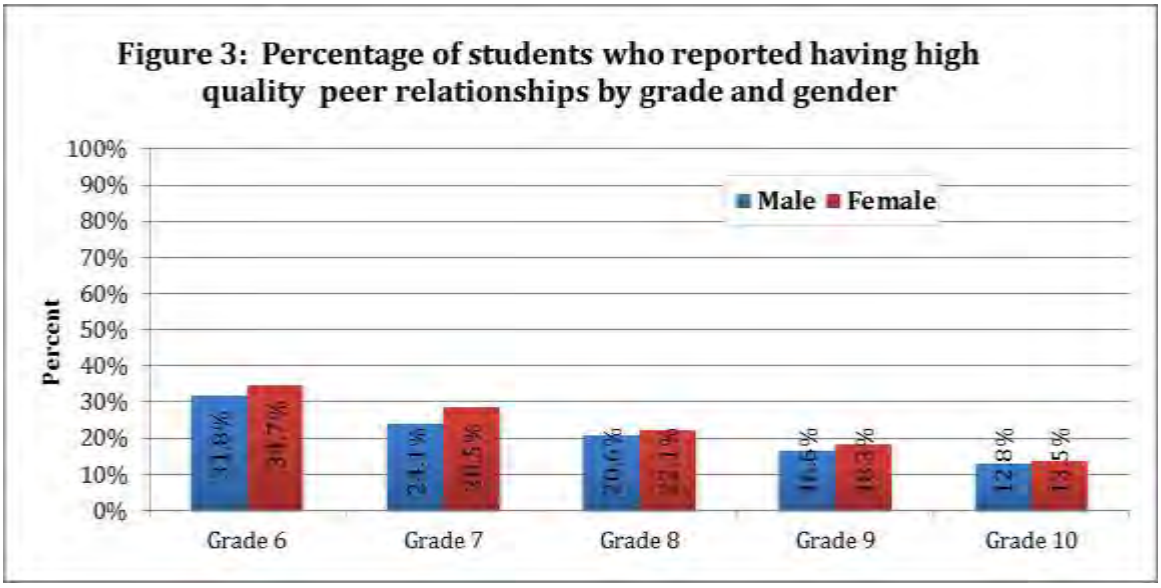


3. *Peer Relationships.* The Peer Relationship Scale consists of five items (see Table 3) with a reliability of 0.82.

Table 3: Peer Relationship Scale Items

Peer Relationship Items
The students in my class enjoy being together
Most of the students in my class are kind and helpful
Other students accept me as I am
When a student in my class is feeling down, someone else in class tries to help
The students in my class treat each other with respect

Figure 3 shows the percentages of students in the top third who reported having a positive relationship with their peers by grade and gender for the Peer Relationship Scale. From this figure, it is evident that, the percentage of both boys and girls that report having a positive relationship with peers decreases from grade 6 to 10. Girls, with the exception of those in grade 10 report higher percentages of having positive peer relationships than boys.

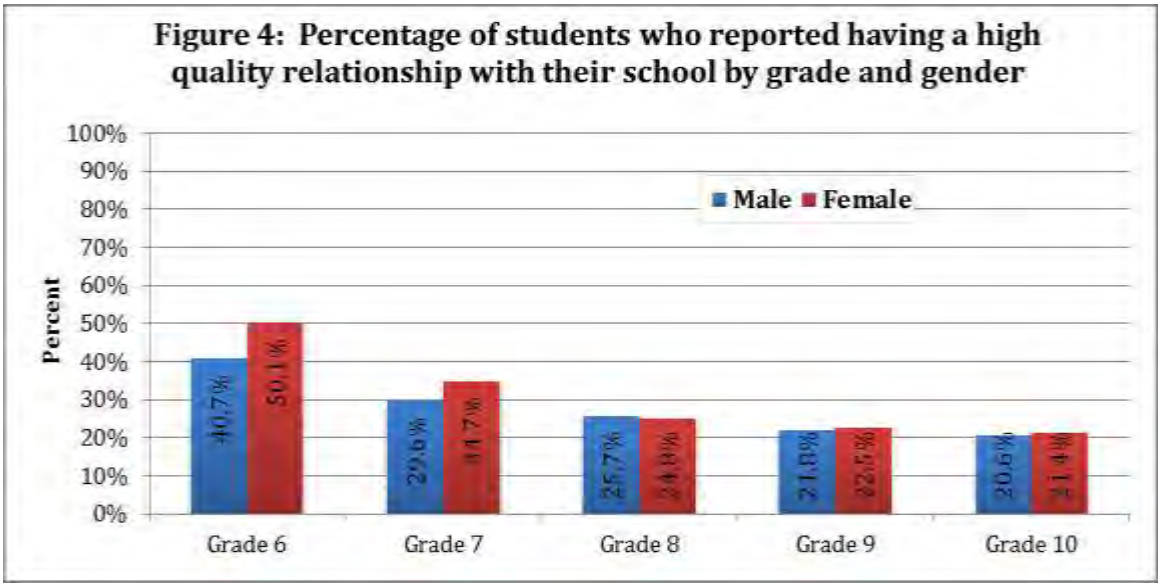


4. *School Relationships*. The School Relationship Scale consists of three items (see Table 4) with a reliability of 0.77.

Table 4: School Relationship Scale Items

School Relationship Items
The rules in this school are fair
Our school is a nice place to be
I feel I belong at this school

Figure 4 shows the percentages of students in the top third who reported having a positive relationship with their school by grade and gender for the School Relationship Scale. From this figure, it is evident that, the percentage of both boys and girls that report having a positive relationship with school decreases from grade 6 to 10. Girls in grades 5 and 6 reported higher percentages of having positive school relationships than boys.

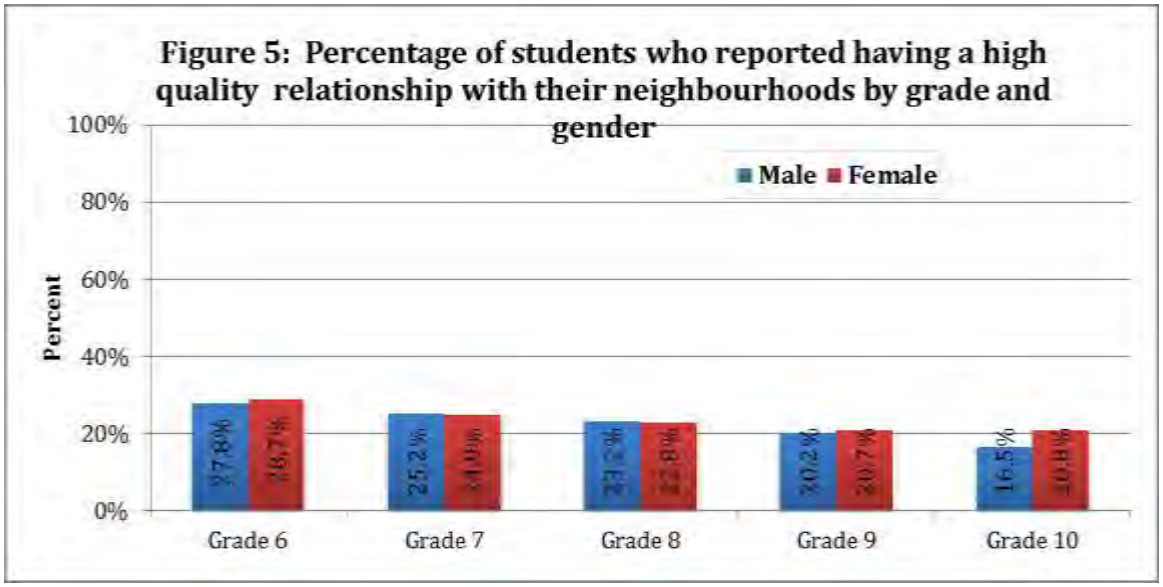


5. Neighbourhood Relationships. The Neighbourhood Relationship Scale consists of three items (see Table 5) with a reliability of 0.68.

Table 5: Neighbourhood Relationship Scale Items

Neighbourhood Relationship Items
People say 'hello' and often stop to talk to each other in the street
You can trust people around here
I could ask for help or a favour from neighbours

Figure 5 shows the percentages of students in the top third who reported having a positive relationship with their neighbourhoods by grade and gender for the Neighbourhood Relationship Scale. From this figure, it is evident that, the percentage of both boys and girls that report having a positive relationship with school decreases from grade 6 to 9. In grade 10, a higher percentage of girls report a high quality of relationship with their neighbourhood than boys.



Outcome Scales.

The 24 outcomes represented 8 domains (which are listed below). The specific outcomes assessed for each domain are listed in brackets.

1. Physical Health (injuries, body mass index, overall health)
2. Healthy Lifestyle (healthy eating, physical activity)
3. Emotional Health (quality of life, psychosomatic symptoms, and mental health well-being)
4. Positive Behaviours (prosocial behaviour, problem behaviour)
5. Aggression (bullying, victimization, delinquent friends, and fighting),
6. Substance Use (smoking, alcohol use, cannabis use, hard drug use, use of prescription drugs)
7. Risky Behaviours (sexual activity, birth control use, helmet use, and drinking and driving)
8. Academic Achievement.

For the analyses, all outcomes were presented as binary data and labeled as a 'Base Outcome' or a 'Comparison Outcome'. Table 6 indicates how the 8 domains were formed for each of the 24 outcomes.

Table 6: Defining the Binary Outcomes

Outcomes	Base Outcome	Comparison Outcome
Physical Heath		
Few Injuries	Not Injured	Injured
Body Mass Index	Healthy Weight	Overweight/obese
Overall Health	*Poor health*	*Good/Excellent health*
Healthy Life Style		
Healthy Eating	*Low*	*High Healthy Eating*
Physical Activity	Low	*Physically Active*
Emotional Health		
Quality of Life	*Low quality*	*High Quality Of Life*
Psychosomatic Symptoms	*High Symptoms*	*Low Psychosomatic Symptoms*
Mental Health Well-being	*Low*	*Mental Health Well-Being*
Behaviours		
Behaviour Problems	Low	High Problem Behaviour
Prosocial behaviour	*Low*	*High Prosocial Behaviour*
Aggression		
Bullying	No bullying	Bullying
Victimization	No victimization	Victimization
Fighting	No fighting	Fights
Delinquent Friends	No	Has Delinquent Friends
Substance Use		
Smoking	No smoking	Yes Smokes
Drinking Alcohol	No	Yes drinks alcohol
Cannabis Use	No	Use Cannabis
Hard Drug Use	No use	Use Hard Drugs
Prescription Drug Use		Use Prescription Drugs
Risky Behaviour		
Sexual Activity	No	Yes Sexually Active
Birth Control Use	*No use*	*Uses Birth Control*
Use Helmet	*No*	*Yes Helmet Use*
Drinking and Driving	No	Yes Drinks and Drives
Academic Achievement		
Achievement	*Low*	*High Achievement*

- Note in italics are the positive outcomes and the other represent negative outcomes.

Analysis Approach

The logistical regression approach was used in these analyses. Each logistic regression examined the potential link between relationship variables as independent predictors and specific health outcome indicators as dependent variables, while stratifying by gender and age. In addition, the interactions for each relationship with age and gender were tested. Coefficients from each model are used to produce prevalence estimates for the relationship indicators in relationship to each health outcome. For each analysis, tests were run controlling for each of the other relationships to examine the unique effects of each relationship for each outcomes. Formal tests of statistical significance are not presented, although because of the robust nature of the sample, all noted associations achieve significance by conventional statistical standards.

Results

This paper began with a brief conceptual perspective on the role that relationships play in shaping a child's healthy development and how the quality of relationships with family, school, peers and neighbourhood specifically influence health and development.

In this section are results of a comprehensive analyses of the Canadian HSBC data to assess links between diverse aspects of children's healthy development and the quality of relationships with parents, teachers, peers, school, and in the neighbourhood within the Canadian context.

Only significant results are reported below. We present exemplar graphs of significant findings.

Physical Health Domain

1. *Injury*

There was a significant association between being injured and the quality of relationships with parents and in the neighbourhood, whereby having healthier relationships were related to fewer injuries. (See Figures 6 and 7).

Figure 6 depicts that 52.0% of boys and 46.5% of girls who had a negative relationship with their parents reported physical injuries requiring hospitalization. In contrast, 43.9% of boys and 35.6% of girls who reported having a positive relationship with their parents reported being injured in the past 12 months. In addition, the quality of students' relationships with their parents and the risk for injury was more strongly related for boys than girls.

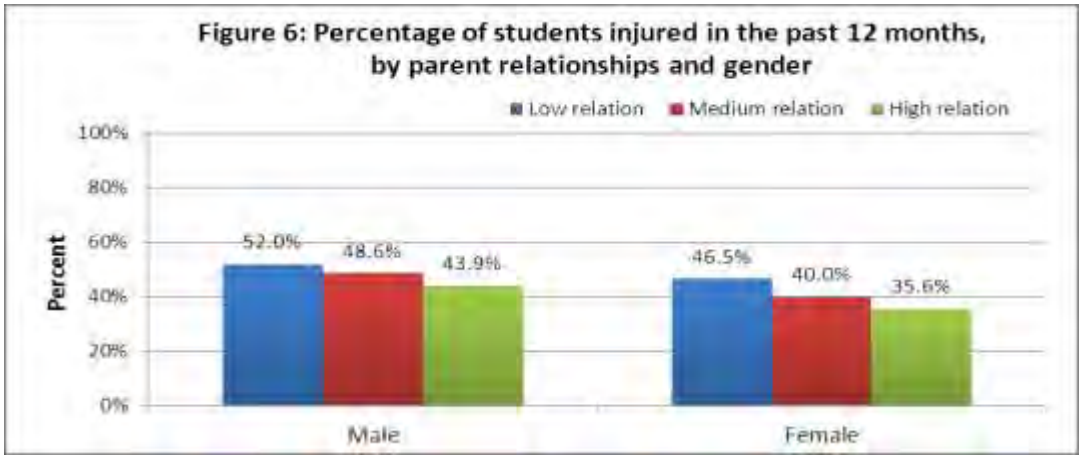
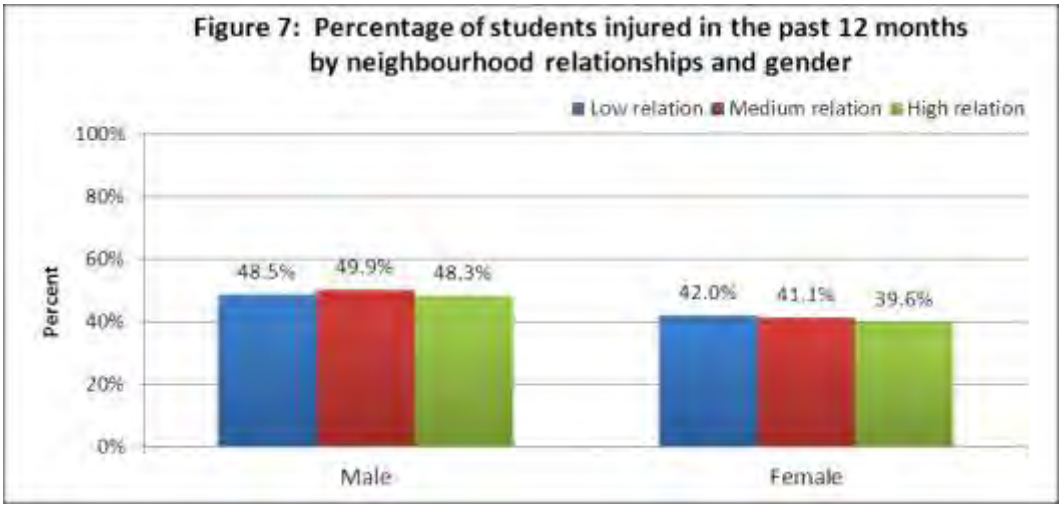
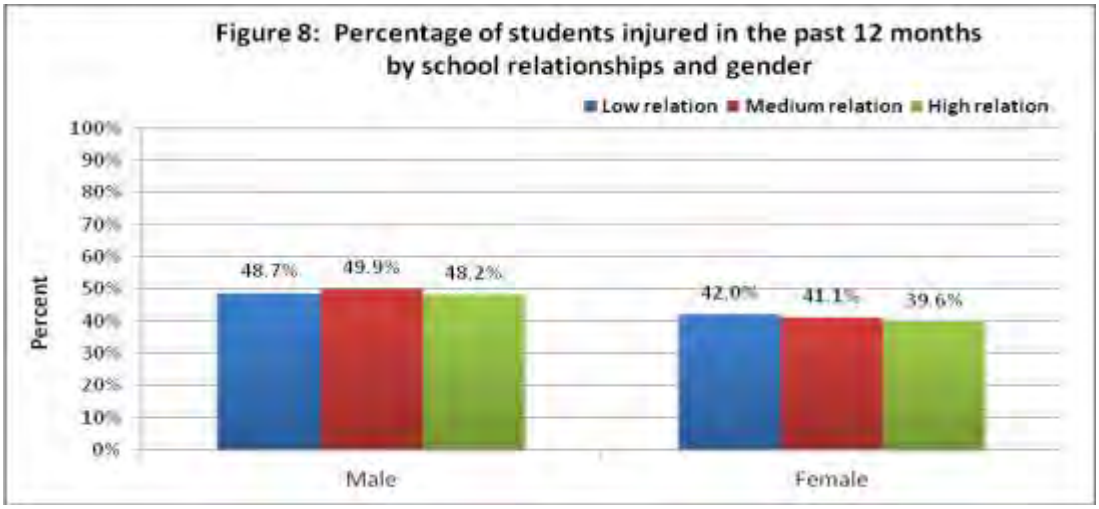


Figure 7 depicts that having a positive relationships in the neighbourhood reduces the likelihood of experiencing an injury in the past 12 months for both boys and girls. The quality of the relationships in the neighbourhood was more likely to increase the risk for injury for boys compared to girls.



In addition, for girls, but not boys, having positive relationships at school was related to fewer injuries. See Figure 8.



2. *Body Mass Index*

There was a significant association between being overweight or obese and the quality of relationships with peers, whereby having positive relationships was related to decreased likelihood of being overweight or obese (See Figure 9).

Figure 9 depicts that 14.9% of boys and 12.0% of girls who had a negative relationship with their peers reported being overweight or obese. In contrast, 12.6% of boys and 10.5% of girls who reported having a positive relationship with their peers reported being overweight or obese. Also, in general, the quality of relationships with peers was more strongly related to the risk of being overweight or obese for boys compared to girls.

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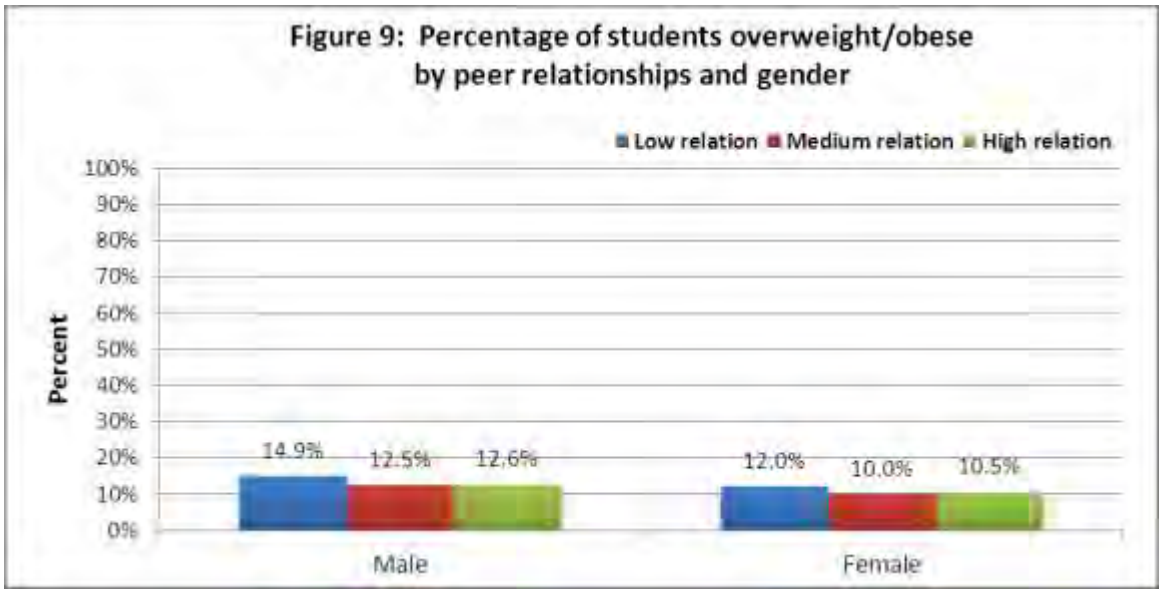
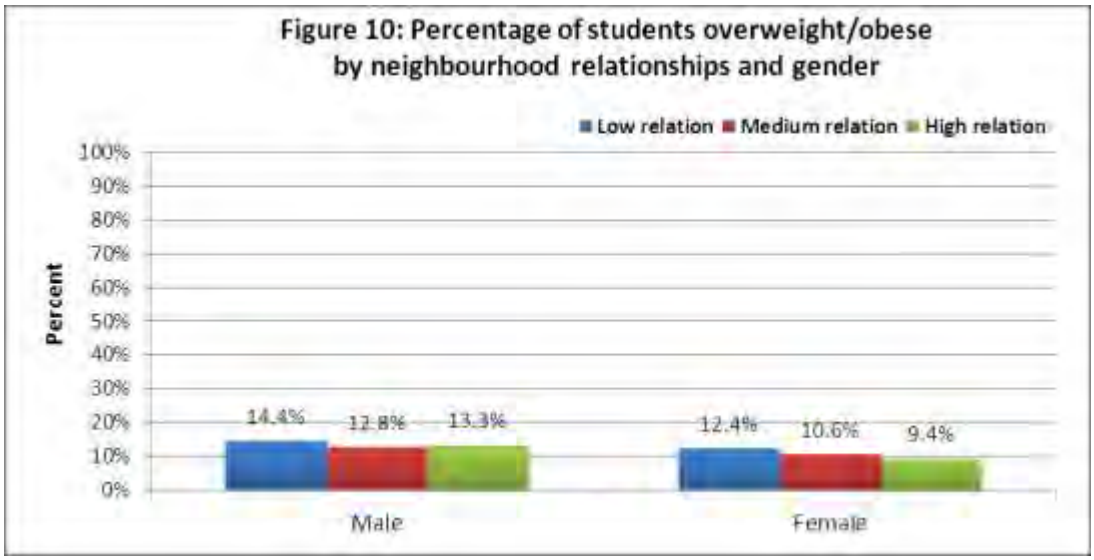


In addition, the quality of relationship with parents, school, and neighbourhood in general was more likely to be associated with boys being overweight or obese than girls. Due to space limitation, only some figures are presented. Figure 10 depicts this relationship for the quality of relationships with the neighbourhood, as an example.



3. Overall Health

There was a significant association between positive overall health and the quality of relationships with parents and peers, whereby having healthier relationships was related to increased likelihood of good or excellent health (See Figures 11 and 12).

Figure 11 depicts that 84.5% of boys and 76.4% of girls who had a negative relationship with their parents reported having good or excellent health. In contrast, 88.7% of boys and 85.9% of girls who reported having a positive relationship with their parents, reported having good or excellent health. In addition, the effect of quality of parent relationship on overall health was greater for girls than boys.

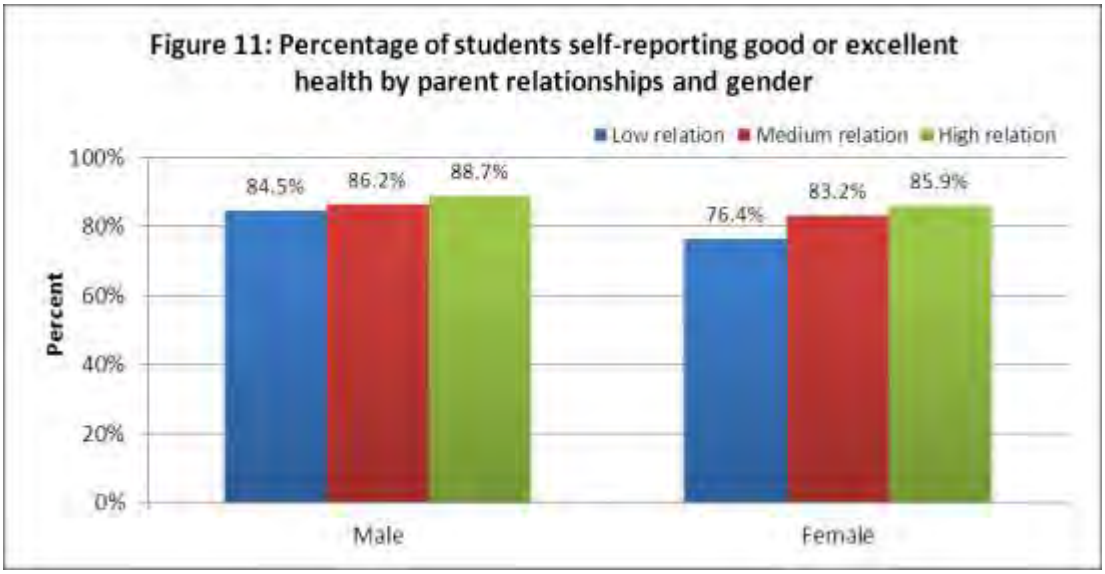
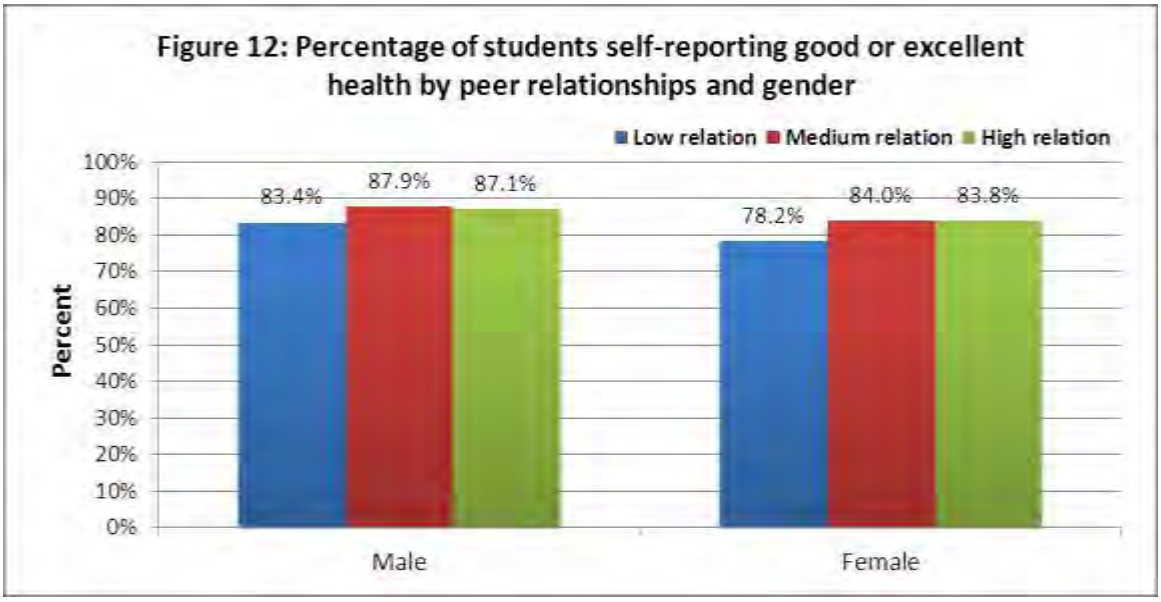
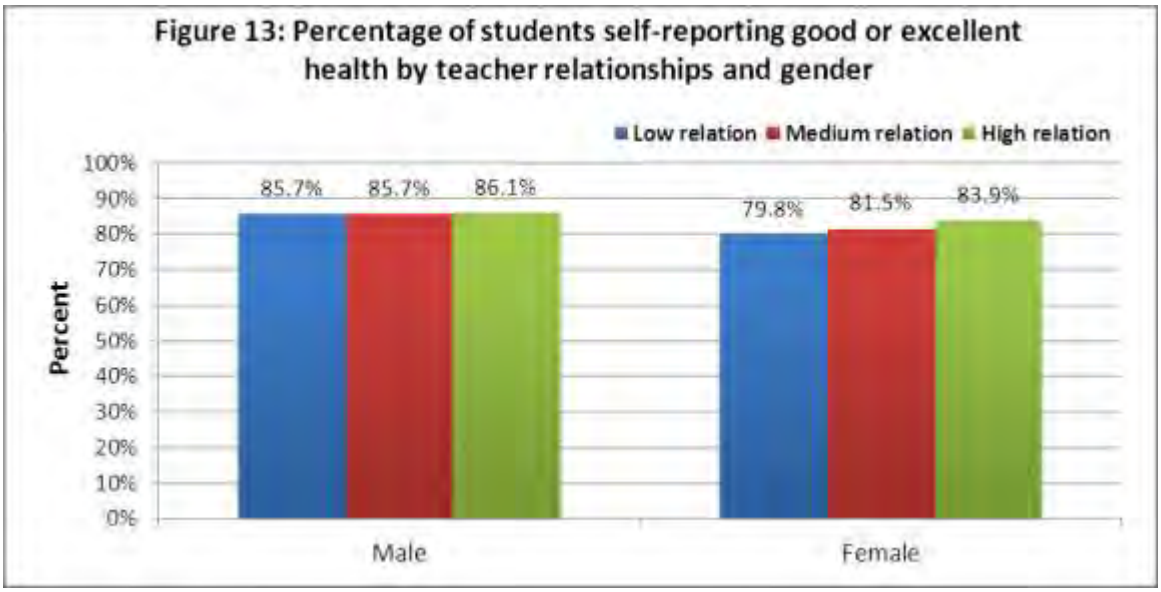


Figure 12 depicts that 83.4% of boys and 78.2% of girls who had a negative relationship with their peers reported having good or excellent health. In contrast, 87.1% of boys and 83.8% of girls who reported having a positive relationship with their peers reported having good or excellent health. In addition, the overall effect of the quality of relationship with peers was greater for boys than girls on general health.

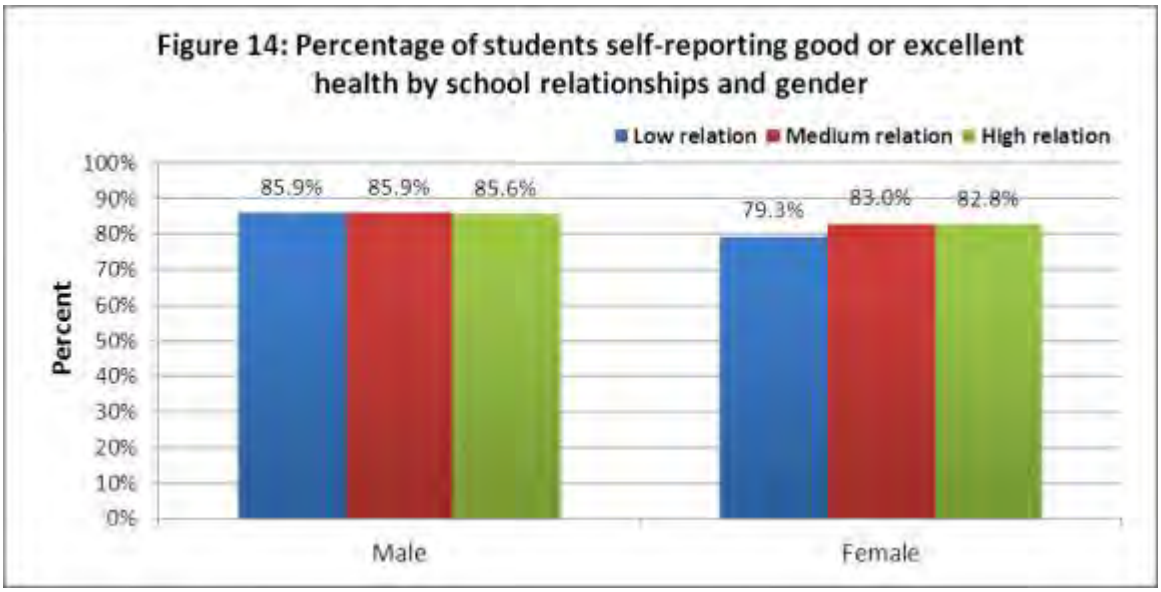


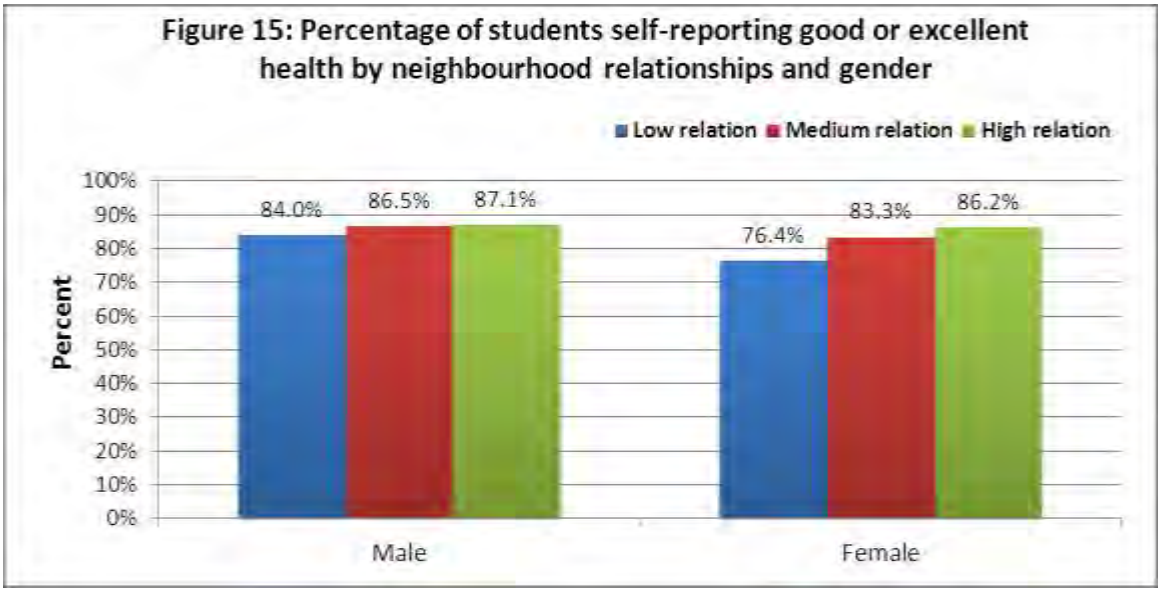
In addition, there were significant interactions with teacher, school, and neighbourhood relationships and gender. For girls, poor relationships with teachers, peers, and neighbourhood were more likely to be associated with poor health for girls than for boys. For example, 79.8% of girls with negative relationships with teachers reported good or excellent health, whereas 83.9% of girls with positive relationships with teachers

reported good or excellent health. For boys, the effect of relationships with teachers on health does not vary by the quality of relationship. See Figure 13 below.



Figures 14 and 15 demonstrate a similar significant interaction, for school and neighbourhood relationships, respectively.





Healthy Life Style Domain

1. *Healthy Eating*

There was a significant association between healthy eating and the quality of all the tested relationships, whereby having healthier relationships was related to increased likelihood of good or excellent healthy eating (See Figures 16, 17, 18, 19, and 20).

Figure 16 depicts that 34.5% of boys and 42.1% of girls who had a positive relationship with their parents reported healthy eating. In contrast, 28.4% of boys and 34.0% of girls who reported having a negative relationship with their parents reported having healthy eating. In addition, the effect of parent relationship on healthy eating was stronger for girls than boys.

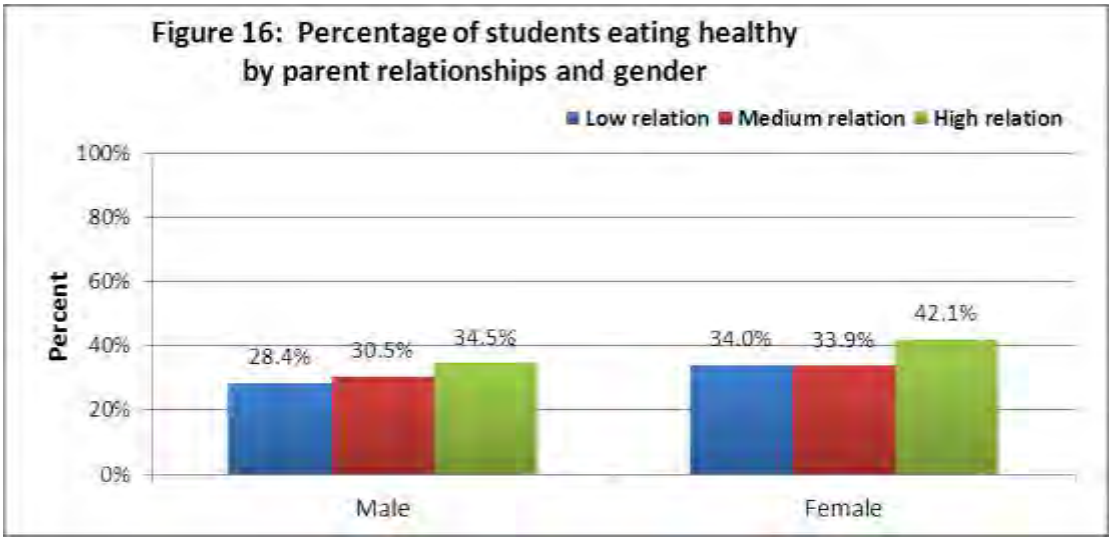


Figure 17 depicts the results for healthy eating and the quality of relationships with teachers. 34.3% of boys and 40.0% of girls who had a positive relationship with their teachers reported healthy eating, whereas 29.1% of boys and 35.4% of girls who reported having a negative relationship with their teachers reported having healthy eating habits. The quality of relationships with teachers was more likely to be associated with healthy eating for girls than for boys.

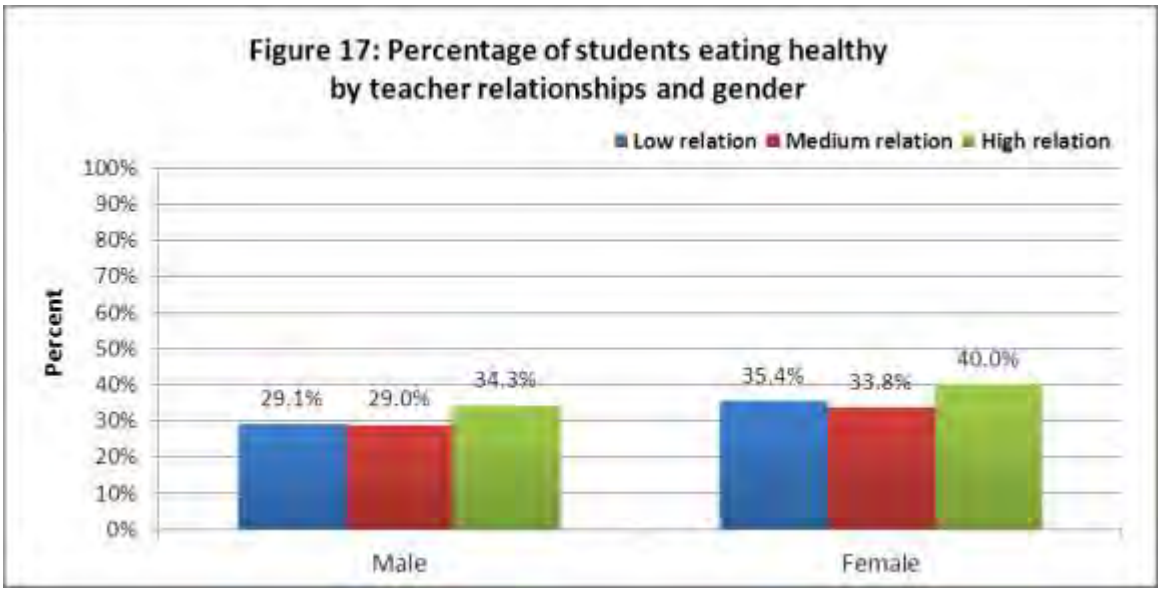


Figure 18 depicts the results for healthy eating and the quality of relationships with peers. 33.1% of boys and 40.2% of girls who had a positive relationship with their peers reported healthy eating. In contrast, 30.1% of boys and 35.0% of girls who reported having a negative relationship with their peers reported having healthy eating. The quality of relationships with peers was more likely to be associated with healthy eating for girls than for boys.

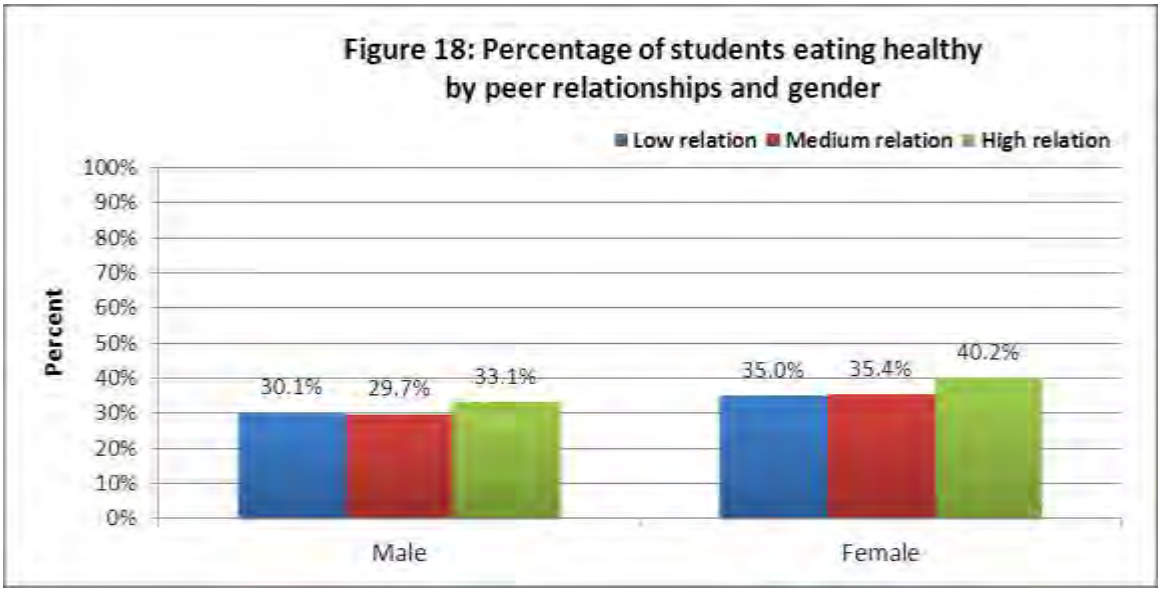


Figure 19 depicts the results for healthy eating and quality of relationship with school. 33.1% of boys and 40.2% of girls who had a positive relationship with their school reported healthy eating. In contrast, 30.1% of boys and 35.0% of girls who reported having a negative relationship with their school reported having healthy eating. The quality of relationships with school was more strongly associated with healthy eating for girls than for boys.

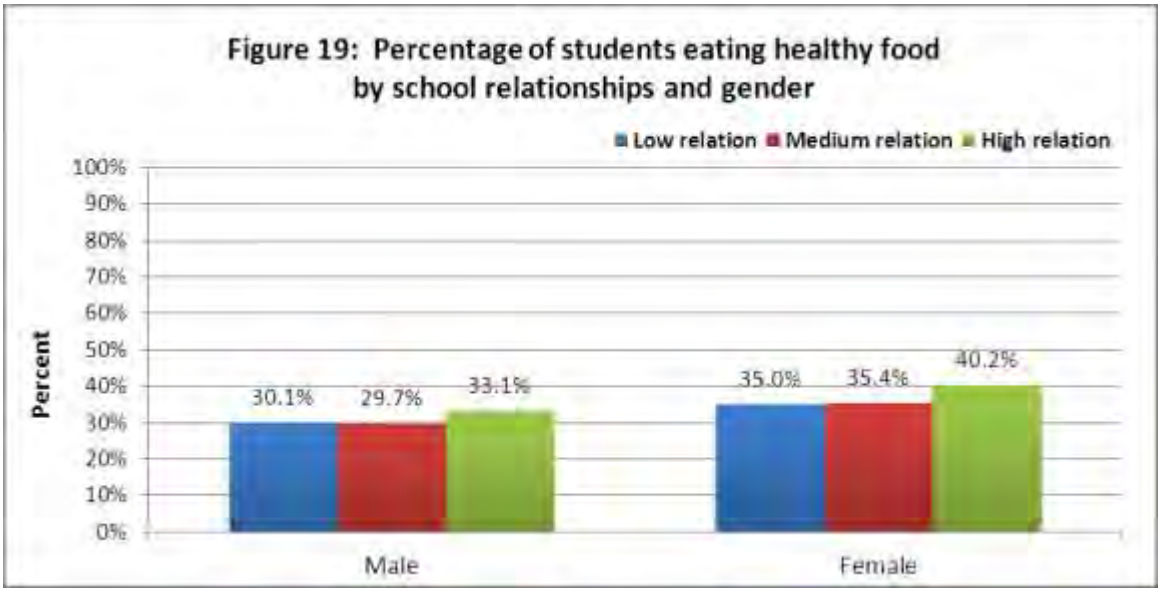
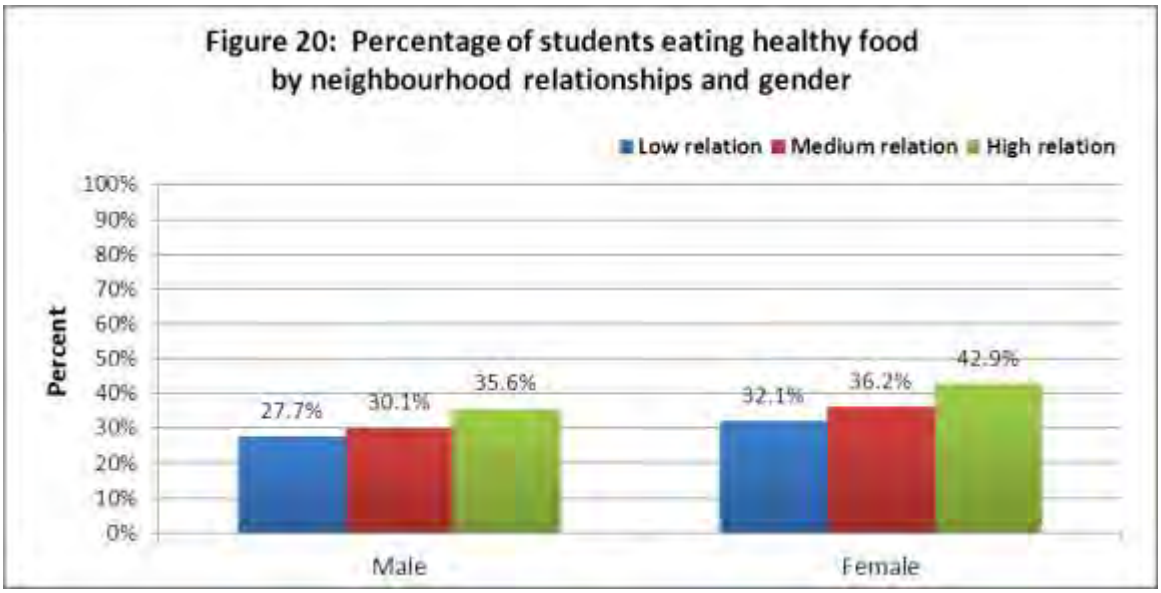


Figure 20 depicts the results for healthy eating and quality of neighbourhood relationships. 35.6% of boys and 42.9% of girls who had positive relationships within their neighbourhood reported healthy eating. In contrast, 27.7% of boys and 32.1% of girls who reported having a negative relationship with their neighbourhood reported having healthy eating. The quality of relationships with neighbourhood was more strongly associated with healthy eating for girls than for boys.



2. *Physically Active*

There was a significant association between being physically active and the quality of relationships with parent, peer, and neighbourhood, whereby having healthier relationships was related to being physically active. (See Figures 21, 22, and 23).

Figure 21 depicts that 40.6% of boys and 30.8% of girls who had a positive relationship with their parents reported being physically active. 40.6% of boys and 26.4% of girls who reported having a negative relationship with their parents reported being physically active. In addition, there was a significant interaction effect of quality of relationship with parents and gender. For girls as the quality of relationship decreased, a lower percentage of girls were physically active. This was not true for boys.

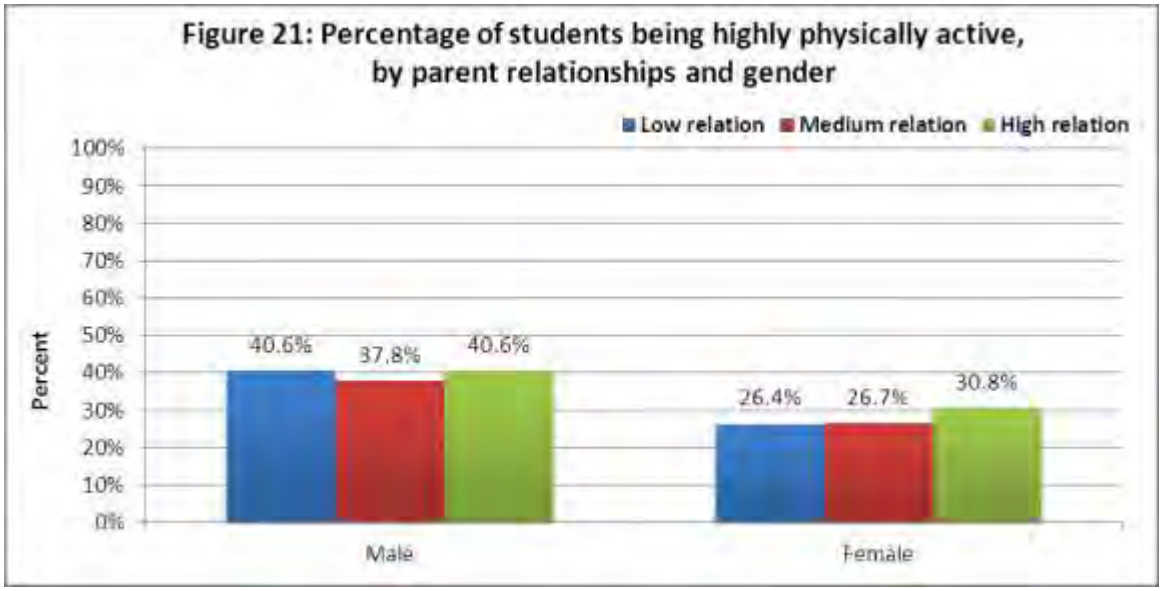


Figure 22 depicts the results for physical activity and the quality of relationships with peers. 42.9% of boys and 31.7% of girls who had a positive relationship with their peers reported being physically active. In contrast, 36.6% of boys and 25.6% of girls who reported having a negative relationship with their peers reported being physically active. The quality peers relationships with peers was more likely to be associated with being physically active for boys than for girls.

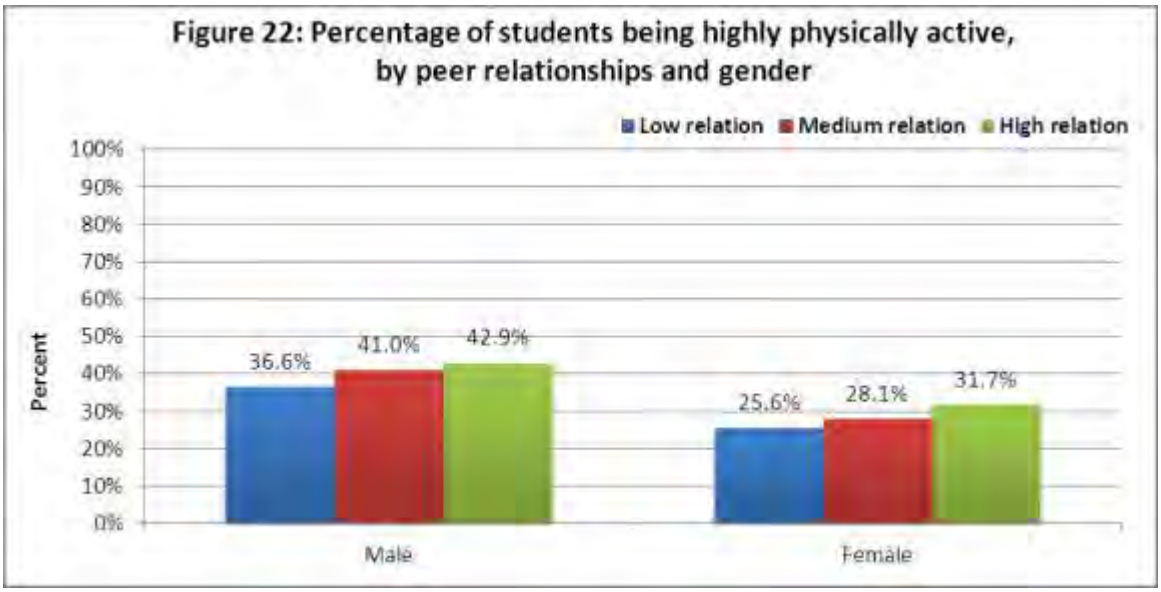
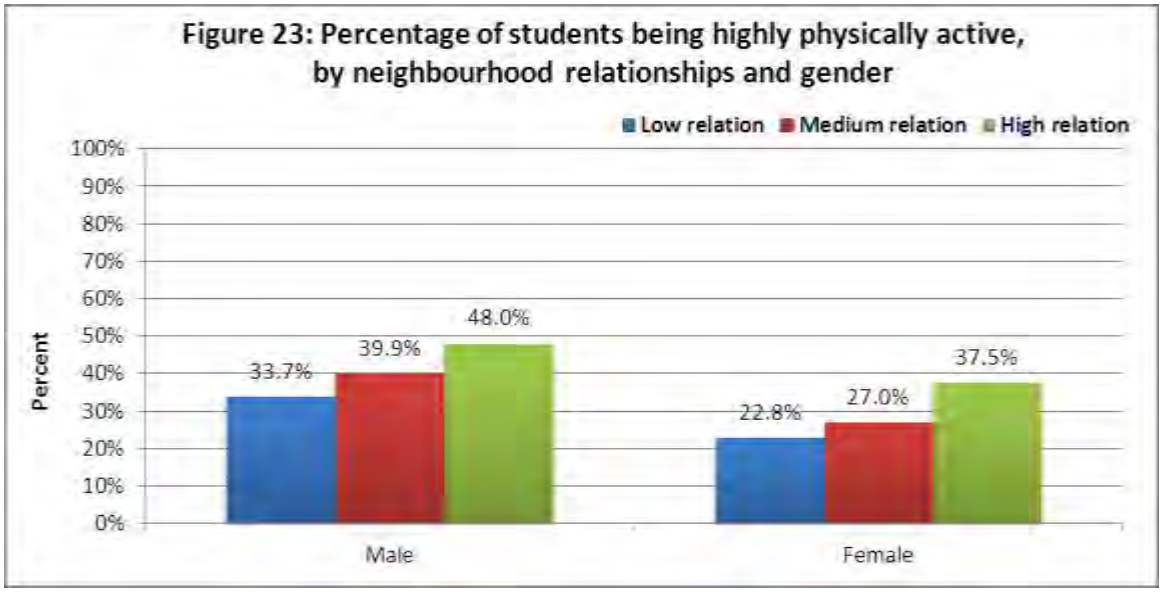


Figure 23 depicts the results for physical activity and quality of neighbourhood relationships. 48.0% of boys and 37.5% of girls who had positive relationships within their neighbourhood reported being physically active. In contrast, 33.7% of boys and 22.8% of girls who reported having a negative relationship with their neighbourhood reported being physically active. The quality of relationships with neighbourhood was more strongly associated with being physically active for boys than for girls.



In addition, there was a significant main effect of gender for quality of teacher relationships on being physically active. The quality of relationships with teachers, was more strongly associated with being physically active for boys than for girls.

Finally, there was a significant interaction between relationship with school and sex. The proportion of girls who were physically active was greater in the high quality of relationship with school than in the low and medium quality relationships. For boys, the low and medium quality relationship with school had significant more physically active boys than in the high condition.

Emotional Health Domain

1. *Quality of Life*

There was a significant association between quality of life and the quality of all the tested relationships, whereby having healthier relationships was related to increased likelihood of good or high quality of life (See Figures 24, 25, 26, 27, and 28).

Figure 24 depicts that 43.2% of boys and 41.2% of girls who had a positive relationship with their parents reported a good or high quality of life. In contrast, 21.7% of boys and 17.0% of girls who reported having a negative relationship with their parents reported having a good or high quality of life. In addition, the effect of parent relationship was stronger for boys than girls for high quality of life.

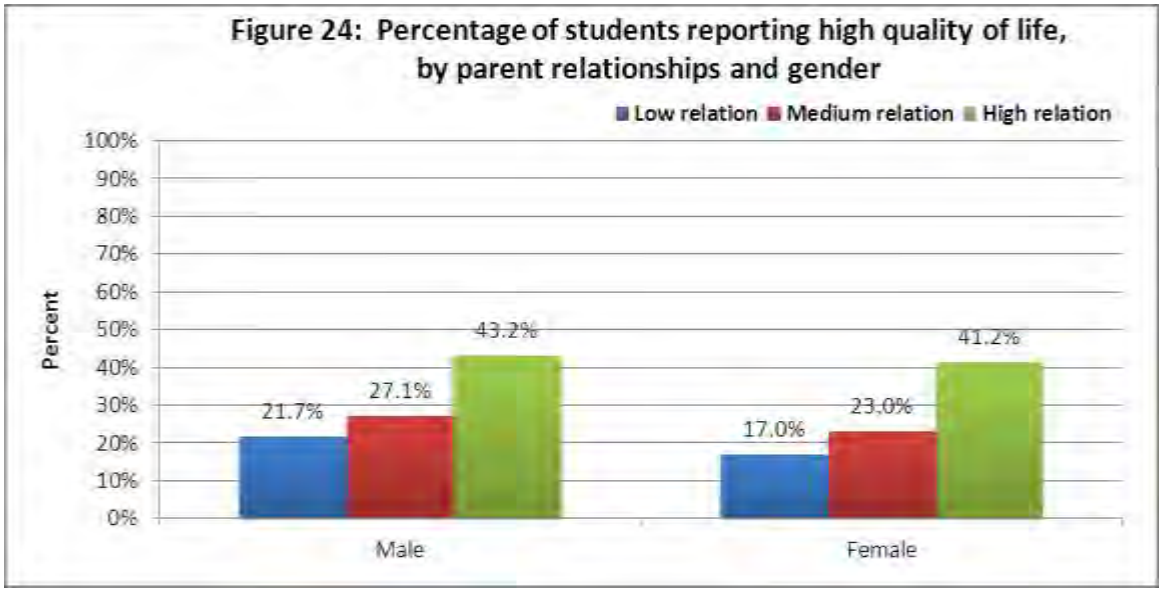


Figure 25 depicts the results for quality of life and the quality of relationships with teachers. 31.9% of boys and 29.7% of girls who had a positive relationship with their teachers reported having a good or high quality of life, whereas 28.2% of boys and 25.0% of girls who reported having a negative relationship with their teachers reported having good or high quality of life. The quality of relationships with teachers was more likely to be associated with quality of life for boys than for girls.

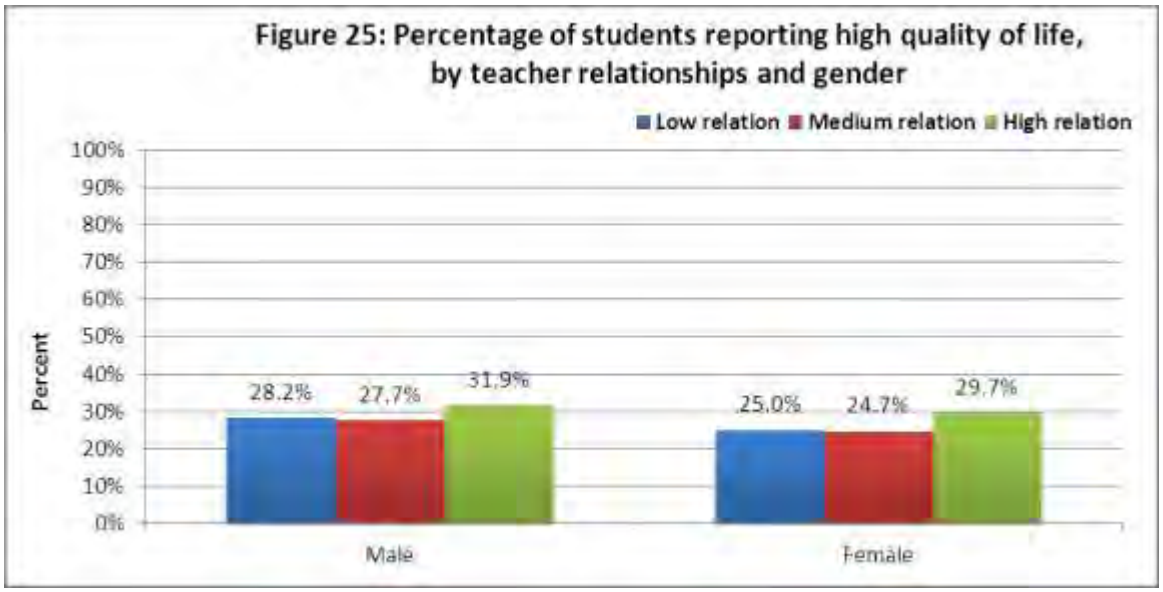


Figure 26 depicts the results for quality of life and the quality of relationships with peers. 33.8% of boys and 31.5% of girls who had a positive relationship with their peers reported a good or high quality of life. In contrast, 26.7% of boys and 23.7% of girls who reported having a negative relationship with their peers reported having a good or

high quality of life. The quality of relationships with peers was more likely to be associated with quality of life for boys than for girls.

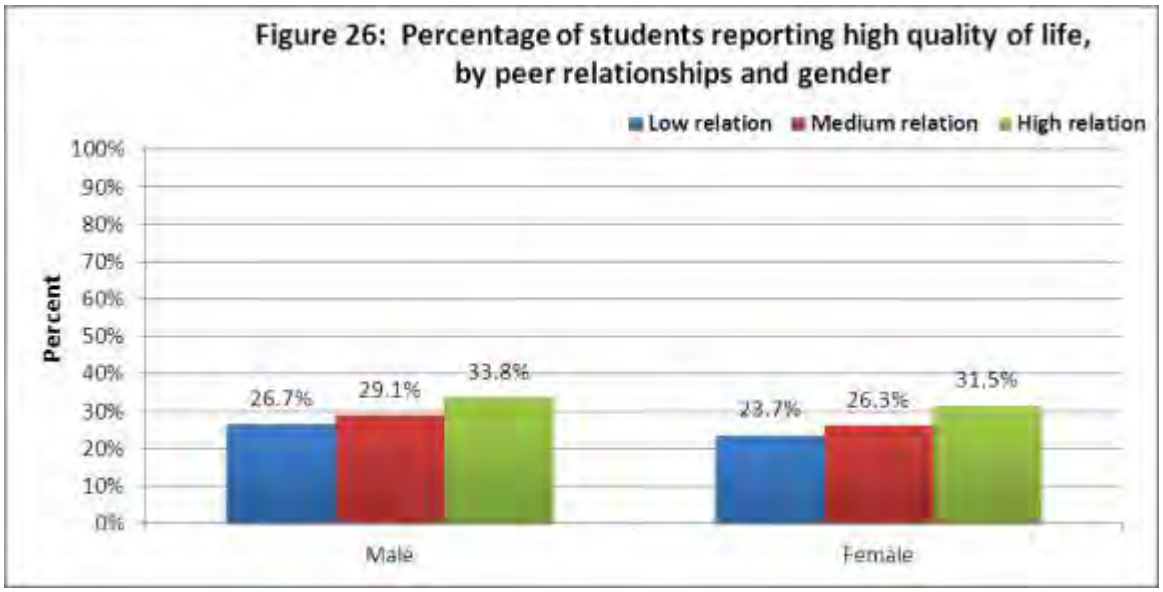


Figure 27 depicts the results for quality of life and quality of relationship with school. 31.9% of boys and 29.9% of girls who had a positive relationship with their school reported a good or high quality of life. In contrast, 27.8% of boys and 24.4% of girls who reported having a negative relationship with their school reported having a good or high quality of life. The quality of relationships with school was more strongly associated for boys than for girls.

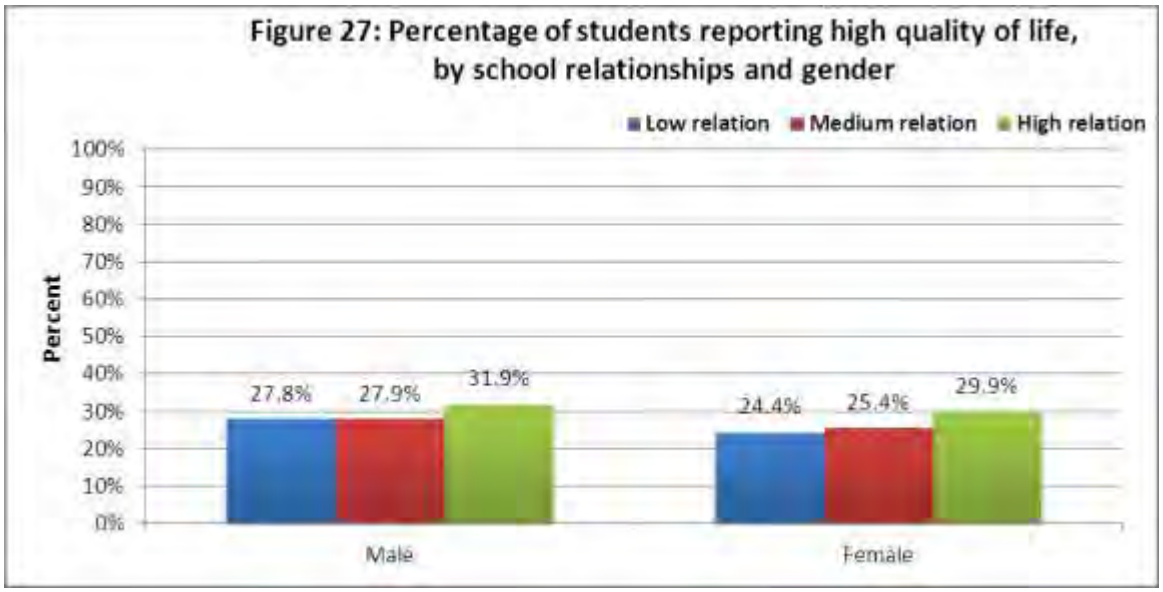
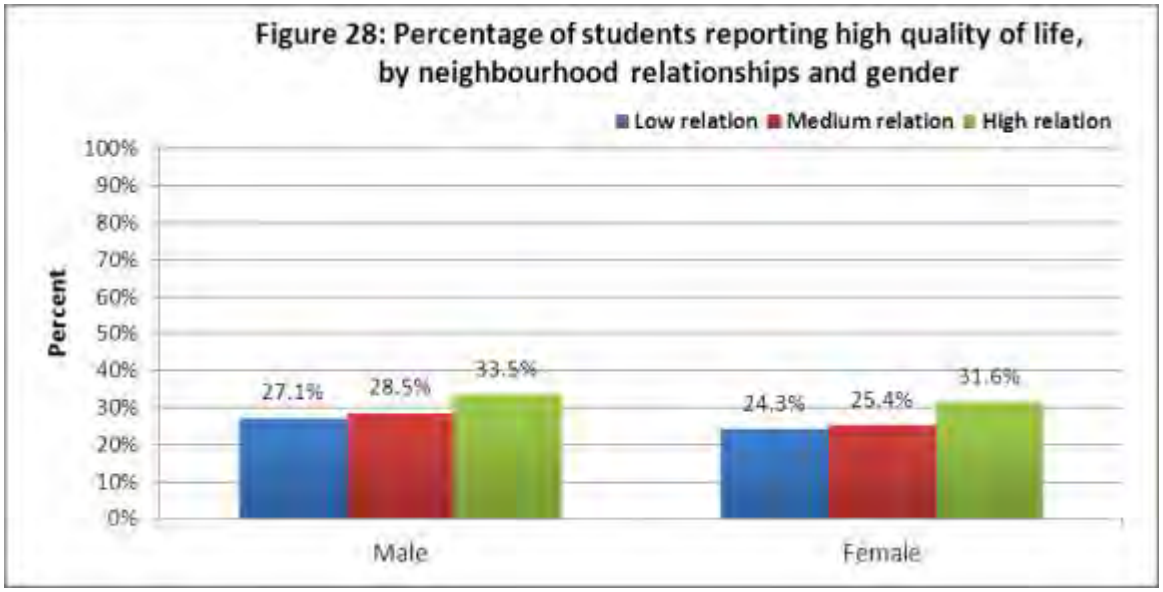


Figure 28 depicts the results for quality of life and quality of neighbourhood relationships. 33.5% of boys and 31.6% of girls who had positive relationships within their neighborhood reported having a good or high quality of life. In contrast, 27.1% of

boys and 24.3% of girls who reported having a negative relationship with their neighbourhood reported having a good or high quality of life. The quality of relationships with neighbourhood was more strongly associated with quality of life for boys than for girls.



2. *Psychosomatic Symptoms*

There was a significant relationship between psychosomatic symptoms and the quality of parent, peer, school, and neighbourhood relationships , whereby having healthier relationships was related to having fewer psychosomatic symptoms (See Figures 29, 30, 31, and 32).

Figure 29 depicts that 41.1% of boys and 27.9% of girls who had a positive relationship with their parents reported few psychosomatic symptoms. In contrast, 25.2% of boys and 14.2% of girls who reported having a negative relationship with their parents reported having few psychosomatic symptoms. In addition, the effect of parent relationship on having psychosomatic was stronger for boys than girls.

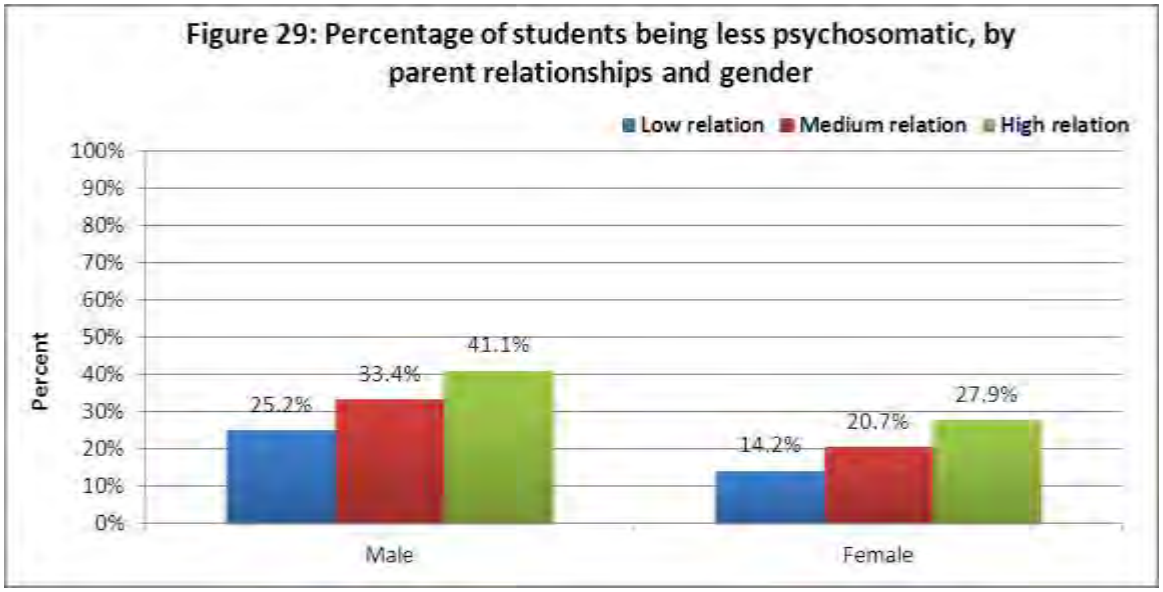


Figure 30 depicts the results for having few psychosomatic symptoms and the quality of relationships with peers. 33.3% of boys and 20.9% of girls who had a positive relationship with their peers reported few psychosomatic symptoms. In contrast, 30.6% of boys and 19.8% of girls who reported having a negative relationship with their peers reported few psychosomatic symptoms. The quality of peer relationships with peers was more likely to be associated with having few psychosomatic symptoms for boys than for girls.

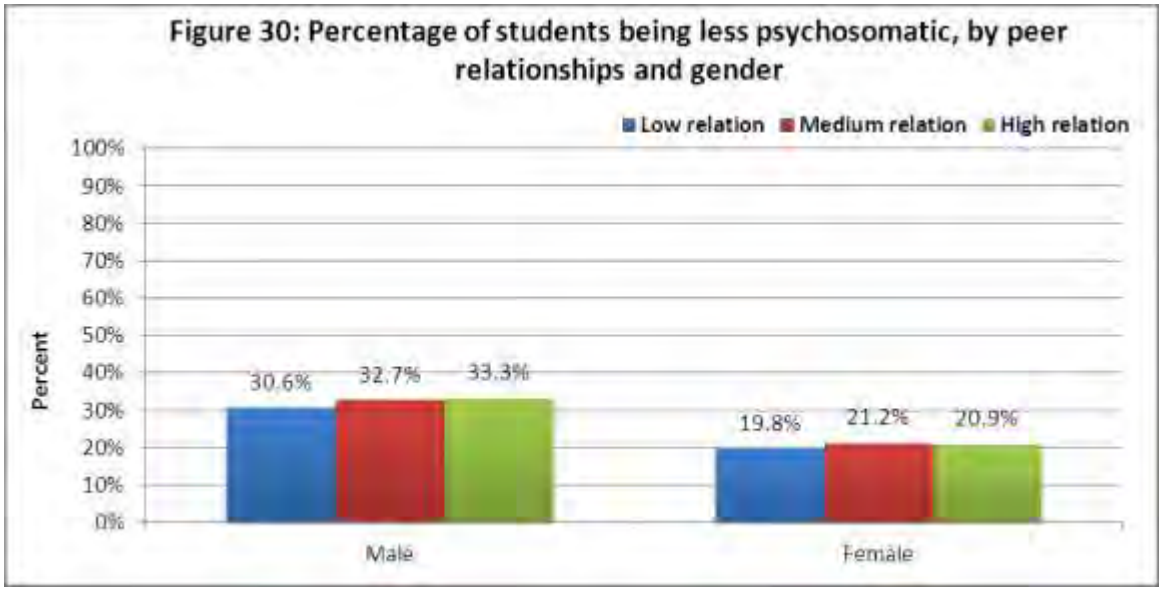


Figure 31 depicts the results for having few psychosomatic sypmtoms and quality of relationship with school. 33.2% of boys and 21.6% of girls who had a positive relationship with their school reported having few psychosomatic symptoms. In

contrast, 30.5% of boys and 19.7% of girls who reported having a negative relationship with their school reported having few psychosomatic symptoms. The quality of relationships with school was more strongly associated with having few psychosomatic symptoms for boys than for girls.

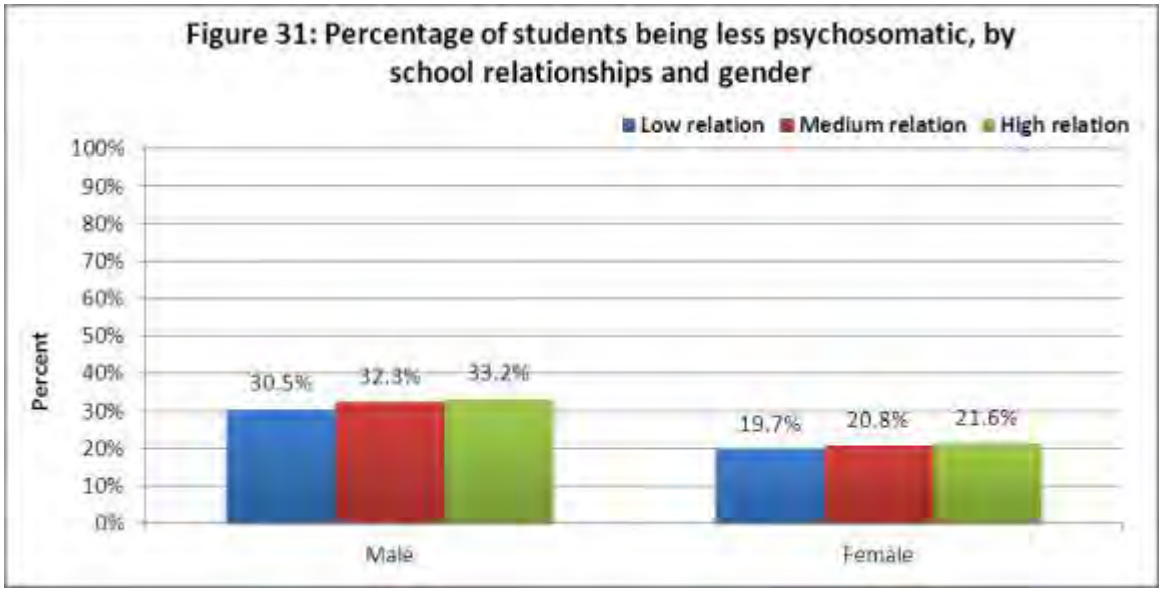
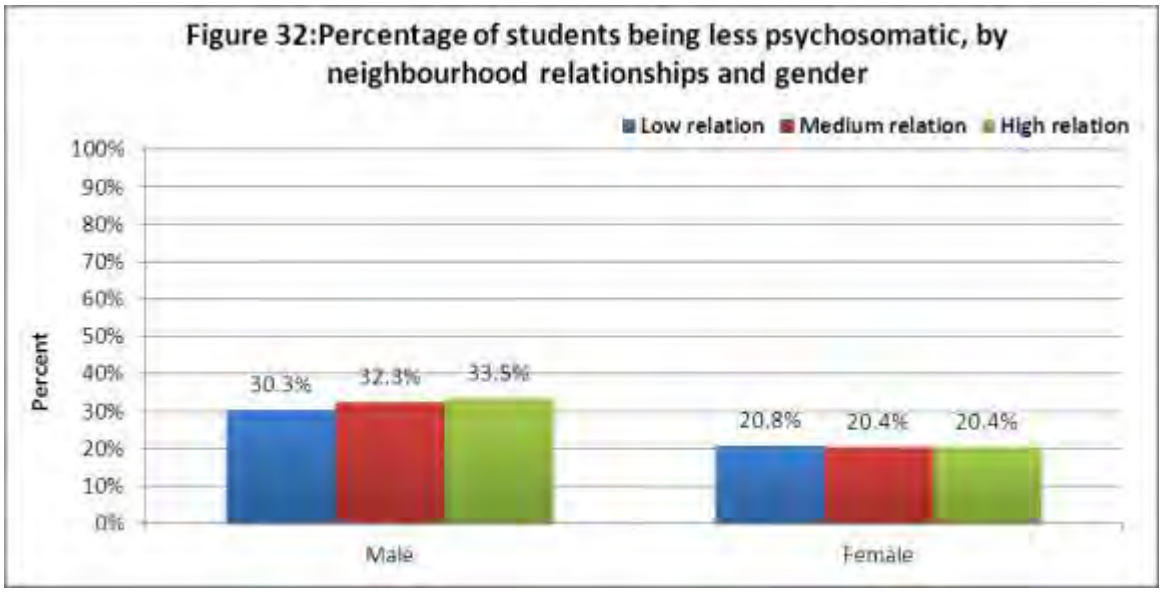


Figure 32 depicts the results for psychosomatic symptoms and quality of neighbourhood relationships. 33.5% of boys and 20.4% of girls who had positive relationships within their neighbourhood reported having few psychosomatic symptoms. In contrast, 30.3% of boys and 20.8% of girls who reported having a negative relationship with their neighbourhood reported having few psychosomatic symptoms. The quality of relationships with neighbourhood was more strongly associated with having few psychosomatic symptoms for boys than for girls.



Finally, the quality of relationships with school was more strongly associated with few psychosomatic symptoms for boys than for girls.

3. Mental Health Well Being

There was a significant association between mental health well-being and all tested relationships, whereby high quality relationships were related to increased likelihood of mental health well-being. (See Figures 33, 34, 35, 36 and 37).

Figure 33 depicts that 46.2% of boys and 37.4% of girls who had a high quality relationship with their parents reported high mental health well-being. In contrast, 19.3% of boys and 13.8% of girls who reported having a negative relationship with their parents reported having high mental health well-being. In addition, there was a significant interaction between quality of relationship with parents and gender, such that the effect of parent relationship quality at all levels was stronger for protecting girls than boys on mental health well-being.

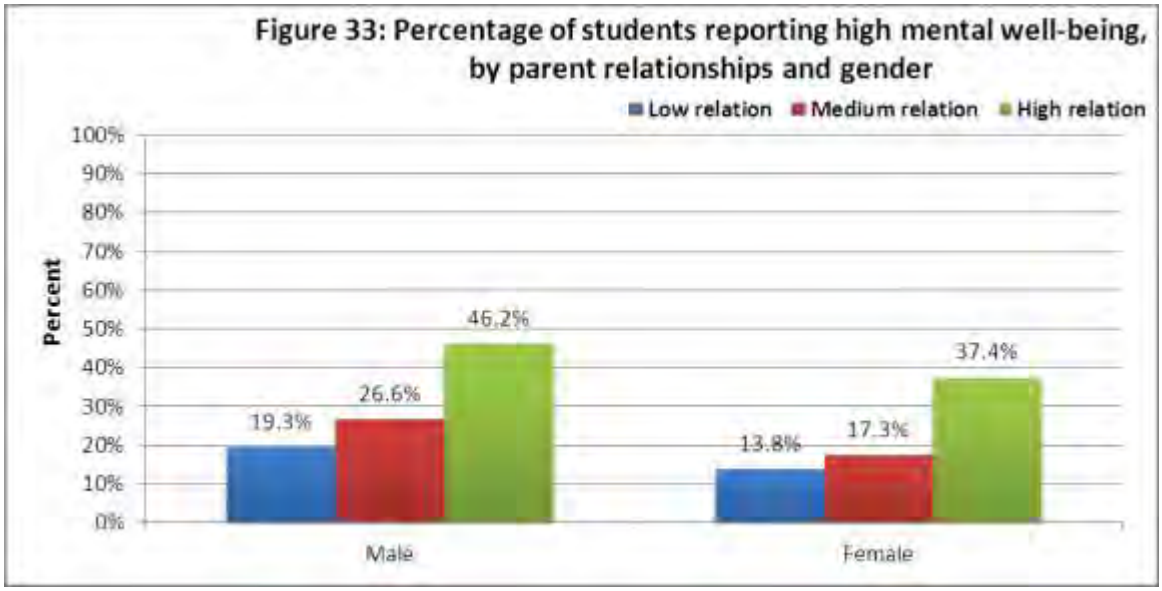


Figure 34 depicts the results for mental health well-being and the quality of relationships with teachers. 34.7% of boys and 25.5% of girls who had a positive relationship with their teachers reported having high mental health well-being, whereas 26.7% of boys and 21.1% of girls who reported having a negative relationship with their teachers reported having high mental health well-being. The quality of relationships with teachers was more likely to be associated with mental health well-being for boys than for girls.

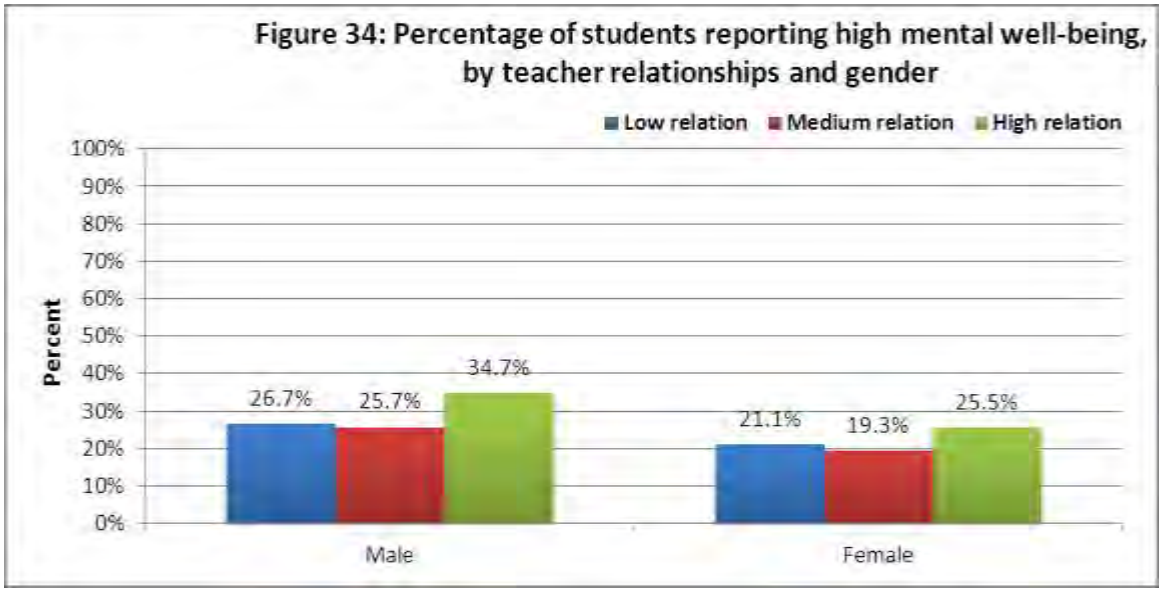


Figure 35 depicts the results for mental health well-being and the quality of relationships with peers. 38.0% of boys and 29% of girls who had a positive relationship with their peers reported a high mental health well-being. In contrast, 25.5% of boys and 19.2% of girls who reported having a negative relationship with their peers reported having high mental health well-being. The quality of relationships with peers was more likely to be associated with mental health well-being for boys than for girls.

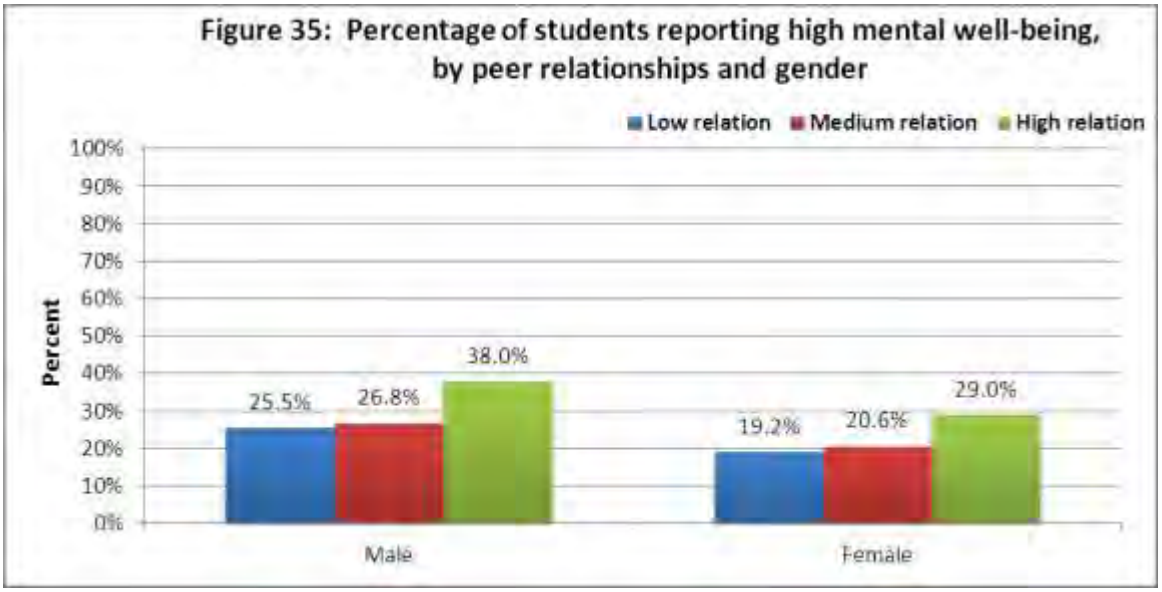


Figure 36 depicts the results for mental health well-being and quality of relationship with school. 31.9% of boys and 24.4% of girls who had a positive relationship with their school reported high mental health well-being. In contrast, 28.6% of boys and 21.7% of girls who reported having a negative relationship with their school reported having high mental health well-being. The quality of relationships with school was more strongly associated with mental health well-being for boys than for girls.

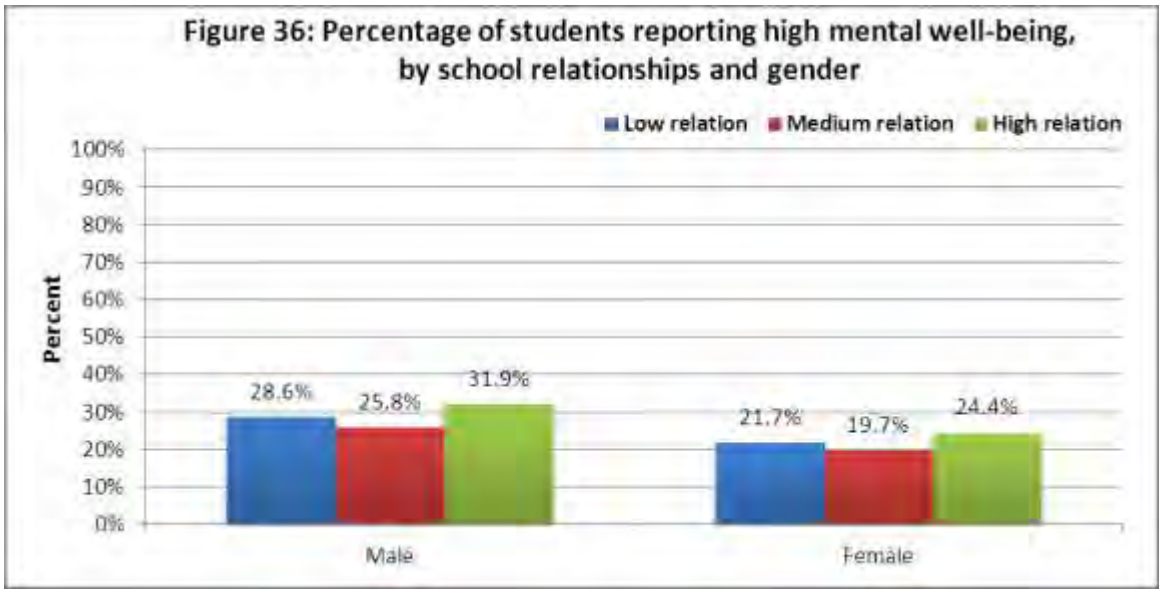
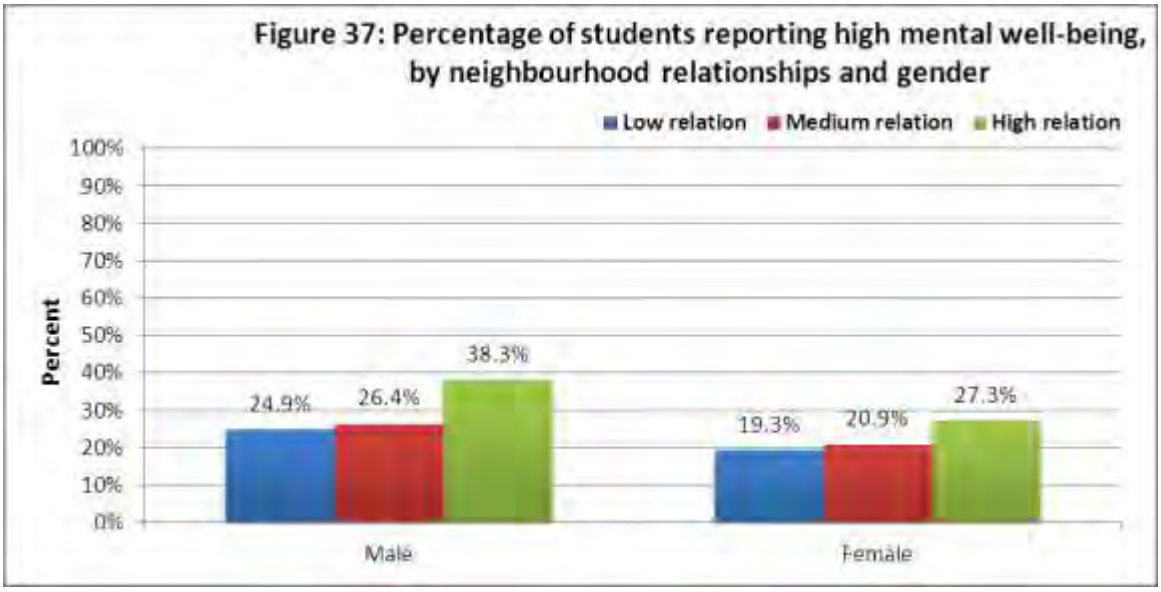


Figure 37 depicts the results for mental health well-being and quality of neighbourhood relationships. 38.3% of boys and 27.3% of girls who had positive relationships within their neighbourhood reported high mental health well-being. In contrast, 24.9% of boys and 19.3% of girls who reported having a negative relationship with their neighbourhood reported having high mental health well-being. The quality of relationships with neighbourhood was more strongly associated with mental health well-being for boys than for girls.



Behaviour Domain

1. *Problem Behaviours*

There was a significant association between problem behaviours and the quality of parent, school, and neighbourhood relationships, whereby having healthier relationships was related to decreased likelihood of engaging in problem behaviours (See Figures 38, 39, and 40).

Figure 38 depicts that 24.9% of boys and 18.5% of girls who had a positive relationship with their parents reported engaging in problem behaviours. In contrast, 47.6% of boys and 40.1% of girls who reported having a negative relationship with their parents reported having engaging in problem behaviours. In addition, the effect of quality of parent relationship was stronger for boys than girls for engaging in problem behaviours.

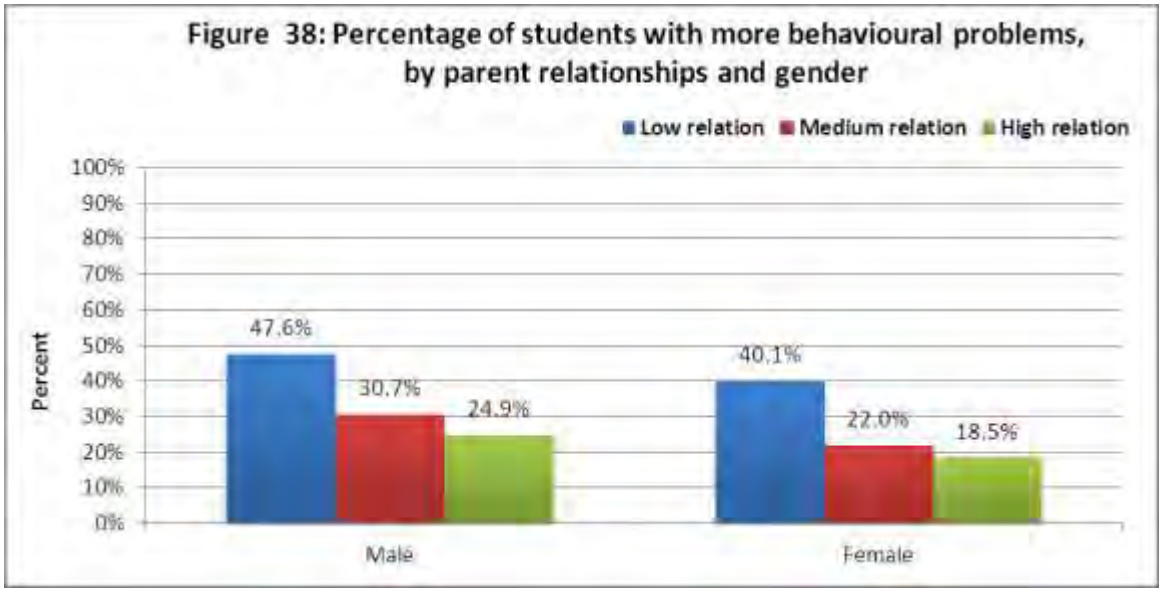


Figure 39 depicts the results for engaging in problem behaviours and quality of relationship with school. 34.7% of boys and 25.9% of girls who had a positive relationship with their school reported engaging in problem behaviours. In contrast, 40.6% of boys and 30.7% of girls who reported having a negative relationship with their school engaged in problem behaviours. The quality of relationships with school was more strongly associated with problem behaviours for boys than for girls.

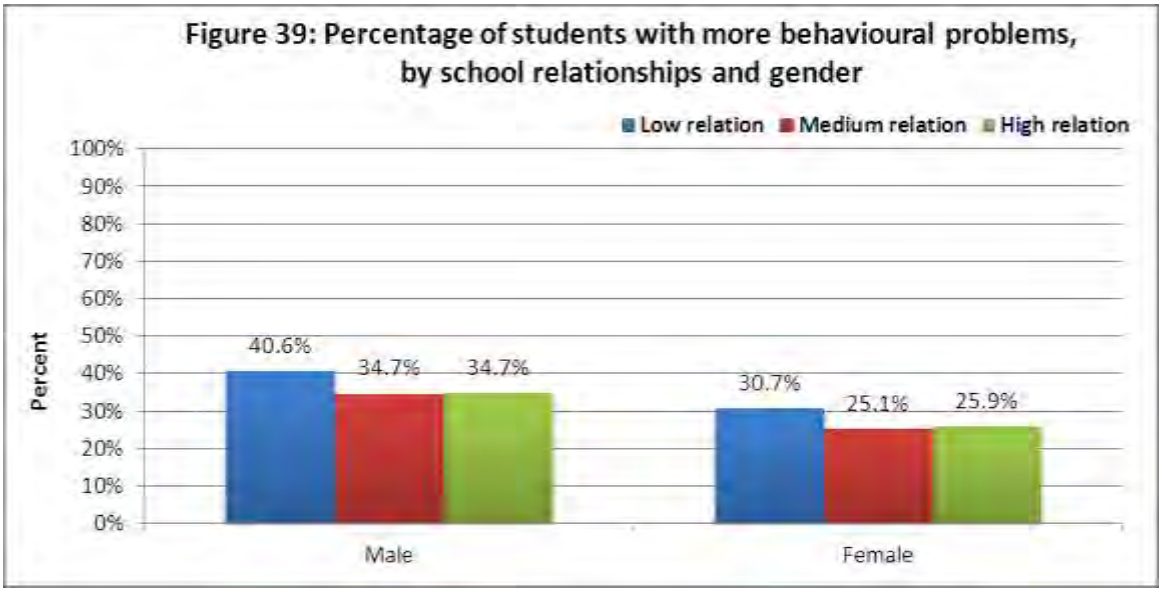
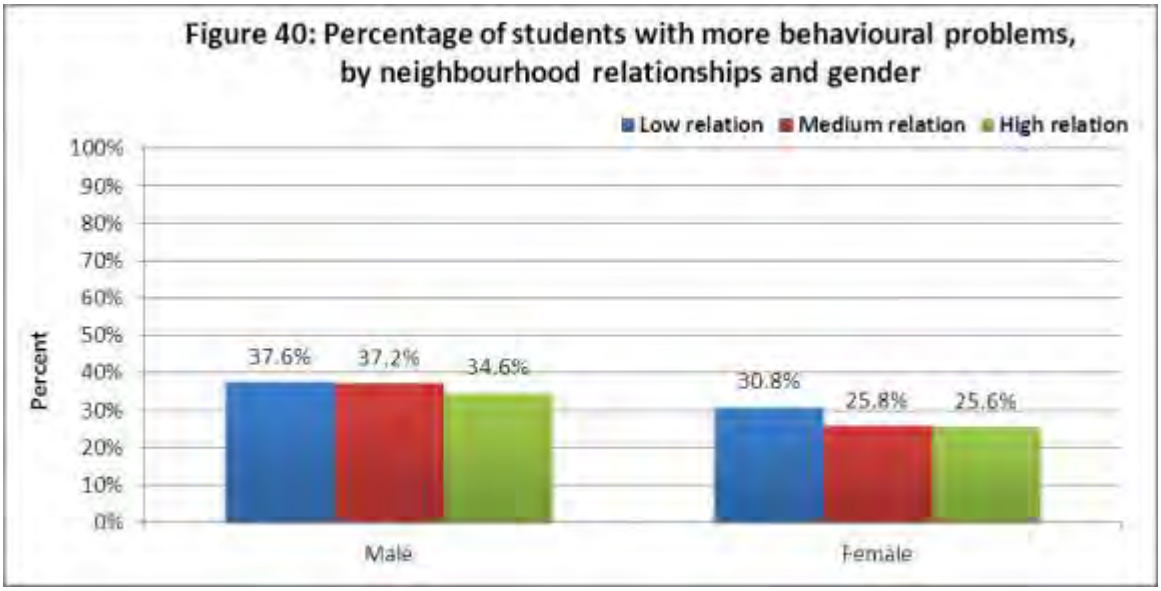


Figure 40 depicts the results engaging in problem behaviours and quality of neighbourhood relationships. 34.6% of boys and 25.6% of girls who had positive relationships within their neighbourhood reported engaging in problem behaviours. In contrast, 37.6% of boys and 30.8% of girls who reported having a negative relationship with their neighbourhood reported having engaged in problem behaviours. The was a significant interaction such that the proportion of girls with reported low quality relationships and engaged in problem behaviours was higher than those girls in medium and high quality relationships. For boys, the proportion of who were in low quality relationships and engaged in problem behaviours was higher than those in high quality relationships.



There was also a significant main effect of sex on both teacher and peer relationship quality whereby the effect of the quality of these relationships was stronger for boys than for girls.

2. *Prosocial Behaviour*

There was a significant association between prosocial behaviour and all tested relationships, whereby high quality relationships were related to increased likelihood of behaving prosocially. (See Figures 41, 42, 43, 44 and 45).

Figure 41 depicts that 28.0% of boys and 43.4% of girls who had a high quality relationship with their parents reported high prosocial behaviour. In contrast, 22.1% of boys and 32.9% of girls who reported having a negative relationship with their parents reported having high levels of prosocial behaviour. In addition, there was a significant interaction between quality of relationship with parents and gender, such that the effect of high positive relationship quality was stronger for protecting girls than boys on prosocial behaviour.

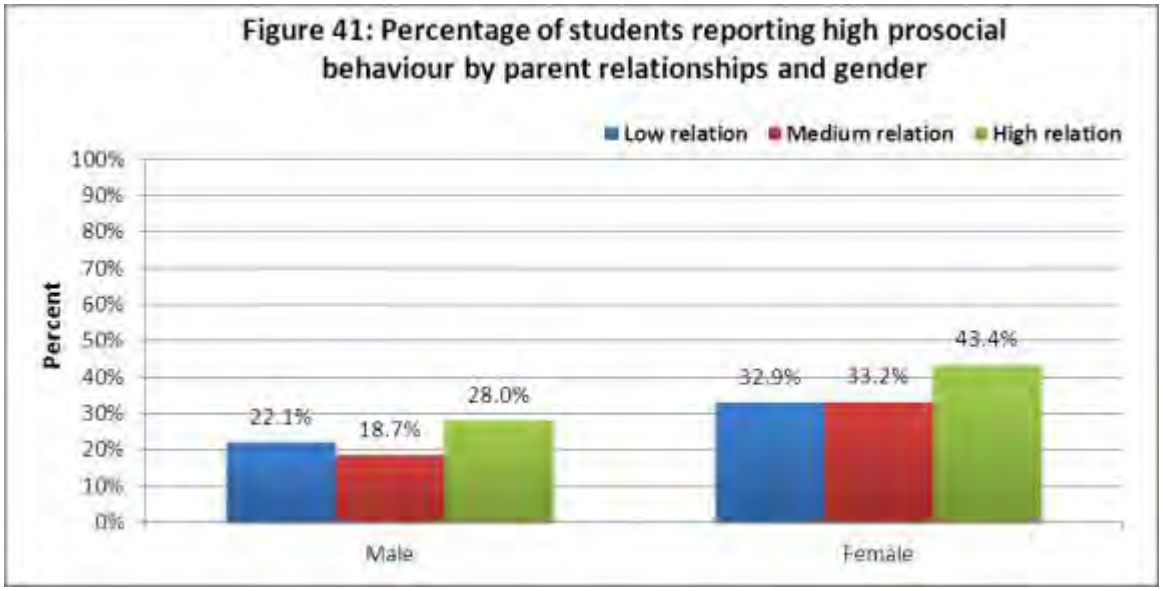


Figure 42 depicts the results for prosical behaviour and the quality of relationships with teachers. 27.4% of boys and 43.4% of girls who had a positive relationship with their teachers reported having high prosocial behaviour, whereas 21.4% of boys and 33% of girls who reported having a negative relationship with their teachers reported having high prosocial behaviour. There was also a significant interaction of quality of relationships with teachers was more likely to be associated with high prosocial for girls compared to boys.

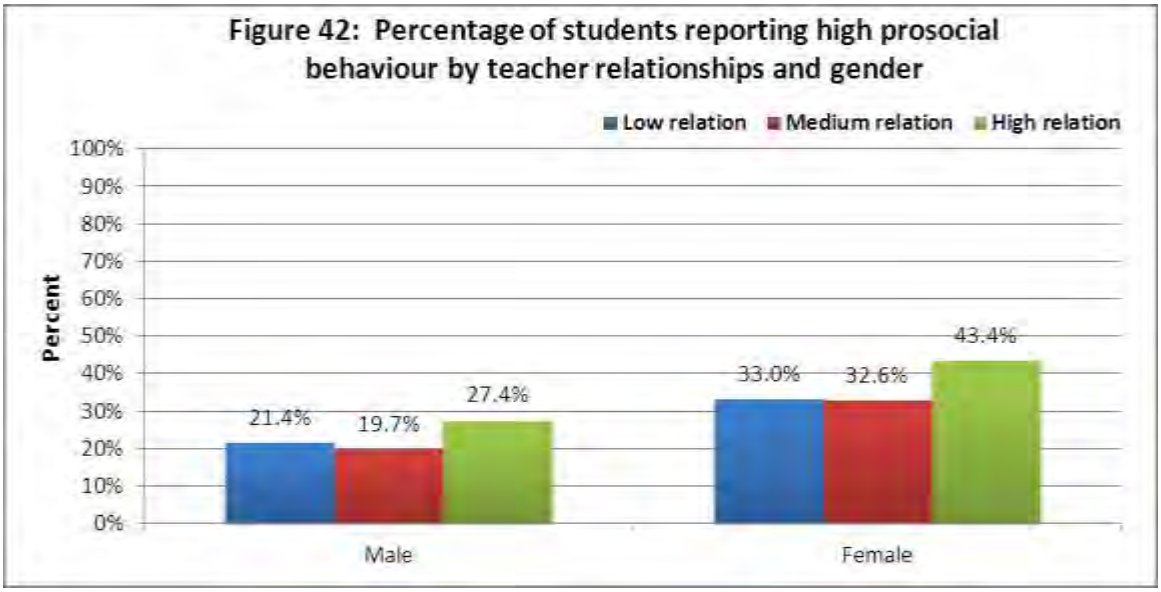


Figure 43 depicts the results for prosocial behaviour and the quality of relationships with peers. 30.1% of boys and 45.9% of girls who had a positive relationship with their peers reported being prosocial. In contrast, 20.7% of boys and 32.9% of girls who reported having a negative relationship with their peers reported engaging in prosocial behaviour. There was an interaction effect whereby relationships with peers at a greater effect on girls' prosocial behaviour than boys.

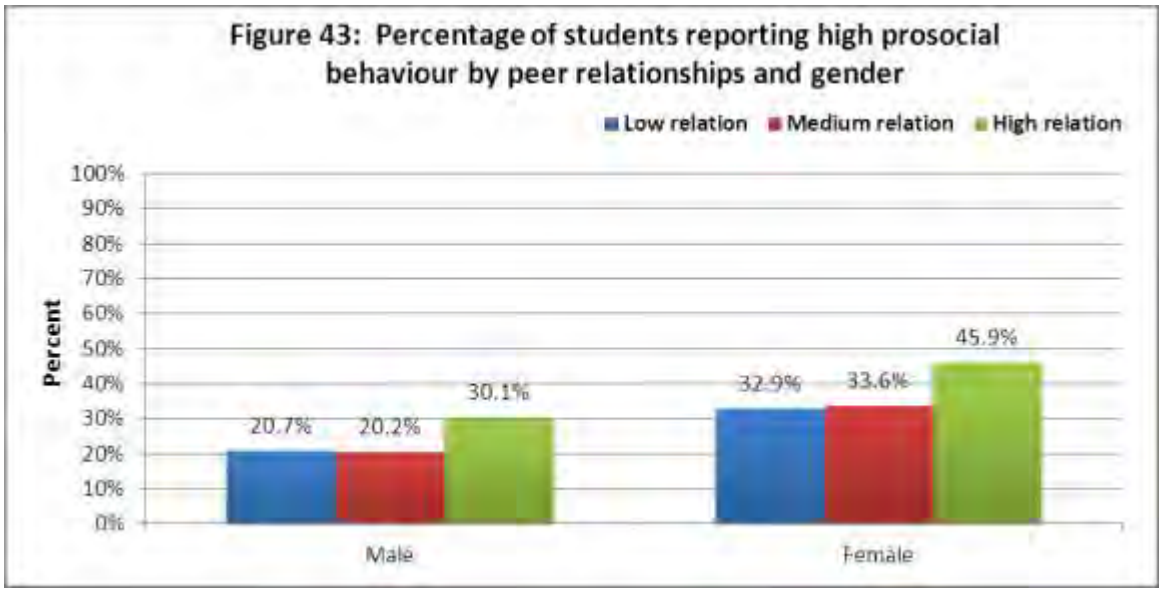


Figure 44 depicts the results for prosocial behaviour and quality of relationship with school. 23.7% of boys and 39.8% of girls who had a positive relationship with their school reported prosocial behaviour. In contrast, 24.0% of boys and 35.8% of girls who reported having a negative relationship with their school reported having prosocial

behaviour. There was a significant interaction whereby the effect for girls was stronger than boys for medium and high quality school relationships.

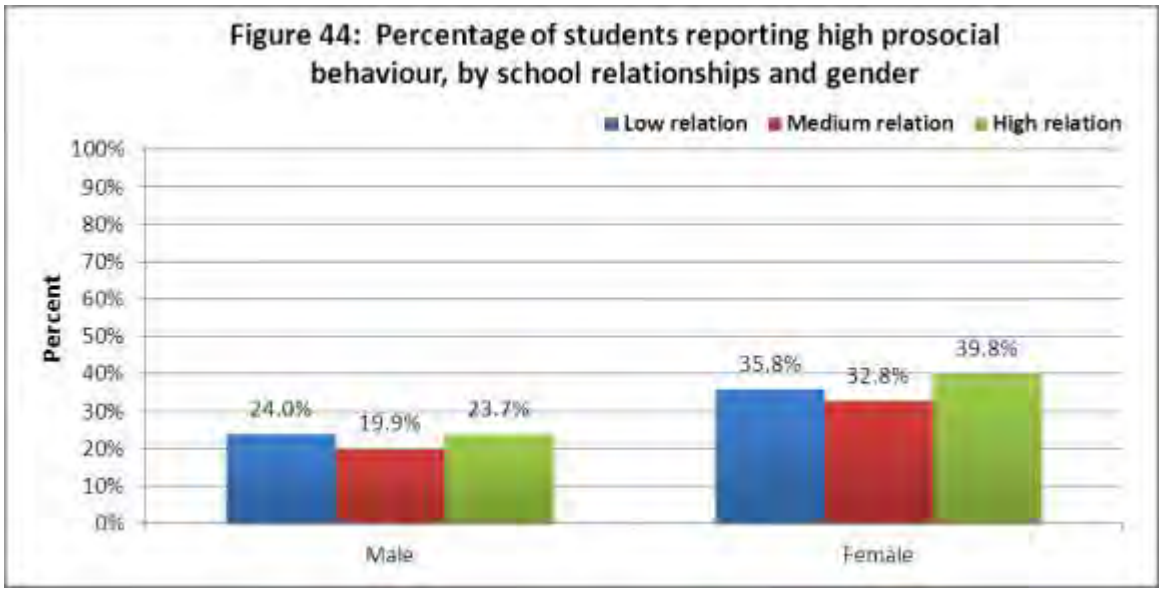
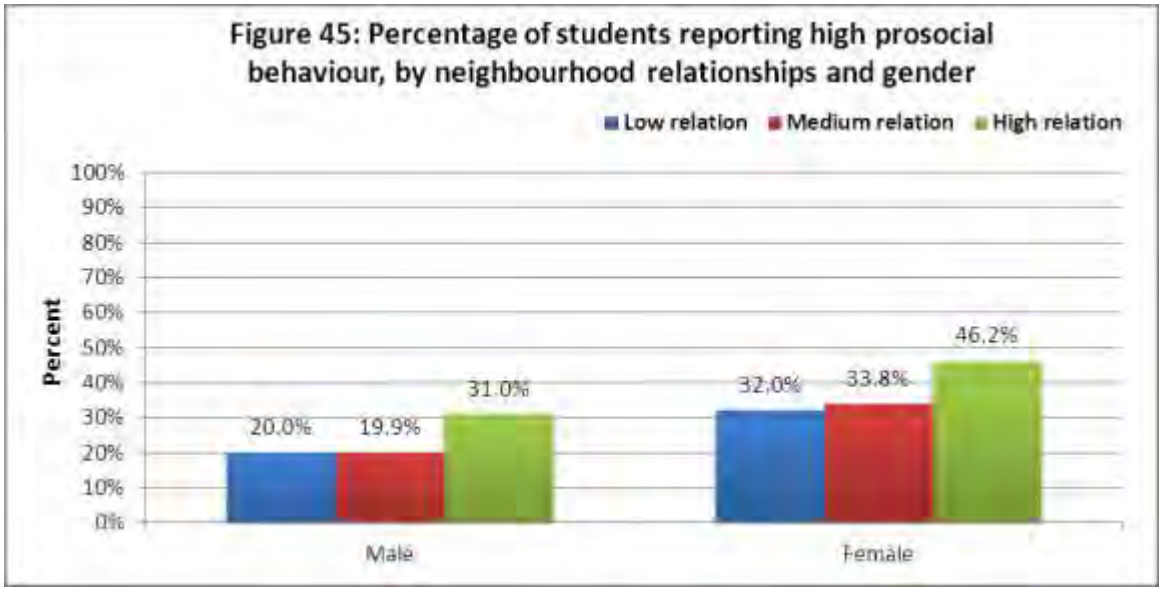


Figure 45 depicts the results for prosocial behaviour and quality of neighbourhood relationships. 31.0% of boys and 46.2% of girls who had positive relationships within their neighbourhood reported engaging in prosocial behaviour. In contrast, 20.0% of boys and 32.0% of girls who reported having a negative relationship with their neighbourhood reported engaging in prosocial behaviour. In general, the quality of relationships with neighbourhood was more strongly associated with prosocial behaviour for girls than for boys.



Aggressive Behaviour Domain

1. *Bullying*

There was a significant association between bullying others and the quality relationships with parents and peers, whereby low quality relationships with parents and peers were related to increased likelihood of bullying others (see Figures 46 and 47).

Figure 46 depicts that 62.2% of boys and 61.5% of girls who had a low quality relationship with their parents reported bullying others. In contrast, 44.4% of boys and 38.3% of girls who reported having a highly positive relationship with their parents reported having bullied others. In addition, there was a significant interaction between quality of relationship with parents and gender, such that the effect of medium and positive relationship quality was stronger for protecting girls than boys on bullying others. Finally, the effect of parent relationship in general was stronger for girls than boys on bullying others.

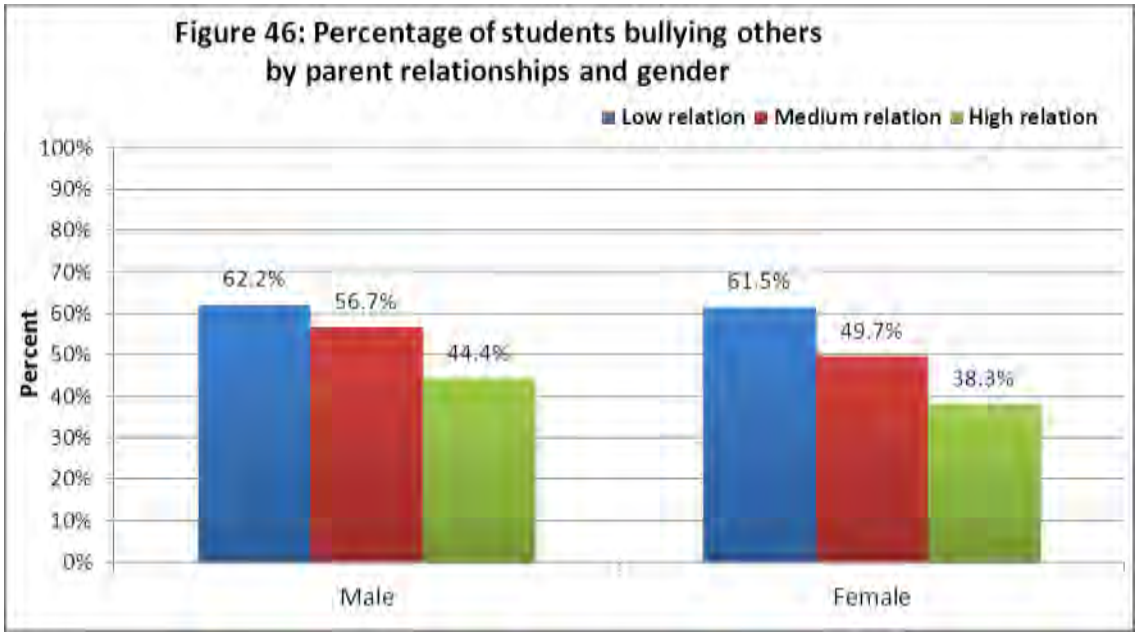


Figure 47 depicts that 58.1% of boys and 54.4% of girls who had a low quality relationship with their peers reported bullying others. In contrast, 54.8% of boys and 48.7% of girls who reported having highly positive relationship with their peers reported having bullied others. In addition, the effect of peer relationships was stronger for girls than boys on bullying others.

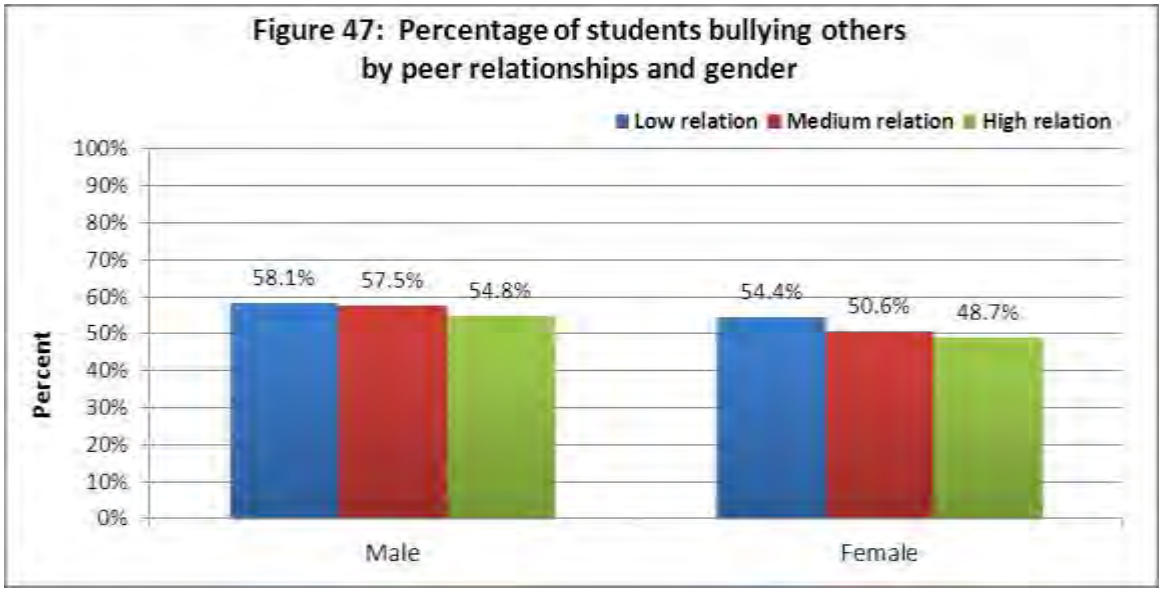
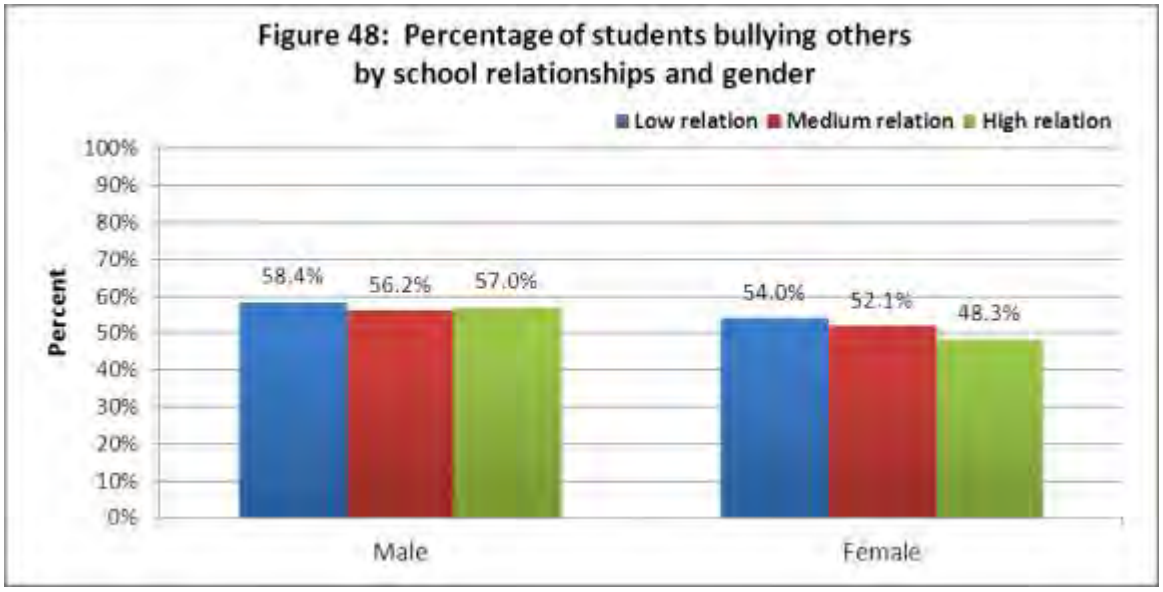
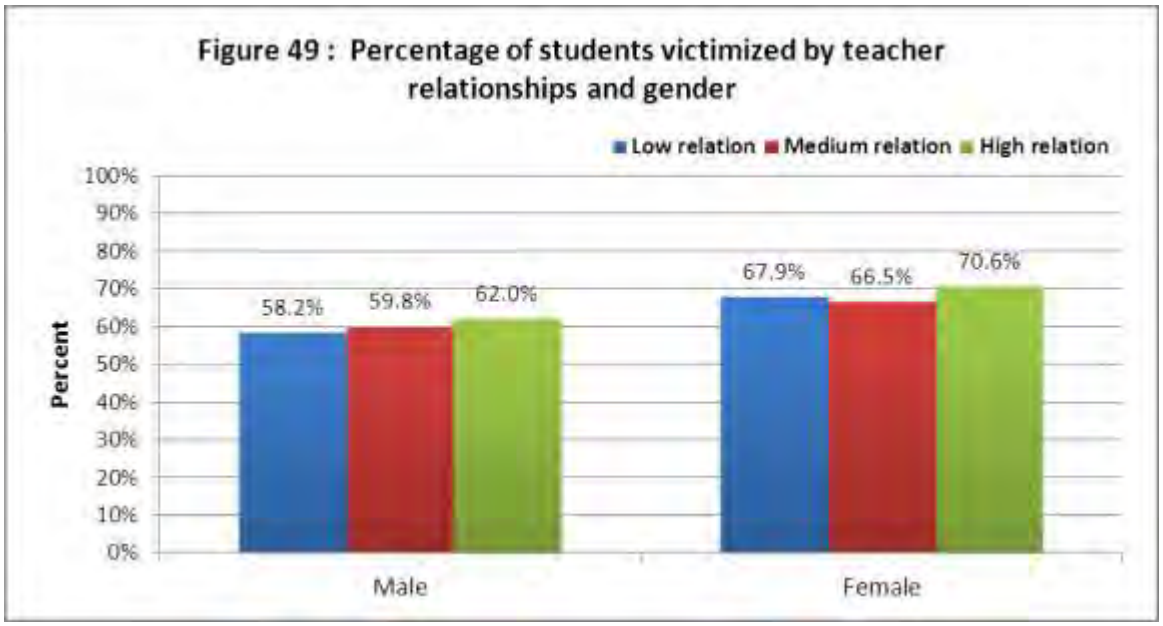
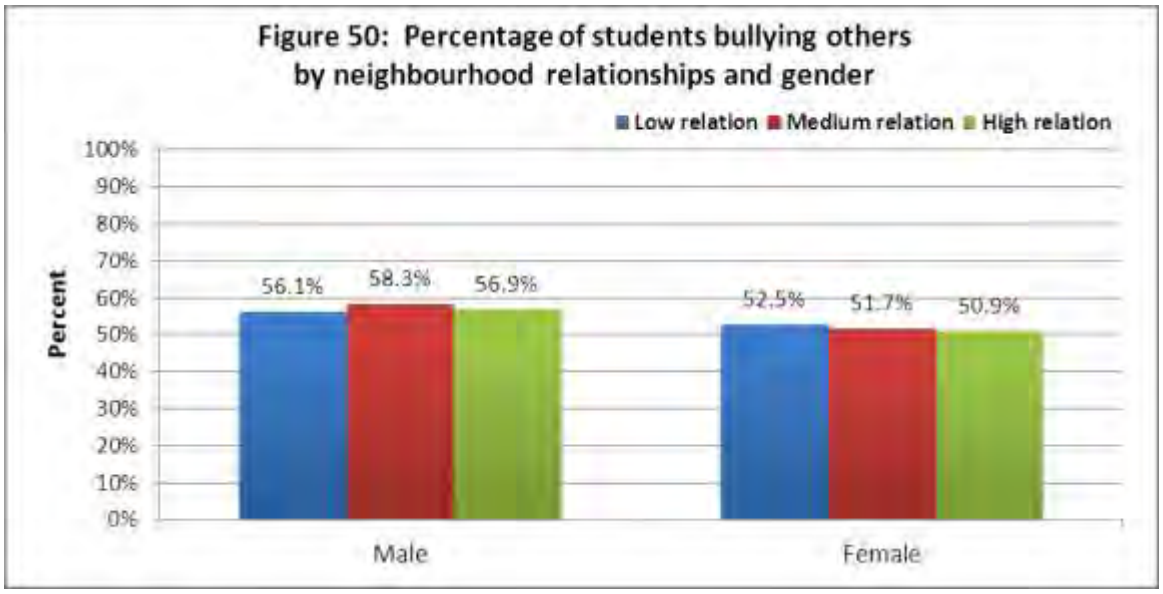


Figure 48 depicts the association between the quality of school relationships and bullying others. There was a significant interaction whereby the protective effect of medium and high quality relationships at school was stronger for girls than boys.



For teacher and neighbourhood relationships, the quality of relationship was stronger for girls than for boys as depicted in Figures 49 and 50, respectively. Figure 49 illustrates that the likelihood of bullying for boys was about equal across the quality of teacher relationship groups, whereas for girls, there was a slight protective effect of medium and high quality teacher relationships on girls' prevalence of bullying. Figure 50 illustrates a similar pattern for the quality of relationships within neighbourhoods.





2. Victimization

There was a significant association between being victimized and the quality relationships with parents, peers, and school whereby high quality relationships with parents, peers, and school were related to decreased likelihood of being victimized (See Figures 51, 52 and 53 as examples of this relationship graphically).

Figure 51 depicts that 65.4% of boys and 76.3% of girls who had a low quality relationship with their parents reported being victimized. In contrast, 51.2% of boys and 59.0% of girls who reported having a positive relationship with their parents reported being victimized. In addition, the effect of the quality of parent relationship on the risk for being victimized was stronger for girls than boys.

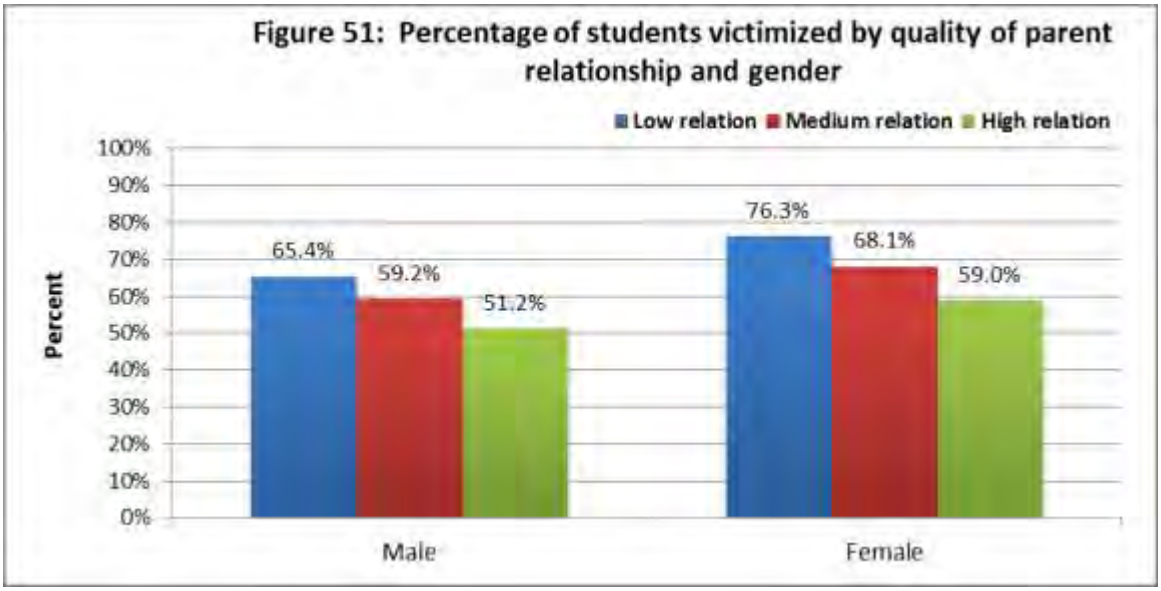


Figure 52 depicts that 58.2% of boys and 67.9% of girls who had a low quality relationship with their teachers reported being victimized. In contrast, 62.0% of boys and 70.6% of girls who reported having a positive relationship with their teachers reported being victimized. This effect was the opposite to what was expected. In addition, the effect of the quality of teacher relationship on the risk for being victimized was stronger for girls than boys.

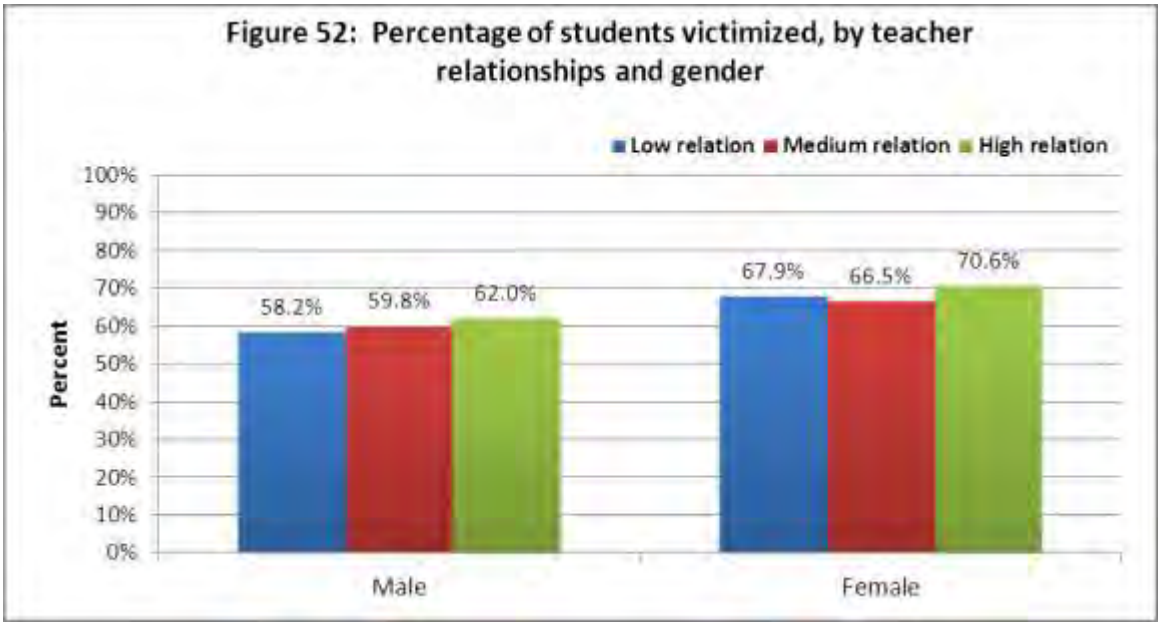
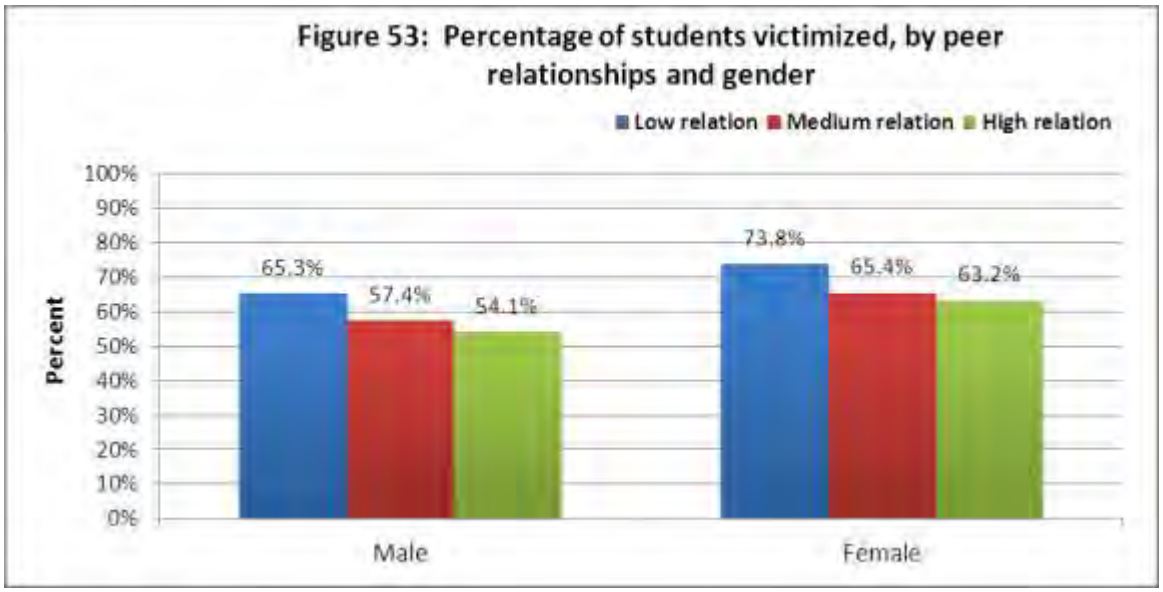


Figure 53 depicts that 65.3% of boys and 73.8% of girls who had a low quality relationship with their peers reported being victimized. In contrast, 54.1% of boys and 63.2% of girls who reported having a positive relationship with their peers reported

being victimized. In addition, the effect of peer relationship on the risk for being victimized was stronger for girls than boys.



The association between quality of relationship with schools and victimization was as predicted, whereby students' reports of low quality relationships with school were associated with increased risk for being victimized. In addition, the effects of school and neighbourhood relationships on risk of being victimized were stronger for girls compared to boys.

3. Fighting

There was a significant association between fighting and the quality of parent and schools relationships, whereby having healthier relationships was related to decreased likelihood of fighting (See Figures 54 and 55).

Figure 54 depicts that 42.4% of boys and 15.5% of girls who had a positive relationship with their parents reported fighting. In contrast, 54.9% of boys and 31.5% of girls who reported having a negative relationship with their parents reported fighting. In addition, there was an interaction effect of parent relationship quality and sex on fighting whereby the effect was stronger at all levels of relationship quality for girls compared to boys.

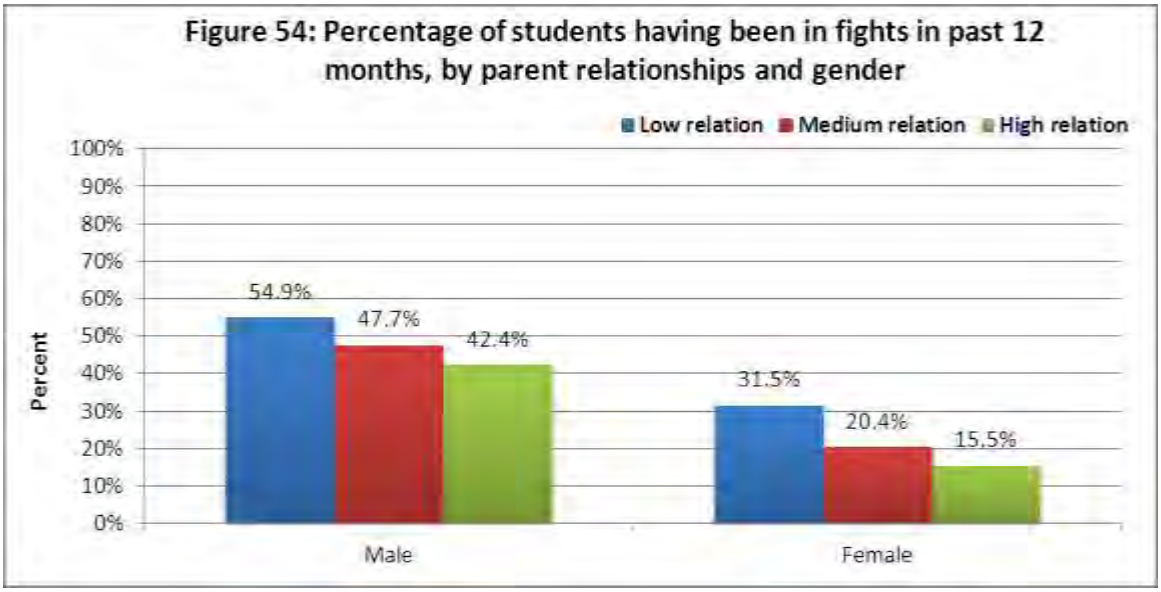
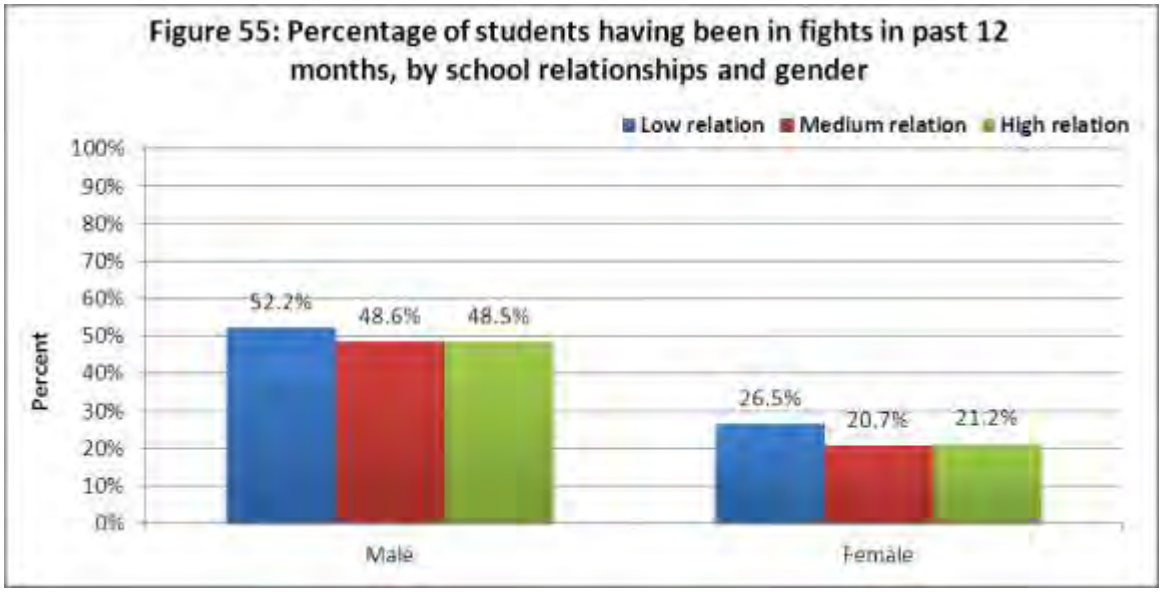


Figure 55 depicts the results for fighting and quality of relationship with school. 48.5% of boys and 21.2% of girls who had a positive relationship with their school reported fighting. In contrast, 52.2% of boys and 26.5% of girls who reported having a negative relationship with their school reported fighting. In general the effect of quality of school relationship was stronger for boys than girls. This was also true for the quality of relationships with teachers and peers.



Finally, there was a significant interaction between the quality of relationship with the neighbourhood and sex. For girls, as the quality of relationship decreased, there was an increase in the prevalence of fighting. This relationship was not present for boys.

4. Delinquent Friends

There was a significant association between having delinquent friends and the quality of parent and schools relationships, whereby having healthier relationships was related to decreased likelihood of having delinquent friends (See Figures 56 and 57).

Figure 56 depicts that 15.6% of boys and 13.1% of girls who had a positive relationship with their parents reported having delinquent friends. In contrast, 29.0% of boys and 30.9% of girls who reported having a negative relationship with their parents reported having delinquent friends. In addition, the effect of parent relationship was stronger for girls than boys on having delinquent friends.

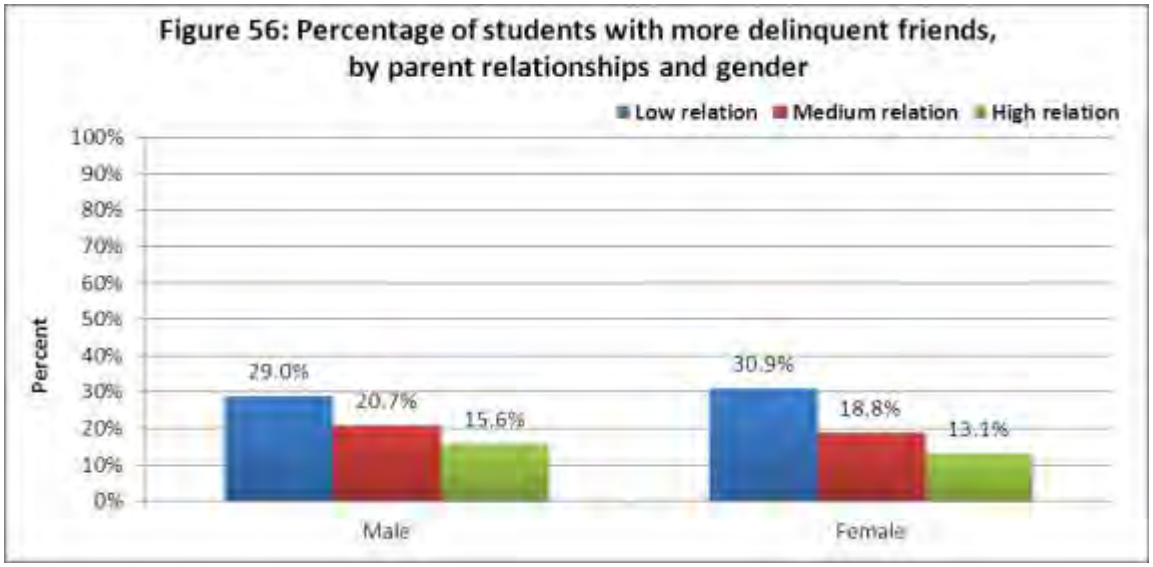
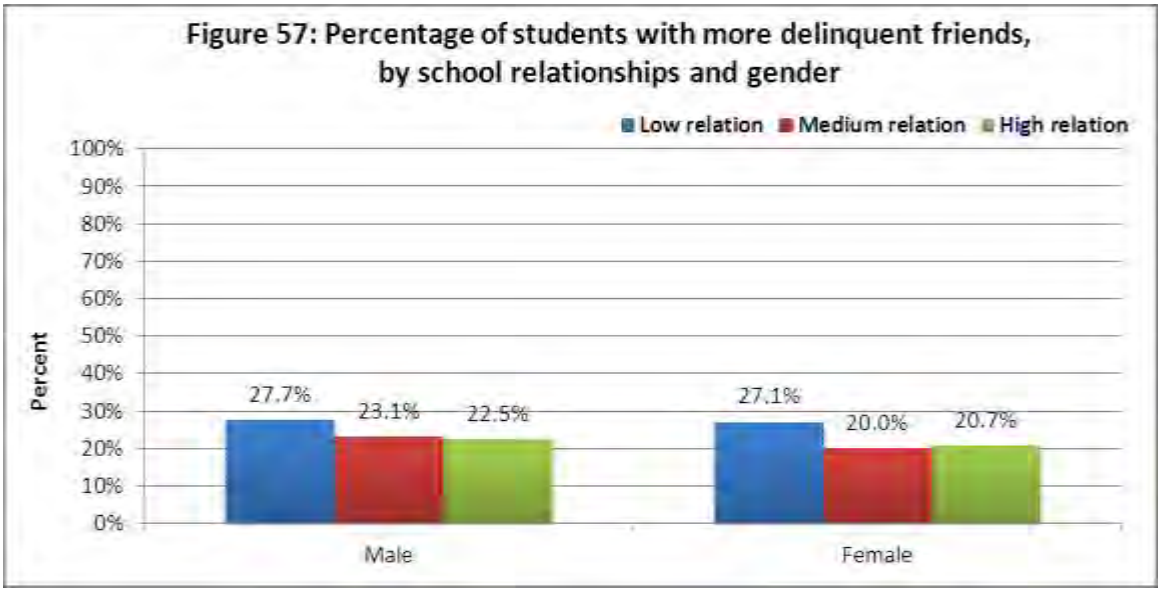


Figure 57 depicts the results for having delinquent and quality of relationship with school. 22.5% of boys and 20.7% of girls who had a positive relationship with their school reported having delinquent friends. In contrast, 27.7% of boys and 27.1% of girls who reported having a negative relationship with their school reported delinquent friends.



Substance Use Domain

1. *Smoking*

There was a significant association between smoking and the quality of parent and schools relationships, whereby having healthier relationships was related to decreased likelihood of smoking (See Figures 58 and 59).

Figure 58 depicts that 11.4% of boys and 11.9% of girls who had a positive relationship with their parents reported smoking. In contrast, 18.7% of boys and 24.4% of girls who reported having a negative relationship with their parents reported smoking. In addition, there was a significant interaction between quality of parent relationship and sex, whereby the effect of parent relationship was greater for girls at all levels of quality of relationships on smoking.

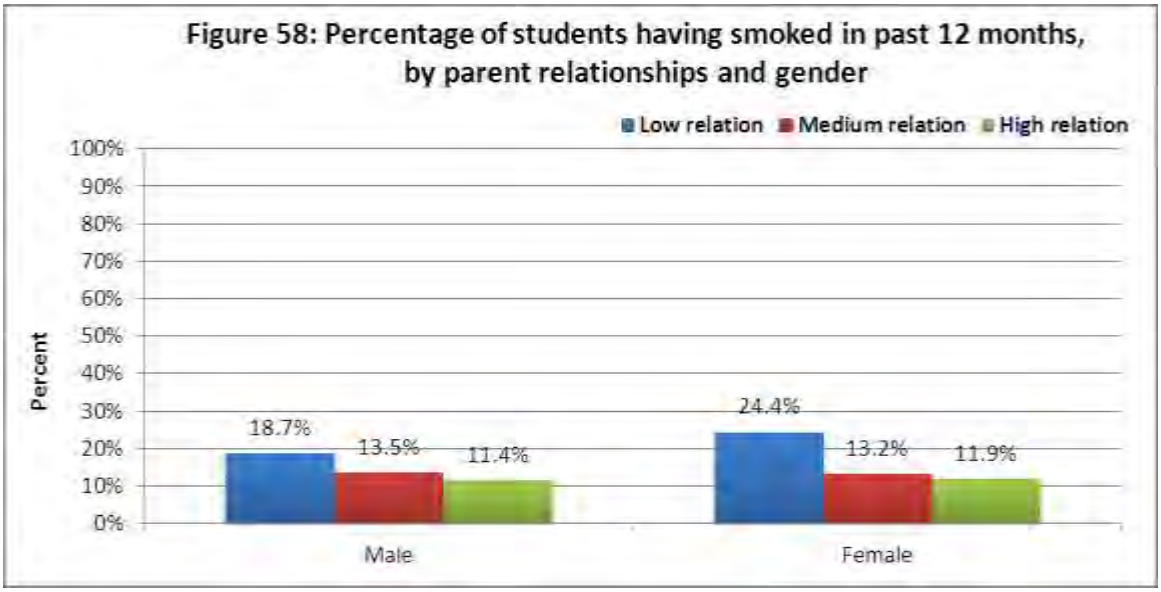
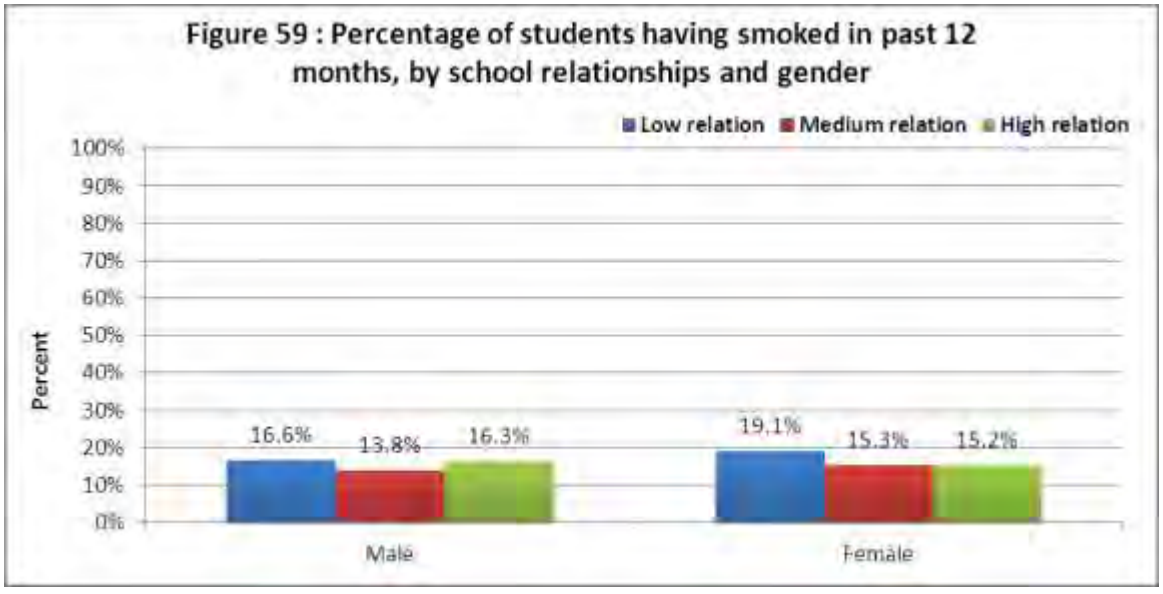


Figure 59 depicts the results for smoking and quality of relationship with school. 16.3% of boys and 15.2% of girls who had a positive relationship with their school reported smoking. In contrast, 16.6% of boys and 19.1% of girls who reported having a negative relationship with their school reported smoking. There was also a significant interaction between school relationship quality and sex, such that for girls there was a different in the proportion who smoked from high quality to low and medium quality relationships. In contrast for boys, only boys in high quality and low quality relationships reported more smokers than medium quality relationships.



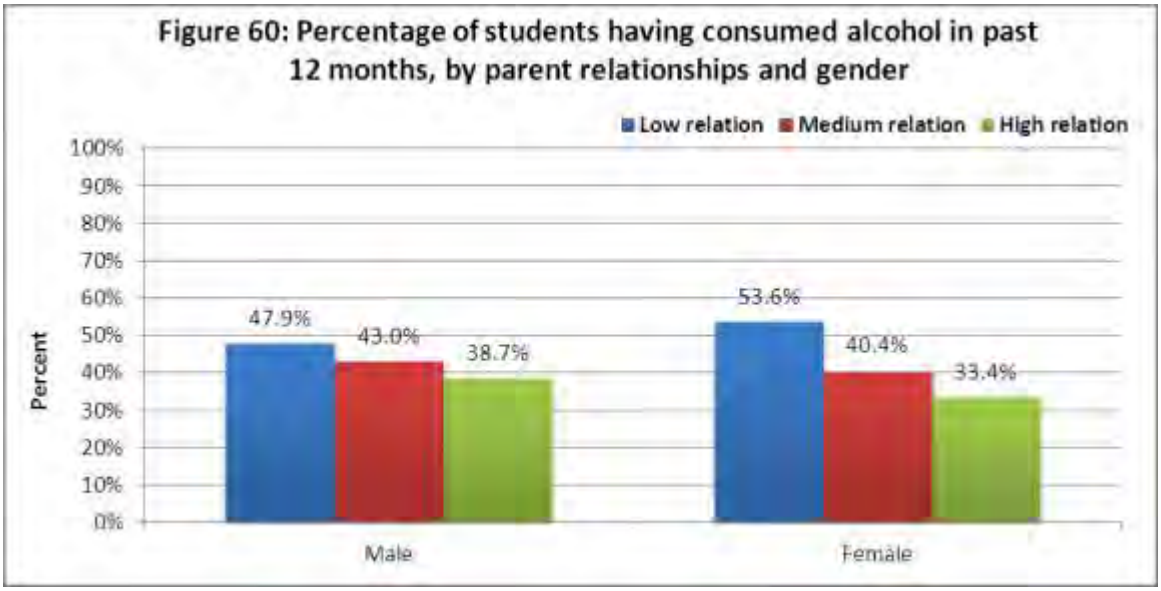
There were also significant interactions for relationship with peers and neighbourhood with sex. For peer relationships, the gender patter was in opposite directions, such that for boys as quality of relationship increased there was an increase in the percentage who reported smoking. For girls the opposite was true and the pattern was in the

expected direction. For neighbourhood relationships, quality of relationship varied in expected direction for girls but not boys.

2. *Drinking Alcohol*

There was a significant association between consuming alcohol and the quality of parents, peers, school, and neighbourhood relationships. (See Figures 60, 61, 62, and 63).

Figure 60 depicts that 38.7% of boys and 33.4% of girls who had a positive relationship with their parents reported drinking alcohol. In contrast, 47.9% of boys and 53.6% of girls who reported having a negative relationship with their parents reported drinking alcohol. In addition, there was a significant interaction effect whereby the effect of quality of relationships with parents on drinking was stronger for girls than boys at all levels.



There was a significant interaction effect of the quality of relationship with teachers, by sex.

Figure 61 depicts the results for drinking alcohol and the quality of relationships with peers. 47.2% of boys and 43.5% of girls who had a positive relationship with their peers reported drinking alcohol. In contrast, 42.4% of boys and 42.6% of girls who reported having a negative relationship with their peers reported drinking alcohol. This effect was in the opposite direction than was expected. The quality of peer relationships with peers was more likely to be associated with drinking for boys than for girls.

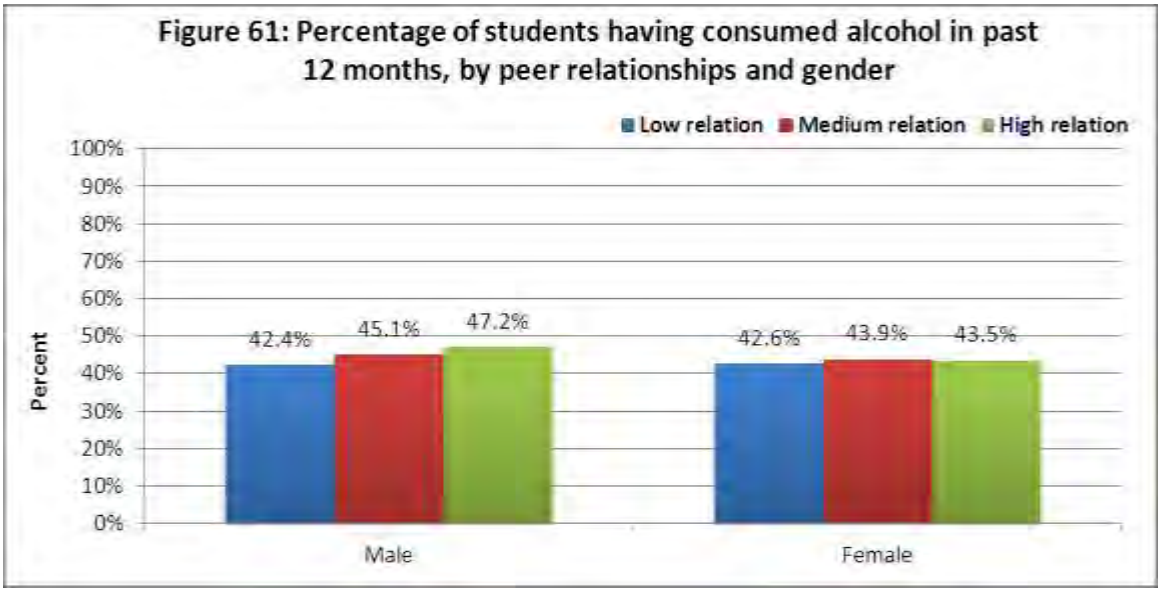


Figure 62 depicts the results for drinking alcohol and quality of relationship with school. 43.0% of boys and 38.3% of girls who had a positive relationship with their school reported drinking alcohol. In contrast, 47.1% of boys and 47.3% of girls who reported having a negative relationship with their school reported drinking. In addition, there was a significant interaction effect whereby the effect of quality of relationships with schools on drinking was stronger for girls than boys at all levels.

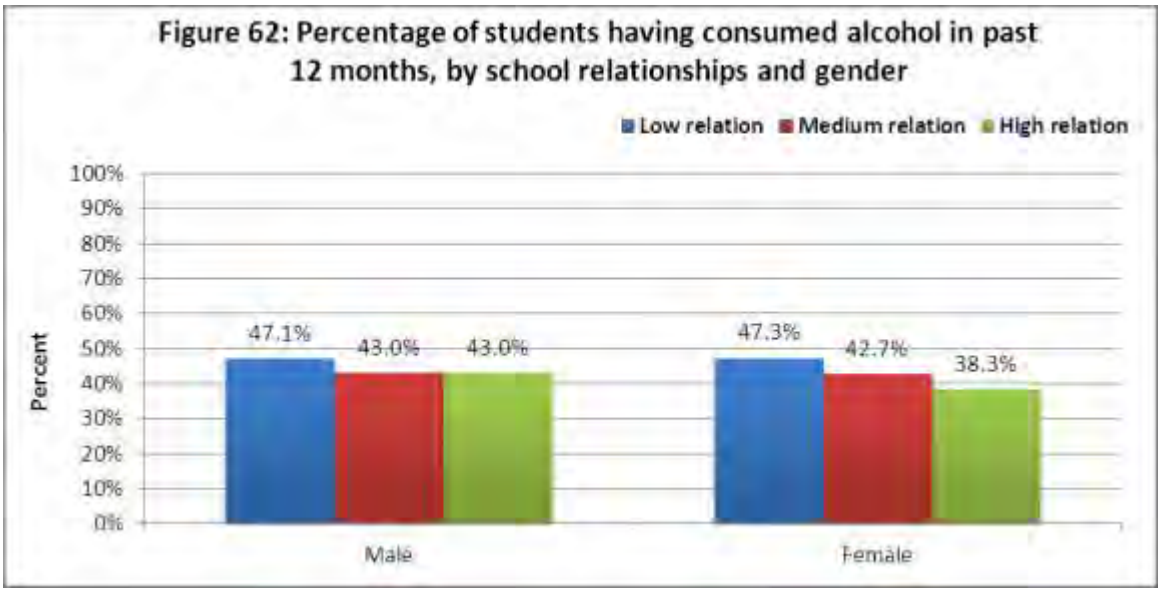
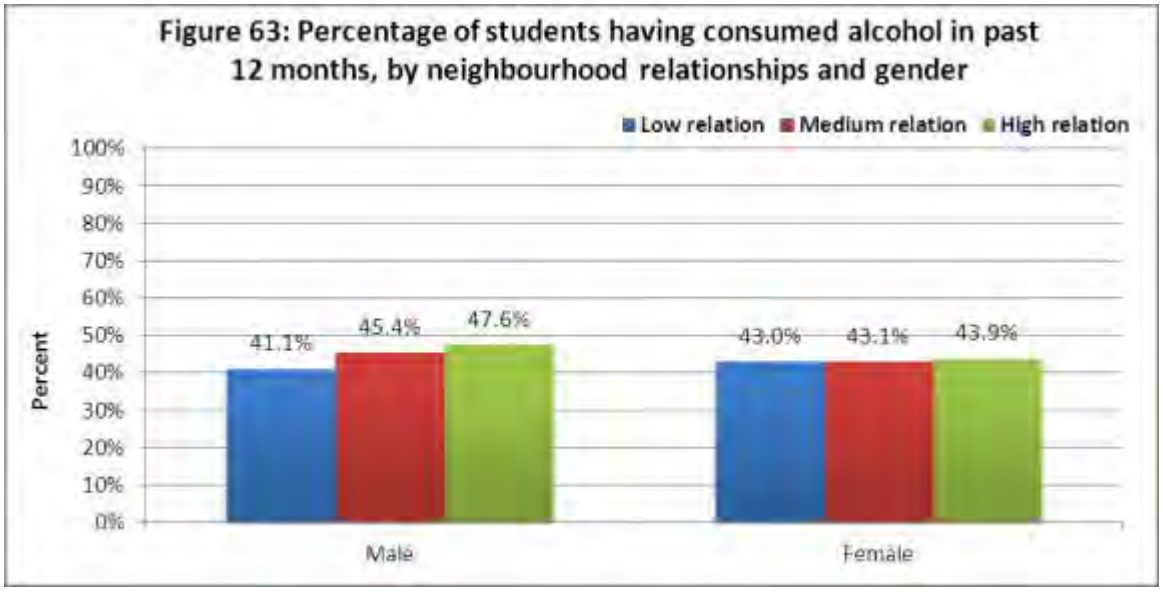


Figure 63 depicts the results for drinking alcohol and quality of neighbourhood relationships. 47.6% of boys and 43.9% of girls who had positive relationships within their neighbourhood reported drinking alcohol. In contrast, 41.1% of boys and 43.0% of girls who reported having a negative relationship with their neighbourhood reported

drinking alcohol. The effect was in the opposite direction than what was expected. In addition, there was a significant interaction effect whereby the effect of quality of relationships with schools on drinking was stronger for boys and nonsignificant for girls.



3. Cannabis Use

There was a significant association between using cannabis and the quality relationships with parents, teachers, and peers, whereby high quality relationships were related to decreased likelihood of using cannabis (See Figures 64, 65, and 66) as examples of this relationship graphically).

Figure 64 depicts that 17.4% of boys and 15.4% of girls who had a high quality relationship with their parents reported using cannabis. In contrast, 33.1% of boys and 33.2% of girls who reported having a low quality of relationship with their parents reported using cannabis. In addition, the effect of parent relationship on cannabis use was stronger for girls than boys.

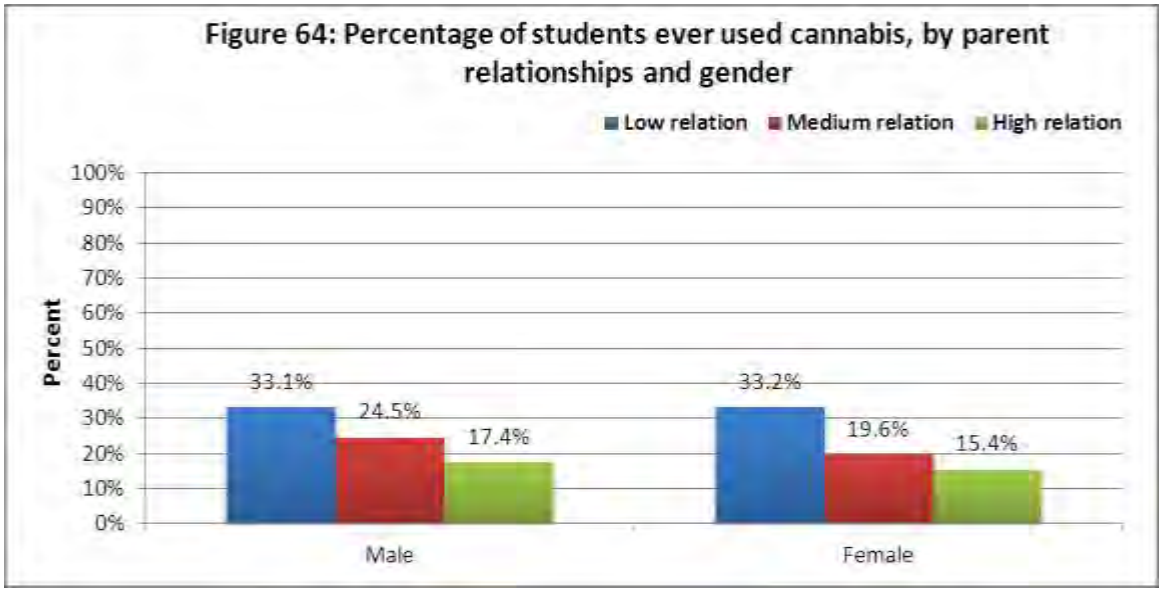


Figure 65 depicts that 29.7% of boys and 26.6% of girls who had a low quality relationship with their teachers reported using cannabis. In contrast, 26.3% of boys and 23.0% of girls who reported having a positive relationship with their teachers reported using cannabis. In addition, the effect of teacher relationship on the risk for using cannabis was stronger for boys than girls.

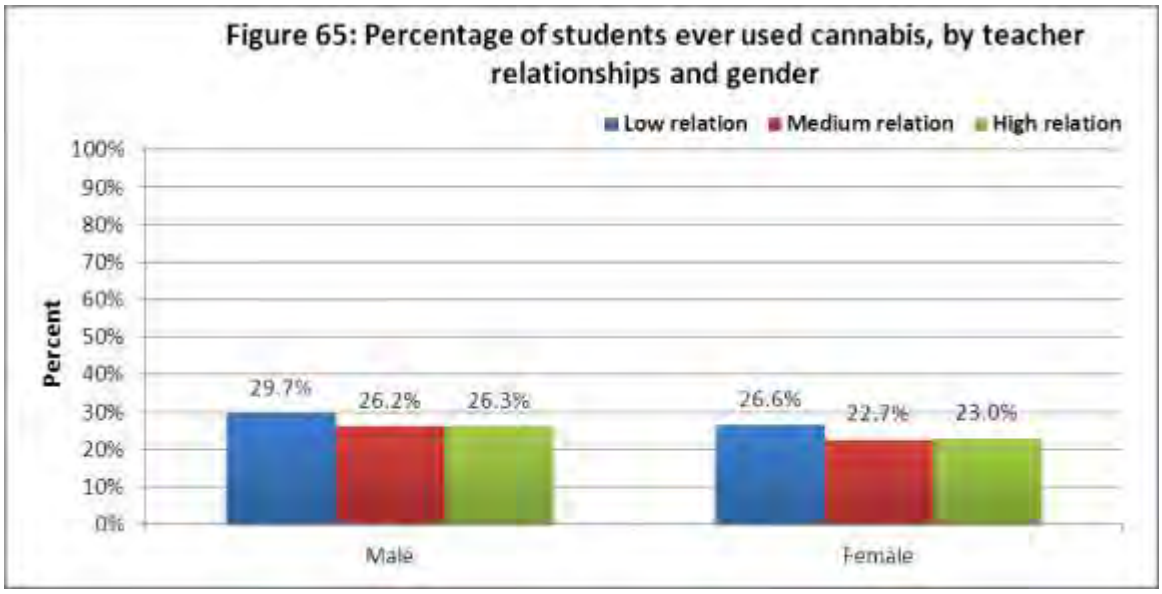
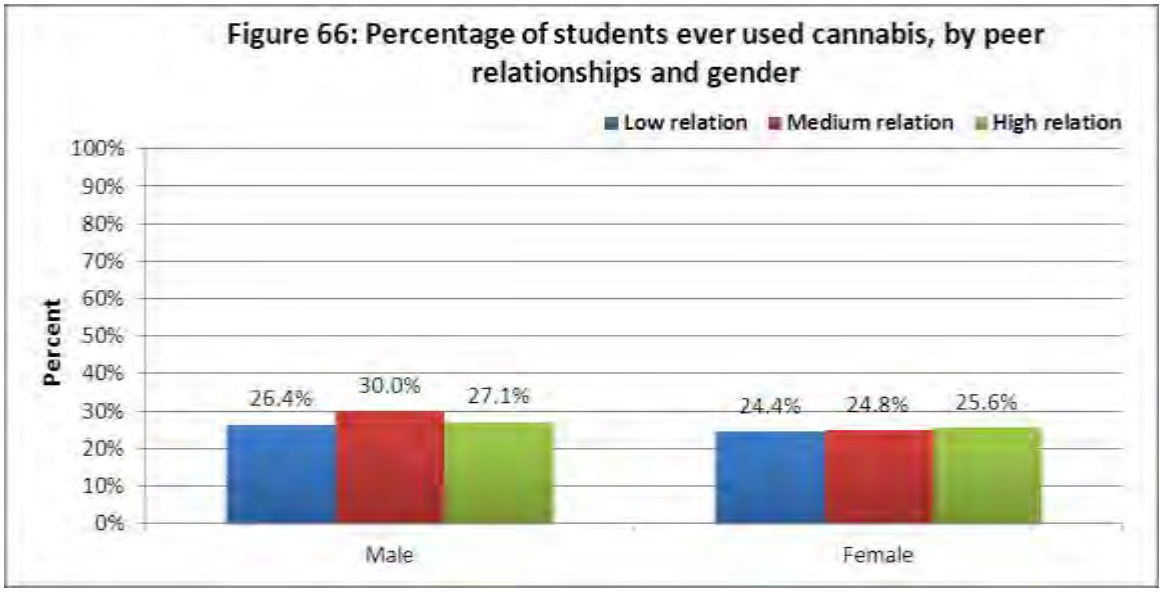


Figure 66 depicts that 26.4% of boys and 24.4% of girls who had a low quality relationship with their peers reported using cannabis. In contrast, 27.1% of boys and 25.6% of girls who reported having highly positive relationship with their peers reported using cannabis. In addition, the effect of peer relationships, in general, was stronger for boys than girls on cannabis use.

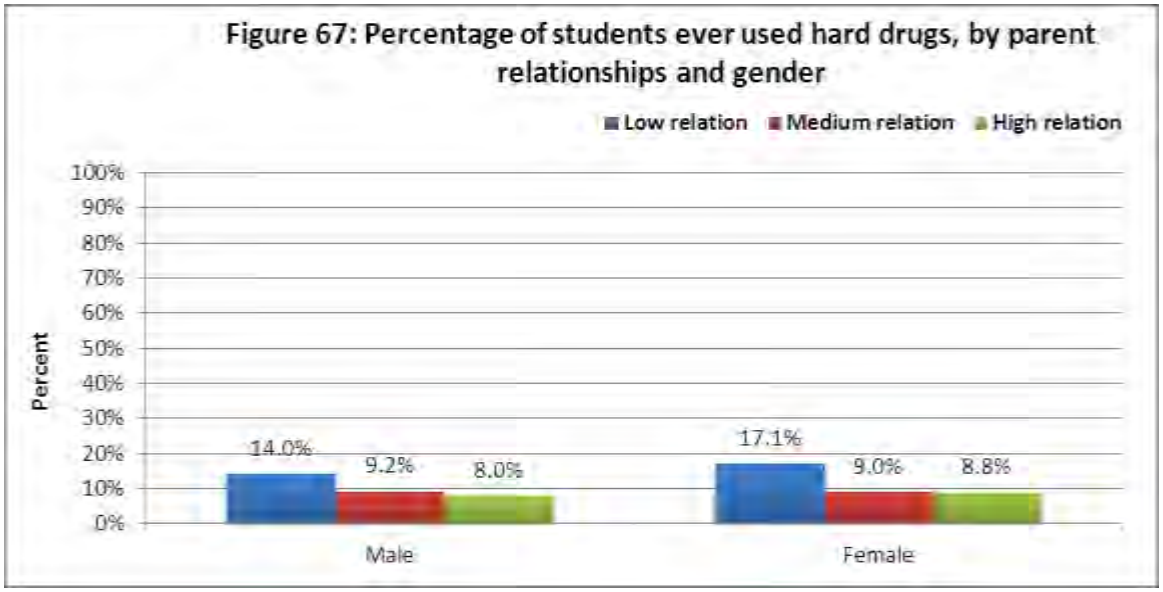


For school and neighbourhood relationships, there was a main effect of sex that demonstrated the quality of relationship was more likely to be significantly associated for boys than girls for cannabis use.

4. Hard Drug Use

There was a significant association between using hard drugs and the quality relationships with parents only, whereby high quality relationships were related to decreased likelihood of using hard drugs (see Figure 67).

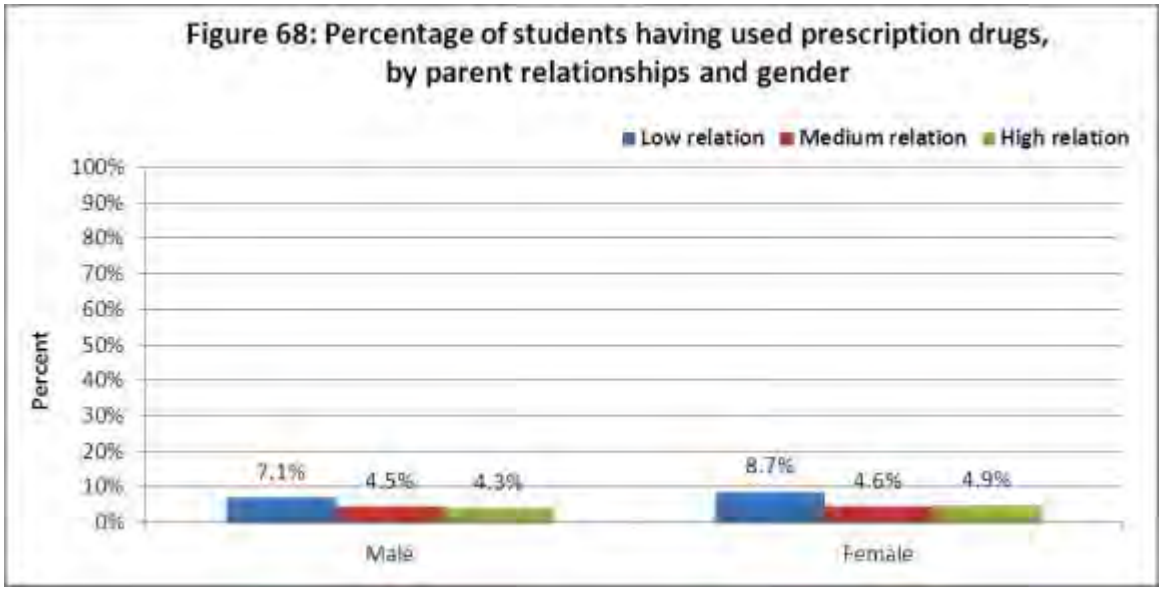
Figure 67 depicts that 14.0% of boys and 17.1% of girls who had a low quality relationship with their parents reported using hard drugs. In contrast, 8.0% of boys and 8.8% of girls who reported having a high quality of relationship with their parents reported using hard drugs.



5. Prescription Drug Use

There was a significant association between the use of prescription drugs and the quality of parent relationships, whereby having healthier relationships was related to decreased likelihood using prescription drugs. (See Figure 68).

Figure 68 depicts that 4.3% of boys and 4.9% of girls who had a positive relationship with their parents reported using prescription drugs. In contrast, 7.1% of boys and 8.7% of girls who reported having a negative relationship with their parents reported using prescription drugs.



Risky Behaviour Domain

1. *Sexual Activity*

There was a significant association between engaging in sexual activity and the quality of relationships with parents, teachers, and schools, whereby high quality relationships with parents and schools were related to decreased likelihood of having had sex. For teacher relationships, the opposite was true (see Figures 69, 70, 71, and 72).

Figure 69 depicts that 29.4% of boys and 29.2% of girls who had a low quality relationship with their parents reported having had sex. In contrast, 22.9% of boys and 19.2% of girls who reported having a high quality of relationship with their parents reported having sex.

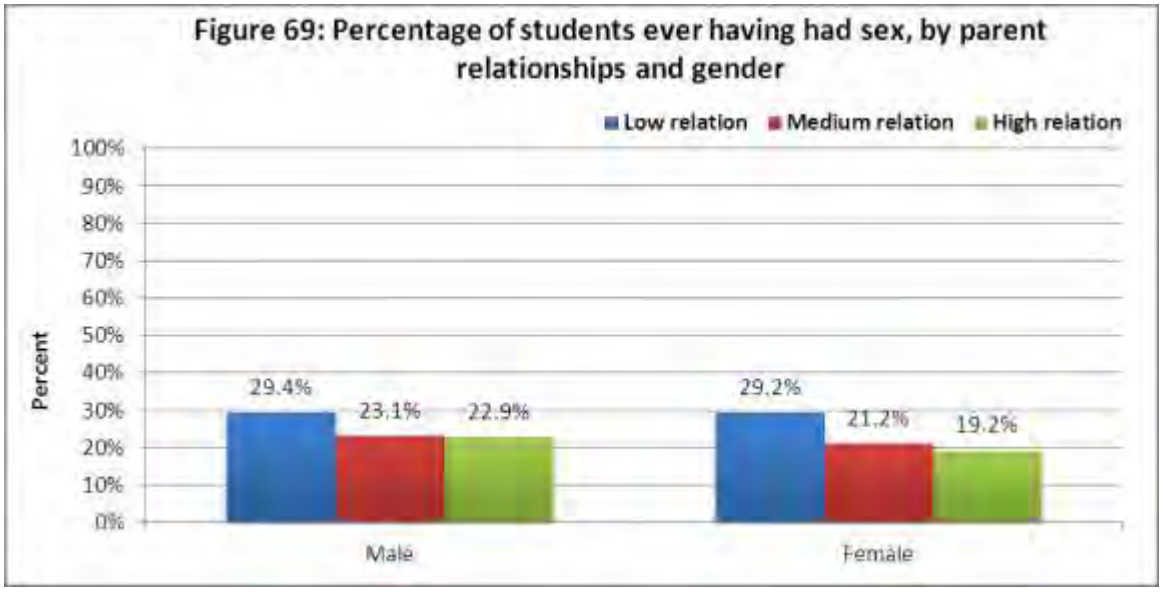


Figure 70 depicts that 26.4% of boys and 24.0% of girls who had a low quality relationship with their teachers reported having sex. In contrast, 31.3% of boys and 26.1% of girls who reported having a positive relationship with their teachers reported having sex. This finding was in the opposite of the expected direction. In addition, in general, the effect of teacher relationship on having sex was stronger for boys than girls.

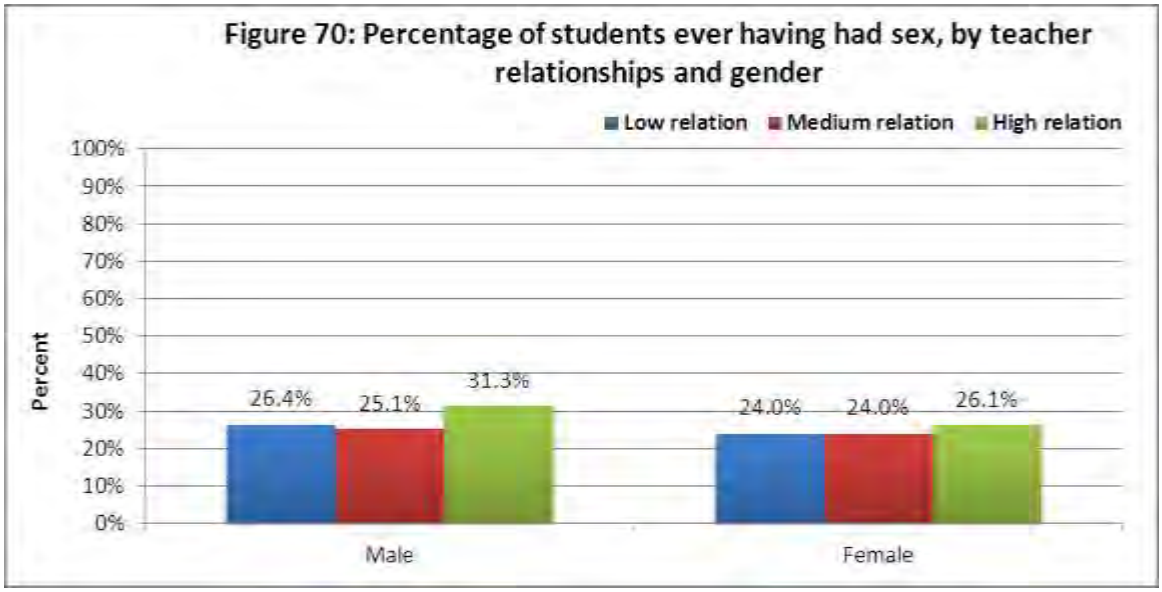
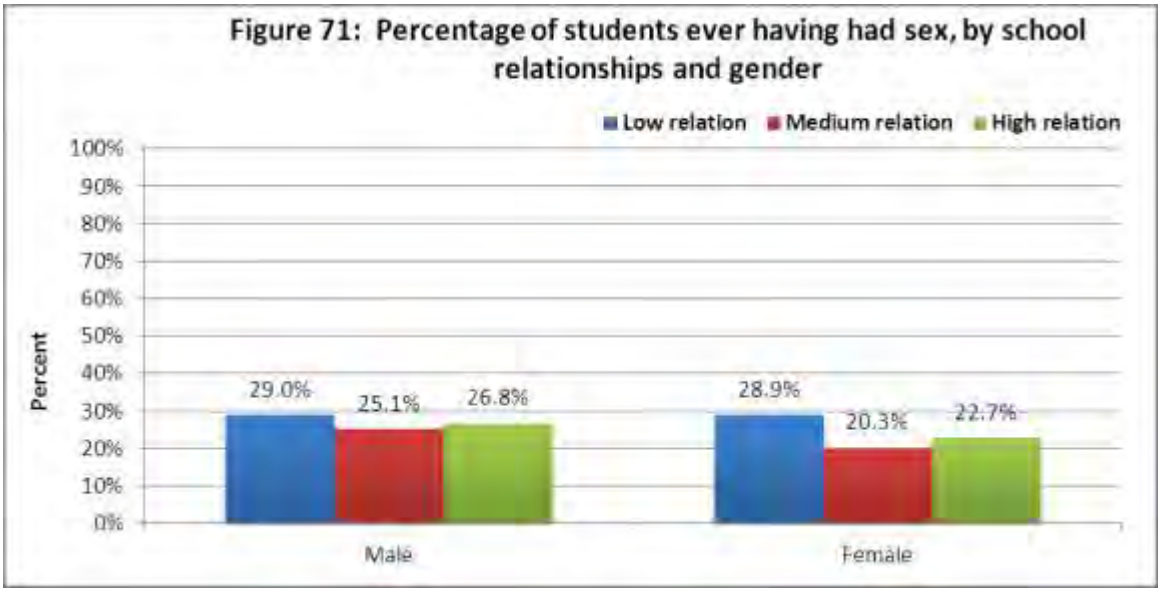
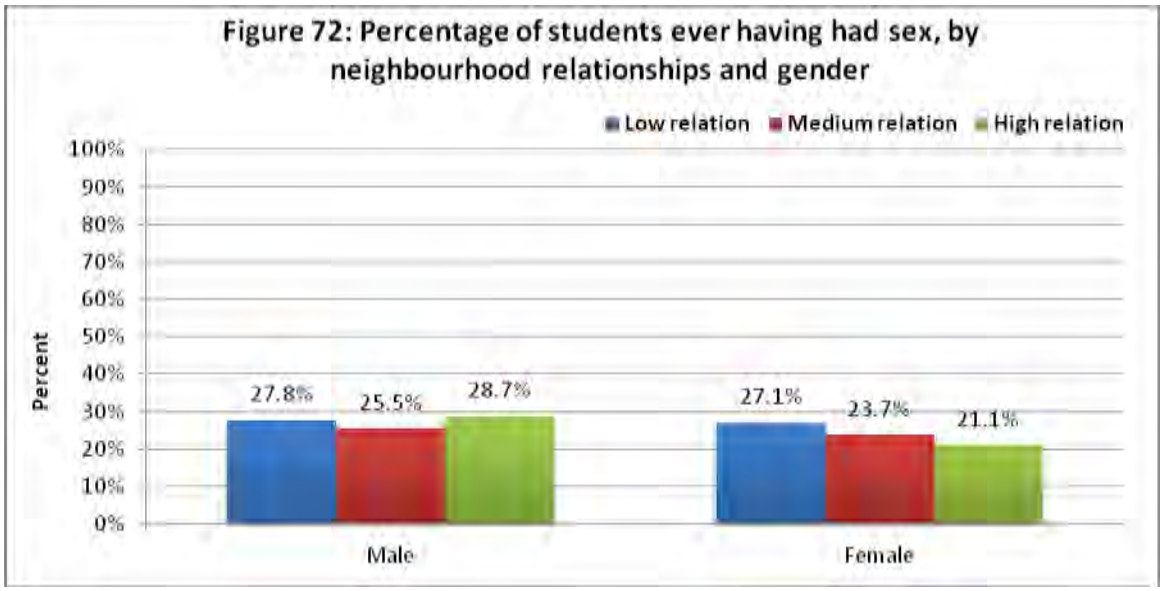


Figure 71 depicts the results for having sex and quality of relationship with school. 29.0% of boys and 28.9% of girls who had a negative relationship with their school reported having had sex. In contrast, 26.8% of boys and 22.7% of girls who reported having a positive relationship with their school reported having had sex. The quality of relationships with school, in general, was more strongly associated with having sex for boys than for girls.





For peer relationships, the quality of relationships with peers, in general had a stronger association for boys than for girls.

2. *Birth Control Use*

There were no significant effects for any type of quality of relationships with parents, teachers, peers, school, and neighbourhood on the use of birth control. This is likely due to the fact that the majority of students reported using birth control, 88.0% of boys and 89.0% of girls.

3. *Helmet Use*

There was a significant association between helmet use and the quality of parent and neighbourhood relationships, whereby having healthier relationships was related to increased likelihood of wearing a helmet (See Figures 73 and 74).

Figure 73 depicts that 80.6% of boys and 79.8% of girls who had a positive relationship with their parents reported wearing a helmet. In contrast, 75.3% of boys and 73.4% of girls who reported having a negative relationship with their parents reported wearing a helmet. In addition, the effect of parent relationship was stronger for boys than girls on helmet use.

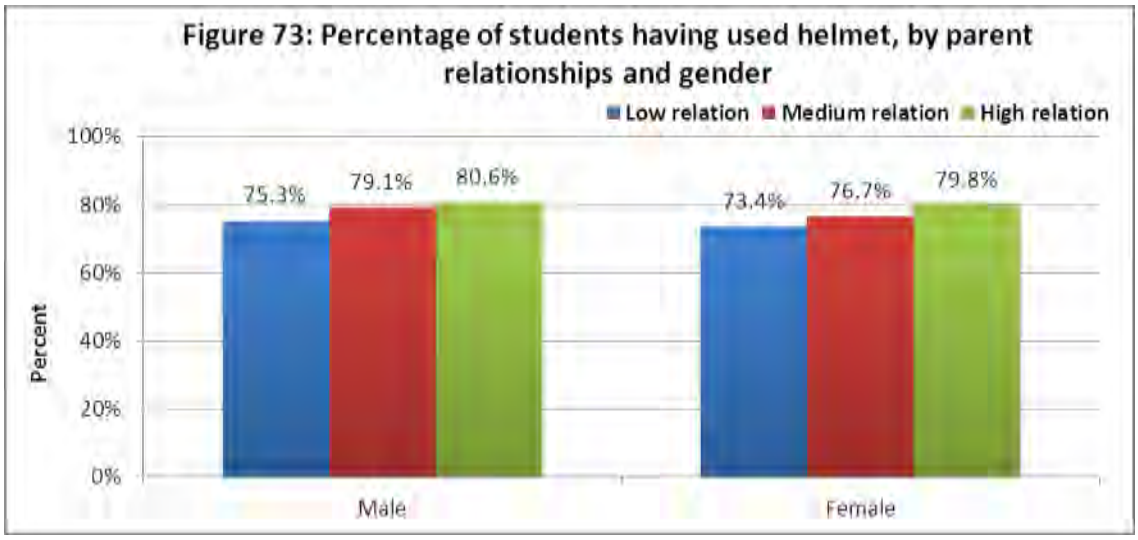
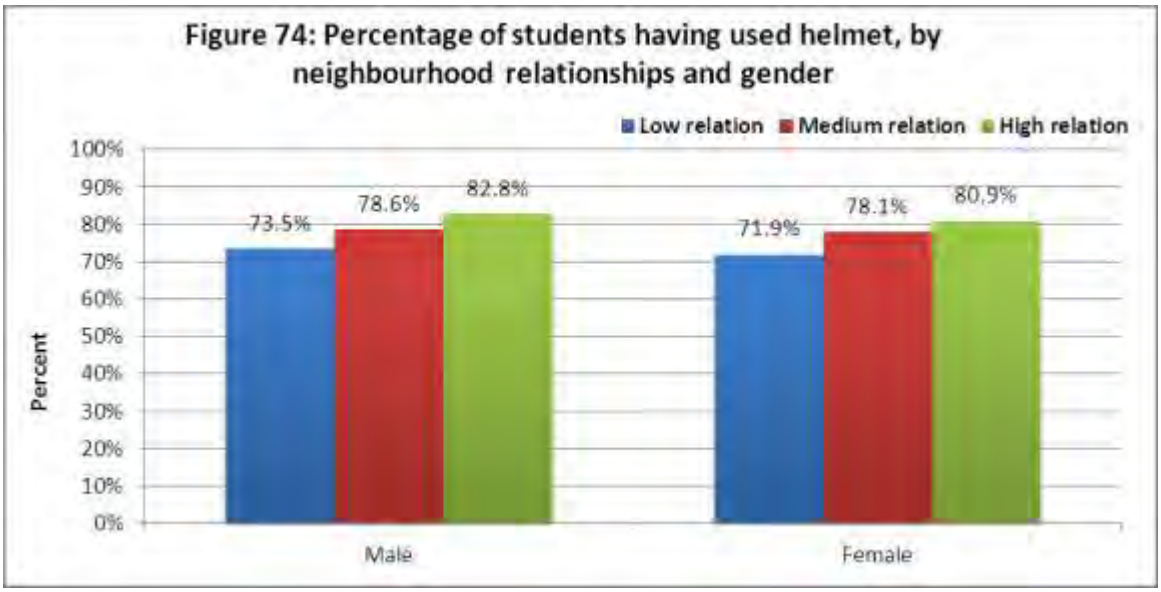


Figure 74 depicts the results for helmet use and quality of neighbourhood relationships. 82.8% of boys and 80.9% of girls who had positive relationships within their neighbourhood reported wearing helmets. In contrast, 73.5% of boys and 71.9% of girls who reported having a negative relationship with their neighbourhood reported wearing helmets. The quality of relationships with neighbourhood was more strongly associated with helmet use for boys than for girls.



4. Drinking and Driving

There was a significant association between students' reports of drinking and driving and the quality relationships with parents, peers, and neighbourhood, whereby low quality relationships were related to increased likelihood of drinking and driving (see Figures 75 and 76). The opposite was true for peer relationships, as depicted in Figure 77.

Figure 75 depicts that 26.9% of boys and 28.8% of girls who had a low quality relationship with their parents reported drinking and driving. In contrast, 21.2% of boys and 17.7% of girls who reported having a positive relationship with their parents reported having had been drinking and driving. In addition, there was a significant interaction between quality of relationship with parents and gender, such that the effect of low and high relationship quality was stronger for girls than boys.

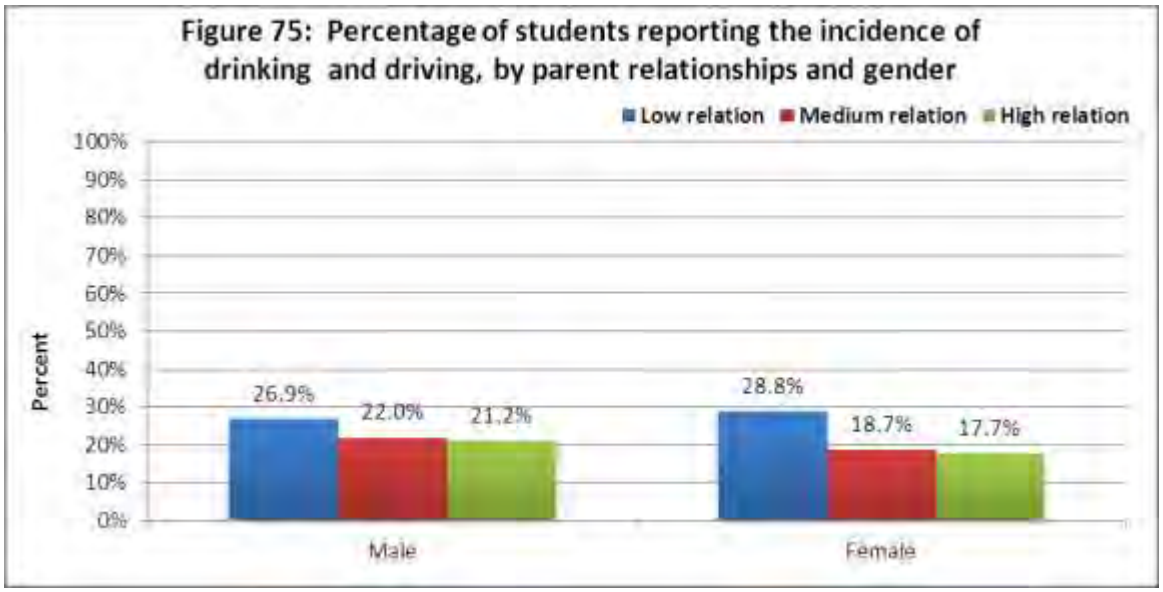


Figure 76 depicts the results for having reported drinking and driving and quality of neighbourhood relationships. 24.4% of boys and 25.6% of girls who had negative relationships within their neighbourhood reported engaging in drinking and driving. In contrast, 22.8% of boys and 19.4% of girls who reported having a positive relationship with their neighbourhood reported engaging in drinking and driving. There was a significant interaction of quality of relationship in neighbourhood and engaging in drinking and driving. As the quality of relationship within neighbourhood increased, girls were less likely to engage in drinking and driving, however, this was not true for boys.

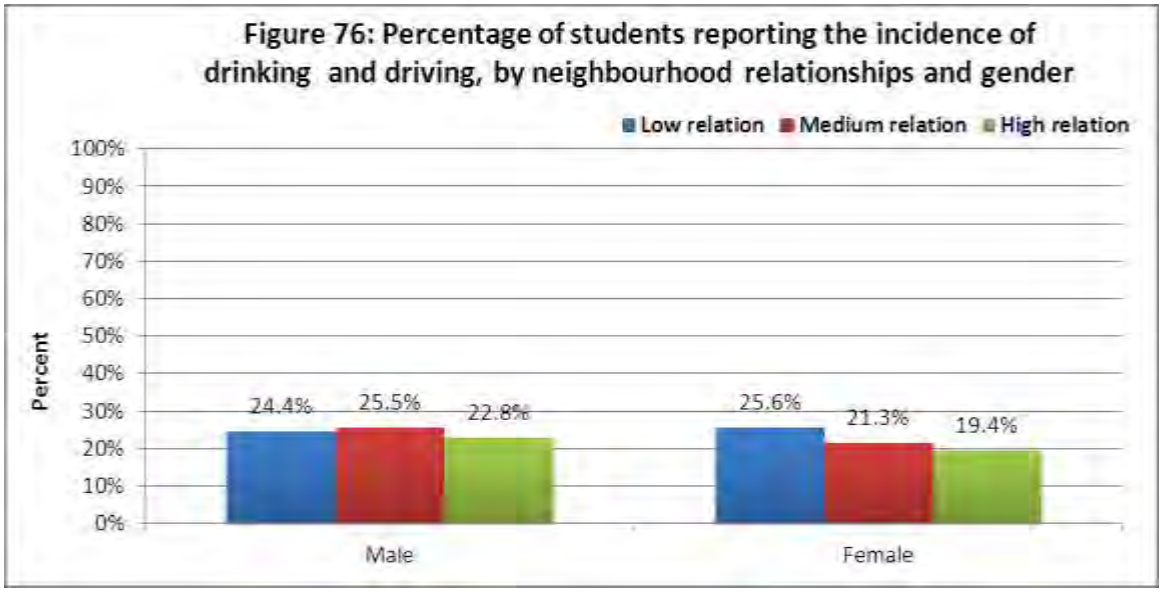
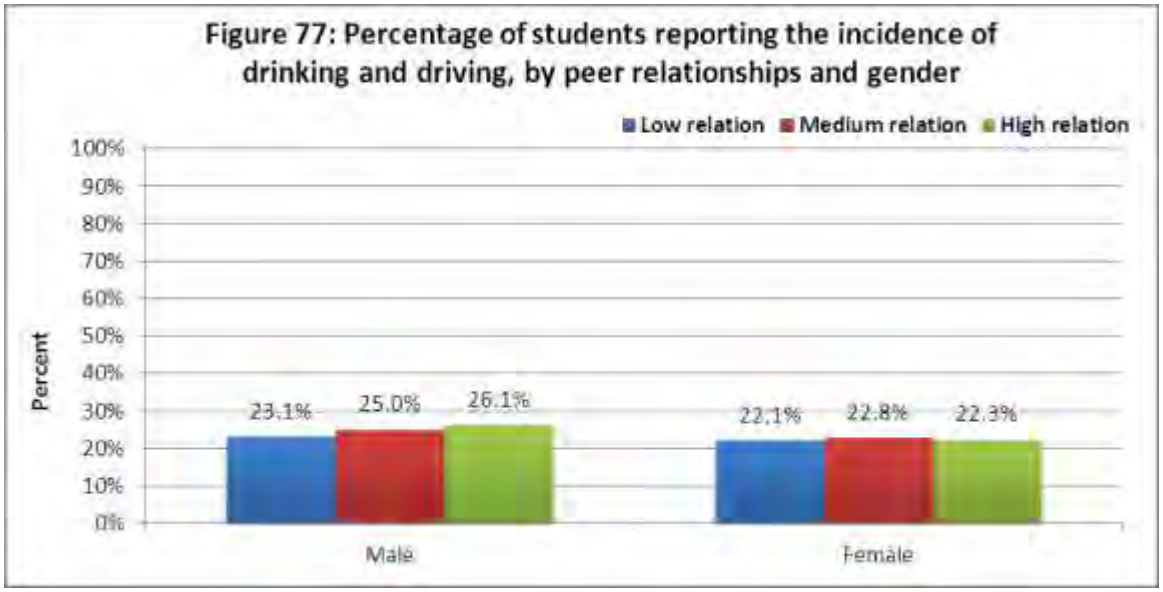


Figure 77 depicts that 23.1% of boys and 22.1% of girls who had a low quality relationship with their peers reported drinking and driving. In contrast, 26.1% of boys and 22.3% of girls who reported having a positive relationship with their peers reported drinking and driving. This was in the opposite effect we had expected. In addition, there was a significant interaction effect of peer relationship on the risk of drinking and driving, such that relationship quality was related to boys' drinking and driving but not girls.



Finally, there was a significant main effect of sex for relationship with teachers and schools. There was a stronger association, in general between quality of these relationships and drinking and driving.

Academic Achievement Domain

1. *Academic Achievement*

There was a significant association between academic achievement and all tested relationships, whereby high quality relationships were related to increased likelihood of high academic performance (See Figures 78, 79, 80, 81 and 82).

Figure 78 depicts that 72.4% of boys and 78.8% of girls who had a high quality relationship with their parents reported high academic achievement. In contrast, 62.5% of boys and 70.4% of girls who reported having a negative relationship with their parents reported having high levels of academic achievement. In addition, there was a main effect of sex such that in general the quality of relationship with parents was more strongly related to girls' academic performance than boys.

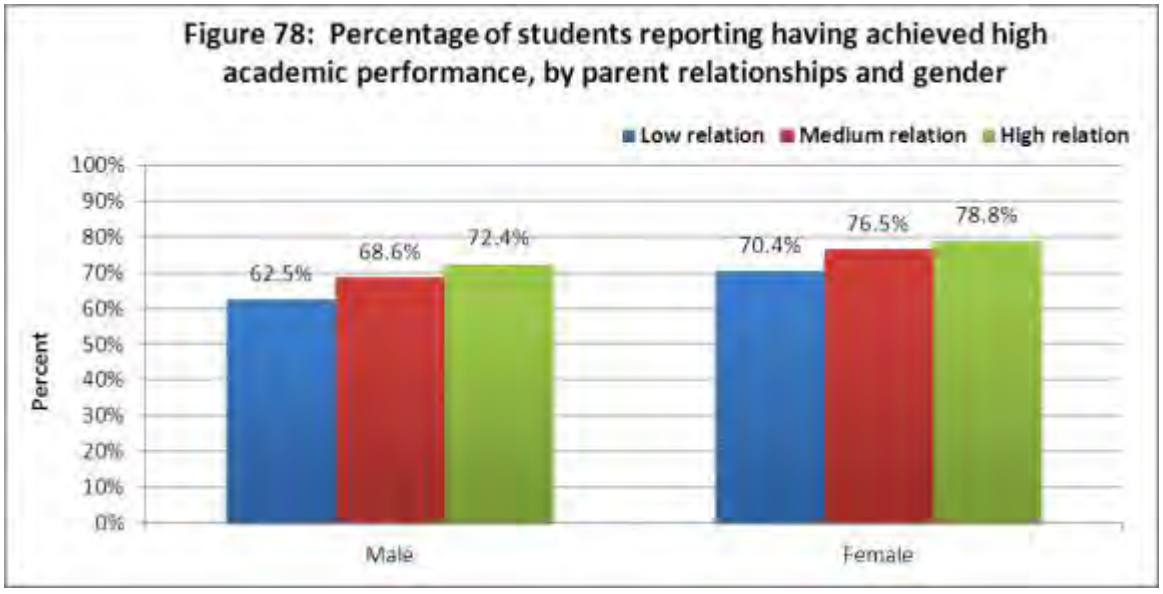


Figure 79 depicts the results for academic achievment and the quality of relationships with teachers. 69.0% of boys and 75.4% of girls who had a positive relationship with their teachers reported having high academic achievement, whereas 65.7% of boys and 74.7% of girls who reported having a negative relationship with their teachers reported having high academic achievement. The effect of quality of relationships with teachers in general was stronger for girls than for boys.

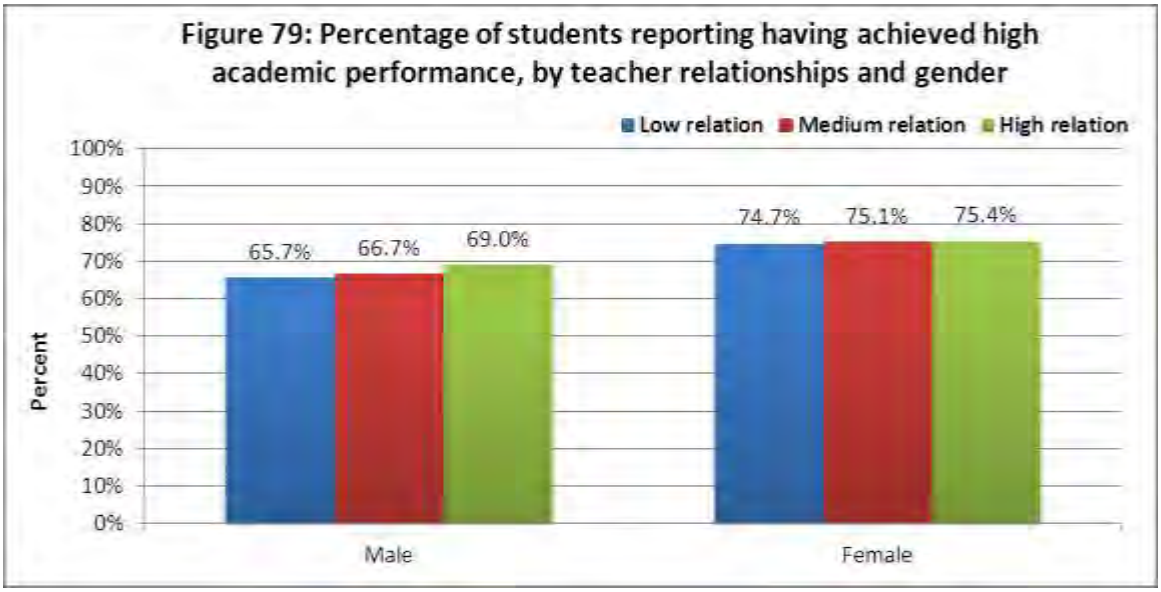


Figure 80 depicts the results for academic achievement and the quality of relationships with peers. 69.1% of boys and 75.3% of girls who had a positive relationship with their peers reported high academic achievement. In contrast, 66.0% of boys and 74.1% of girls who reported having a negative relationship with their peers reported high academic achievement. There was a significant effect of sex such that, in general, the association between peers relationships quality on academic achievement was stronger for girls than boys.

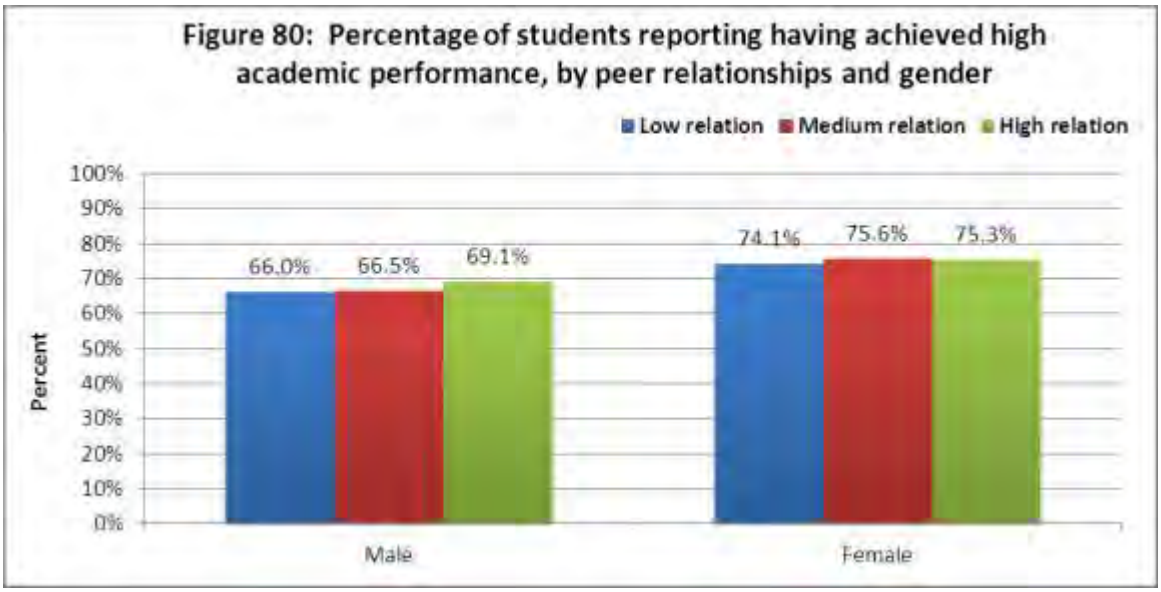


Figure 81 depicts the results for academic achievement and quality of relationship with school. 68.7% of boys and 75.6% of girls who had a positive relationship with their school reported academic achievement. In contrast, 64.3% of boys and 72.7% of girls who reported having a negative relationship with their school reported having high

academic achievement. There was a significant main effect of sex, such that in general relationship quality with school was more strongly associated for girls than for boys.

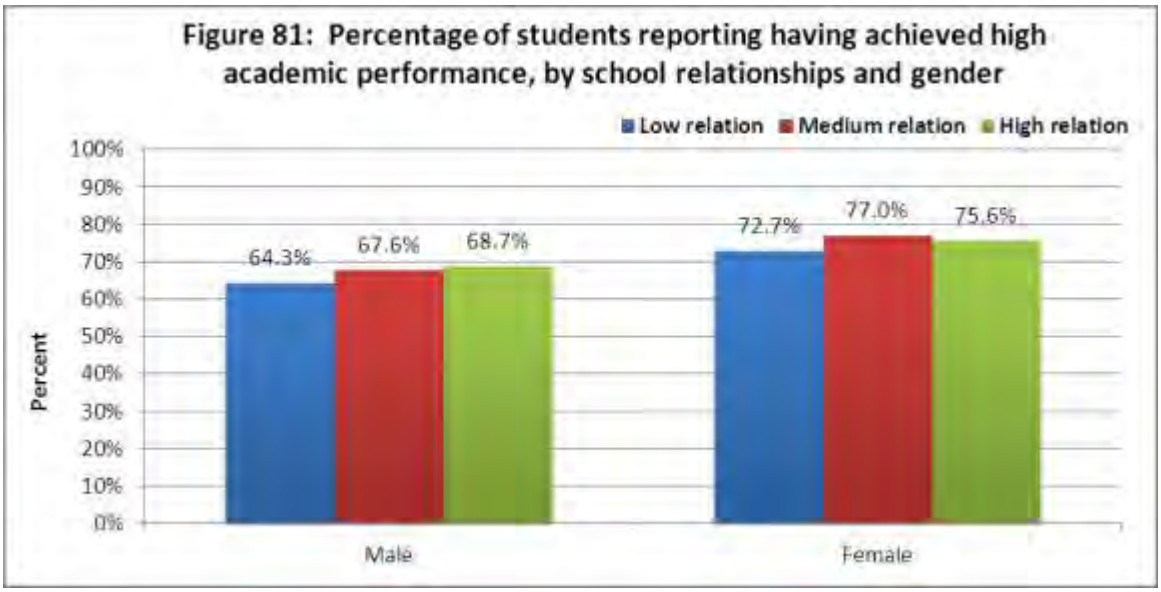


Figure 82 depicts the results for academic achievement and quality of neighbourhood relationships. 72.9% of boys and 80.4% of girls who had positive relationships within their neighbourhood reported high academic achievement. In contrast, 61.6% of boys and 70.1% of girls who reported having a negative relationship with their neighbourhood reported high academic achievement. In general, the quality of relationships with neighbourhoods was more strongly associated with academic achievement for girls than for boys.

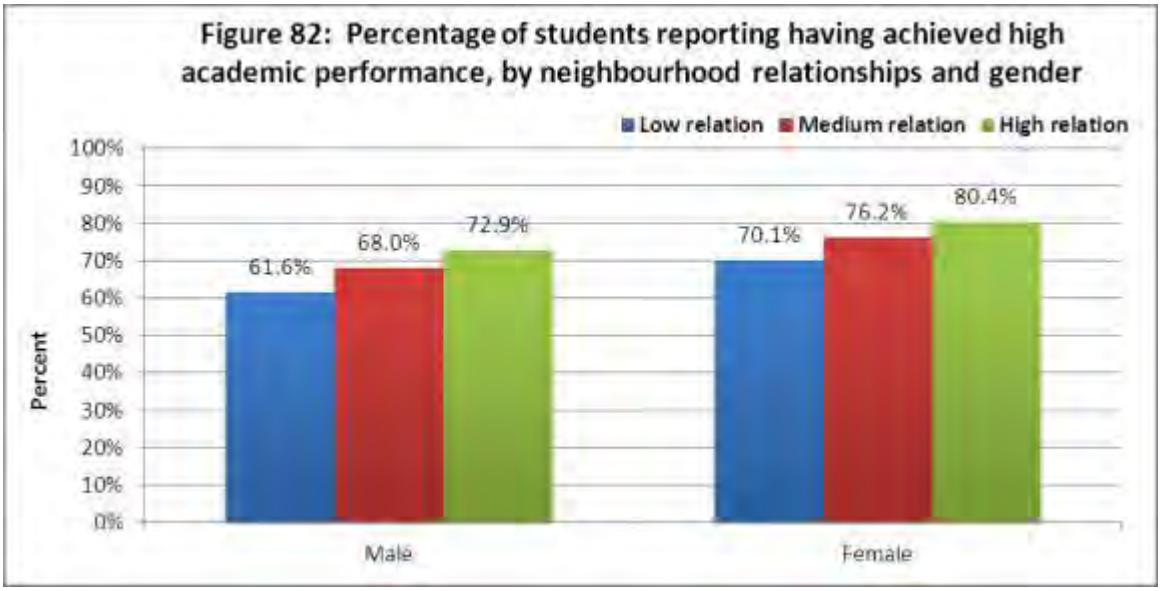


Table 7 presents a summary of the logistics regression analyses. The cells highlighted in green indicate that the effect found was in the direction expected. The cells

highlighted in yellow indicate that the direction of the findings was contrary to what we expected. There were five unexpected findings. Given that over 120 logistic regressions were run, we would expect by chance 5% to be due to error or chance. Hence, it is possible that these unexpected findings represent true findings, but they could also represent error due to the number of analyses run. In any case, they deserve more attention and further investigation. The detailed analyses are presented in Appendix B.

Table 7: Summary of All Regressions

Outcomes	Parent	Teacher	Peer	School	Neighbourhood	Main Effects	Interactions
Physical Heath							
Injuries						For parent, peer, school, and neighbour hood quality boys greater than girls.	NS
Overweight/obese						For parent, peer, school, and neighbourhood quality boys greater than girls.	NS
Overall Health						For parent, teacher, peer, school, and neighbour hood quality boys greater than girls.	Girls stronger gradient than boys at all levels of relationship.
Healthy Life Style							
Healthy Eating						For parent, teacher, peer, school, and neighbour hood quality girls greater than boys.	NS
Physically Active						For parent, teacher, peer, school, and neighbour hood quality boys greater than girls.	Stronger gradient for girls than boys for relationship with parents and school
Emotional Health							
High Quality of Life						For parent, teacher, peer, school, and neighbour hood quality boys greater than girls.	NS
Few Psychosomatic Symptoms						For parent, teacher, peer, school, and neighbour hood quality boys greater than girls.	NS
Mental Health Well-being						For parent, teacher, peer, school, and neighbour hood quality boys greater than girls.	Boys stronger gradient for parents, teacher, and neighbourhood
Positive Behaviours							
Behaviour Problems						For parent, teacher, peer, school, and neighbour hood quality boys greater than girls.	Stronger gradient for girls than boys on relationship neighbourhood.
Prosocial behaviour						For parent, teacher, peer, school, and neighbour hood quality girls greater than boys.	Stronger gradient for girls on relationships with parent, teacher, and school
Aggression							
Bullying						For parent, teacher, peer, school, and neighbour hood quality boys greater than girls	Stronger gradient for girls than boys on relationships with parent and school
Victimization						For parent, teacher, peer, school, and neighbour hood quality girls greater than boys	NS
Delinquent Friends						For school quality boys greater than girls.	NS
Fighting						For parent, teacher, peer, school, and neighbour hood quality boys greater than girls	Stronger gradient for girls than boys on relationships with parent and neighbourhood

Substance Use							
Smoking						For parent and teacher quality girls greater than boys.	Stronger gradient for girls than boys on relationships with parent, school, and neighbourhood. Opposite gradients by sex for peers, with girls as expected not boys.
Drinking Alcohol						For teacher, peer, school, and neighbour hood quality boys greater than girls.	Stronger gradient for girls than boys on relationships with parent, teacher, and school. Opposite gradients by sex for peers and neighbourhood, with boys and no effect girls.
Cannabis Use						For parent, teacher, peer, school, and neighbour hood quality boys greater than girls.	NS
Hard Drug Use						NS	NS
Prescription Drugs Use						NS	NS
Risky Behaviour							
Sexual Activity						For, teacher, peer, school, and neighbourhood quality boys greater than girls.	Gradient stronger for girls on relationships with neighbourhood
Birth Control Use						NS	NS
Helmet Use						For, parent, school, and neighbourhood quality boys greater than girls.	NS
Drinking and Driving						For parent, teacher, peer, school, and neighbour hood quality boys greater than girls.	Gradient stronger for girls on relationships with parents and neighbourhood
Academic Achievement							
Achievement						For parent, teacher, peer, school, and neighbour hood quality girls greater than boys.	NS

- Green indicates that the result was in the hypothesized direction, while yellow indicates it was in the opposite direction.

Summary of HBSC Analyses

Relationships matter! With the exception one outcome (use of birth control), the quality of relationships was related a reduced likelihood of negative health outcomes or the promotion of positive outcomes. The analyses conducted confirm our hypothesis that there is a complex interaction of several types of relationships in the lives of children and youth. In summary, the results indicated that:

1. All relationships impact healthy development in some way, although they differ with which outcomes they are associated.
2. Healthy relationships are important for both boys and girls, but in different ways.
3. Positive parent relationships are the most consistent factor in experiencing positive outcomes for children and youth.
4. The neighbourhood is also critical in promoting healthy development and provides an important context for children and youth to develop.

1) Results by Relationship Type

Parent Relationships

- Parent relationships mattered for 23 out of 24 outcomes. The quality of parent relationships was not related to the use of birth control. High quality relationships are protective against negative outcomes (such as physical injury, behavioural problems, bullying, being victimized, fighting, smoking, substance use, and drinking and driving). In addition, a high quality relationship with parents was associated with positive outcomes such as excellent healthy weight, overall health, healthy eating, being physically active, high quality of life, mental health well-being, helmet use, and academic achievement.

Teacher Relationships

- Teacher relationships were related to eight of the outcomes. High quality teacher relationships predicted healthy eating, high quality of life, mental health well-being, prosocial behaviour, lack of cannabis use, and high academic achievement). Unexpectedly high quality teacher relationships was related to peer victimization and engaging in sexual activity. These unexpected findings require further analyses to determine if they are spurious (a result of chance or meaningful).

Peer Relationships

- Peer relationships mattered for 14 out of the 24 outcomes. High quality peer relationships are protective against negative outcomes (i.e., psychosomatic symptoms, bullying others, peer victimization, cannabis use) and promote

positive outcomes such as healthy weight, good overall health, healthy eating, being physically active, high quality of life, mental health well-being, prosocial behaviour, and academic achievement. Unexpectedly, high quality of peer relationships was related to drinking alcohol and drinking and driving.

- Surprisingly, the quality of peer relationships was associated with the lowest number of outcomes. Research on aggressive children has demonstrated that they have high quality relationships, through which they learn negative behaviours. Thus, it may not be the quality of peer relationships but rather who the friends are.
- Peer relationships were related to all outcomes in the healthy lifestyle, emotional health, and academic domain.

School Relationships

- School relationships mattered for 13 out of the 24 outcomes. High quality relationships at school are protective against psychosomatic symptoms, behaviour problems, peer victimization, having delinquent friends, smoking, drinking alcohol, engaging in sexual activity. School relationships promote positive outcomes such as healthy eating, high quality of life, mental health well-being, prosocial behaviour, helmet use, and academic achievement.
- The quality of school relationships were related to all outcomes in the emotional health and academic domains.

Neighbourhood Relationships

- Neighbourhood relationships mattered for 12 out of the 24 outcomes. High quality relationships within the neighbourhood are protective against injuries, psychosomatic symptoms, behaviour problems, and drinking and driving. Neighbourhood relationships promote positive outcomes such as healthy eating, being physically active, high quality of life, mental health well-being, prosocial behaviour, helmet use, and academic achievement. Unexpectedly, high quality neighbourhood relationships related to drinking alcohol.
- The quality of neighbourhood relationships was related to all healthy lifestyle, emotional health, and behavioural outcomes.

2) Results by Outcome Domain

- All types of relationships mattered for the following outcomes: healthy eating, high quality of life, prosocial behaviour, and academic achievement. Each of these relationships uniquely contributed to these positive outcomes.

- Physical health outcomes were primarily related to the quality of relationships with parents and peers. The quality of teacher and school relationships were not related physical health outcomes.
- The outcomes under emotional health and behaviours were related to almost all types of quality of relationships, emphasizing the critical role of relationships for positive emotional health and behaviours.
- Academic achievement was related to all of the relationships and emphasizes the importance of partnerships among students, parents, and teachers in promoting academic success.

3) Results by Gender

- Overall, quality of relationships was important for most outcomes (20 out of 24) for boys and girls.
- In general the quality of relationships whether low, medium or high was related to the outcomes more strongly for boys than girls.
- However, for 10 outcomes (overall health, physical activity, behaviour problems, prosocial behaviour, bullying, fighting, smoking, drinking alcohol, sexual activity, and achievement) the associations of quality of relationships had a steeper gradient for girls compared to boys. In other words, although the quality of relationship was important for both boys and girls, high quality relationships were more protective for girls for negative outcomes and more enhancing for girls in positive outcomes listed above. There was one exception, which was that was for the outcome of mental health well-being. In this case, high quality relationships were more protective for boys than girls in promoting mental health well-being.

Healthy Relationships: A Public Health Issue

Our objective in writing this report was to provide a scientific foundation to start a conversation about the critical importance of healthy relationships for healthy development, not just in childhood, but throughout the lifespan. The literature review identified the importance of healthy relationships in the lives of children and youth. The importance of relationships was empirically supported and provided a strictly Canadian lens through the analyses of the Canadian portion of the 2009/10 HBSC study data.

As research has shown, children's relationship experiences affect not only their behavioural adaptation, but also their brain development and their genes. There is substantial evidence that the healthy development of children and youth depends on the quality of relationships they have within the family, peer group, school, neighbourhood and broader social context. These relationships, if positive, provide children and youth with the opportunity to develop emotional and behavioural regulation, critical relationship skills, and capacities in many other domains of development. When children and youth do not have the advantage of growing up in caring, supportive, predictable, and positive relationships, they experience stressors which undermine their physical, mental and social health and well-being. The importance of relationships was further substantiated through the analyses of the HBSC data.

Based on the literature and HBSC results on the importance of relationships in child development and future health, the following policy considerations are provided:

a) Public initiatives to promote positive parenting skills aimed at developing high quality relationships with their children through development will support reducing risk for negative outcomes and promoting healthy outcomes. The significance of the different types of relationships on health provides direction for the development of prevention and intervention programs, i.e., what relationship would be an important mechanism of change.
b) Teachers require education about the importance of their relationship with students during pre-service training and ongoing professional development. Teachers establish the quality of relationships for students in their classrooms and as a consequence create socialization opportunities that promote healthy development.
c) Peers provide an important socialization context for children and youth and interact in many environments (at home, at school, and in the neighbourhood, and in social media). To enhance the positive influences of peers and to mitigate the potential negative influences, adults involved with children and youth in these various settings need to attend to complex peer dynamics and actively promote positive peer interactions. Hence, all adults interacting with children and youth require healthy relationship training.

d) The quality of school relationships (i.e., school climate) is to a great extent dependent on the school leadership. The significance of school relationships on both emotional and academic health underscores the need to train leaders in education about the importance of healthy relationships for children's healthy development.
e) Community connectedness and social responsibility for others can promote healthy development for youth. Prevention and interventions aimed at building community relationship capacity will enhance children's development.
f) Physical health initiatives should engage parents and peers.
g) Academic success is related to the quality of all relationships In order to foster high academic success, all types relationships need to be developed and promoted. Partnering across home, peer, school and community relationships will be important for academic success.
h) Peer and romantic relationship quality matters for both boys and girls. Although boys may in general be at higher risk for some outcomes (e.g., physical injury), promoting healthy relationships will benefit both genders.
i) Prevention and intervention efforts need to be across several types of relationships. The healthy development of children and youth is dependent on many relationship influences. Parent, teacher, peer, school, and neighbourhood relationships all contribute to healthy development. Creating system prevention or intervention programs will likely contribute to healthy development.

It is important to recognize that it is not always possible for all relationships to be of high quality. It is incumbent on everyone to fill gaps and provide opportunities for children to develop the skills, understanding, capacities, and attitudes for a healthy life and healthy relationships.

Effective health promotion, prevention and targeted intervention efforts are required to support the healthy development of children who are disadvantaged and lack healthy relationships. By establishing opportunities for positive relationship experiences, children with negative relationship experiences can develop in a healthy way into adolescence, setting the stage for good health throughout the lifespan.

References

Ashman, S. B., Dawson, G., Panagiotides, H., Yamada, E., & Wilkinson, C. W. (2002). Stress hormone levels of children of depressed mothers. *Development and Psychopathology, 14,* 333-349.

Barr, C. S., Newman, T. K., Lindell, S., Shannon, C., Champoux, M., et al. (2004). Interaction between serotonin transporter gene variation and rearing condition in alcohol preference and consumption in female primates. *Archives of General Psychiatry, 61,* 1146-1152.

Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance use. *Journal of Early Adolescence, 11*(1), 56-95.

Bernard, K. & Dozier, M. (2010). Examining infants' cortisol responses to laboratory tasks among children varying in attachment disorganization: Stress reactivity or return to baseline? *Developmental Psychology, 46(6),* 1771-1778.

Blais, J., Craig, W. M., Pepler, D. J., & Connolly, J. (2008). Adolescents online: The importance of internet activity choices to salient relationship. Journal of Youth and Adolescence, 37 (5), 49-58.

Bowlby, J. (1951). Maternal care and mental health. World Health Organization.

Bowlby, J. (1988). A secure base: clinical implications of attachment theory. Routledge: London.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design.* Cambridge, MA: Harvard University Press.

Bradley, R.H., Corwyn, R.F. (2002). Socioeconomic status and child development. *Annual Review of Psychology, 53*, 371–399.

Bruce, J., Fisher, P. A., Pears, K. C., & Levine, S. (2009). Morning-cortisol levels in preschool-aged foster children: Differential effects of maltreatment type. *Psychobiology, 51,* 14-23.

Cairns, R. B. & Cairns, B. D. (1994) *Lifelines and Risks: Pathways of Youth in Our Time*. New York: Cambridge University Press

Centers for Disease Control (CDC) (2008). Strategic direction for intimate partner violence prevention: Promoting respectful, nonviolent intimate partner relationships through individual, community, and societal change. Retrieved from www.cdc.gov/injury.

Champagne, F. A., Francis, D. D., Mar. A., & Meaney, M. J. (2003). Variations in maternal care in the rat as a mediating influence for the effects of environment on development. *Physiology & Behavior, 79,* 359-371.

Champagne, F. A. & Meaney (2008). Transgenerational effects of social environment on variation in maternal care and behavioral response to novelty. *Behavioral Neuroscience, 121(6),* 1353-1363.

Chaux, E., Molano, A., & Podlesky, P. (2009). Socio-economic, socio-political and socio-emotional variables explaining school bullying: A country-wide multilevel analysis. *Aggressive Behavior, 35*, 520–529.

Chiodo, D., Crooks, C. V., Wolfe, D. A., McIsaac, C., Hughes, R., Jaffe, P. G. (2012). Longitudinal prediction and concurrent functioning of adolescent girls demonstrating various profiles of dating violence and victimization. *Prevention Science, 13,* 350-359.

Chryssanthopoulou, C. C., Turner-Cobb, J. M., Lucas, A., & Jessop, D. (2006). Childcare as a stabilizing influence on HPA axis functioning: A reevaluation of maternal occupational patterns and familial relations. *Developmental Psychobiology, 47,* 354-368.

Craig, W. M. (1998). The relationship among bullying, victimization, depression, anxiety, and aggression in elementary school children, *Personality and Individual Differences, 24,* 123-30.

Craig, W. (2011). Cyberbullying among Canadian Youth: HSBC Analyses. Presentation to the Senate Standing Committee on Human Rights – Cyberbullying, Ottawa, December.

Craig, W. & Pepler, D. (1997). Observations of bullying and victimization in the schoolyard. *Canadian Journal of School Psychology, 2,* 41-60.

Currie C et al., eds. (2012). Social determinants of health and well-being among young people. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey. Copenhagen, WHO Regional Office for Europe, 2012 (Health Policy for Children and Adolescents, No. 6)

Danbrook, M. C., Hymel, S., & Waterhouse, T. (2012). Peer Victimization and School Violence: Does School Climate Matter? Paper presented at the biennial conference of the International Society for the Study of Behavioural Development. Edmonton, AB.

Dawson, G., Ashman, S. B., Hessl, D., Spieker, S., Frey, K., et al. (2001). Autonomic and brain electrical activity in securely- and insecurely-attached infants of depressed mothers. *Infant Behaviour & Development, 24,* 135-149.

Dodge, K.A., Dishion, T.J., & Lansford, J.E. (2006). Deviant peer influences in intervention and public policy for youth. *Social Policy Report, 20*, 1-19.

Dodge, K. A., Malone, P. S., Lansford, J. E., Miller, S., Pettit, G. S., & Bates, J. E. (2009). A dynamic cascade model of the development of substance-use onset. *Monographs of the Society for Research in Child Development*, 74, 1-134.

Due P., B. E., J. Lynch, F. Diderichsen, S. N. Gabhain, P. Scheidt et al. 2005. "Bullying and symptoms among school-aged children: international comparative cross-sectional study in 28 countries." *European Journal of Public Health*. 15(2), 128-32.

Fekkes M., F.I.M. Pijpers, M. Fredriks, T. Vogels, and S.P. Verloove-Vanhorick SP. 2006. "Do bullied children get ill, or do ill children get bullied? A prospective cohort study on the relationship between bullying and health-related symptoms." *Pediatrics,* 117:1568-1574.

Felitti, V.J. (2004). The origins of addiction: Evidence from the Adverse Childhood Experiences Study. Retrieved September 2012 from: http://www.nijc.org/pdfs/Subject%20Matter%20Articles/Drugs%20and%20Alc/ACE%20Study%20-%20OriginsofAddiction.pdf

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D.F., Sitpz, A. M., Edwards, V., Koss, M. P., Marks, J.S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. American Journal of Preventive Medicine, 14, 245-258.

Ferguson, B., Tilleczek, K., Boydell, K., Rummens, J.A. Edney, D.R., & Michaud, J. (2005). *Early School Leavers: Understanding the Lived Reality of Student Disengagement from Secondary School*. Report submitted to the Ontario Ministry of Education and Training, Special Education Branch.

Fisher, P. A., Stoolmiller, M., Gunnar, M. R., & Burraston, B. O. (2006). Effects of a therapeutic intervention for foster preschoolers on diurnal cortisol activity. *Psychoeuroendocrinology, 32,* 892-905.

Granic, I. & Patterson, G.R. (2006). Toward a comprehensive model of antisocial development: A dynamic systems approach. *Psychological Review,113*, 101-131.

Gunnar, M. R., Brodersen, L., Nachmias, M., Buss, K., & Rigatuso, R., (1996). Stress reactivity and attachment security. Developmental Psychobiology, 29(3), 191-204.

Gunnar, M. R., Kryzer, E., Van Ryzin, M. J., & Phillips, D. A. (2010). The rise in cortisol in family day care: Associations with aspects of care quality, child behavior, and child sex. *Child Development, 81(3),* 851-869.

Halpern, C.T., Young, M.L., Waller, M.W., Martin, S.L. & Kupper, L.L. (2004). Prevalence of partner violence in same-sex romantic and sexual relationships in a national sample of adolescents. *Journal of Adolescent Health,* 124-131.

Hamilton, L. D., Newman, M. L., Delville, C. L., & Delville, Y. (2008). Physiological stress response of young adults exposed to bullying during adolescence. *Physiology & Behavior, 95,* 617-624.

Harlow, H. (1958). The nature of love. *American Psychologist, 13,* 673-685.

Huesmann, R. & Taylor, L. (2006). Media effects in middle childhood. In A. Huston & M. Ripke (Eds.) *Developmental contexts in middle childhood.* Cambridge University Press, New York: 303-326.

Kaltiala-Heino, R., M. Rimpela, P. Rantanen, and A. Rimpela. 2000. "Bullying at school – an indicator of adolescents at risk for mental disorders." *Journal of Adolescence*. 23:661-74.

Kaminsky, Z. A., Tang, T., Wang, S., Ptak, C., Oh, G. H. T., et al. (2009). DNA mehylation profiles in monozygotic and dyzygotic twins. *Nature Genetics, 41(2),* 240-245.

Knack, J. M., Jensen-Campbell, L. A., & Baum, A. (2011). Worse than sticks and stones? Bullying is associated with altered HPA axis functioning and poorer health. *Brain and Cognition, 77,* 183-190.

Klinger, D., Mills, A., & Chapman, A. (2012). School. In J.G. Freeman, M. King, W. Pickett, W. Craig, F. Elgar, D. Klinger, & I. Janssen (Eds.) The Health of Young People in Canada: A mental health Focus. Ottawa: Public Health Agency Canada, 47-65.

Kross, E., Berman, M. G., Mischelb, W., Smith, E. E., & Wager, T. D. (2011). Social rejection shares somatosensory representations with physical pain, *Proceedings of the National Academy of Science, 108*, 6270-6275. Retrieved June 12, 2012 from http://www.pnas.org/content/108/15/6270.full.pdf+html.

Laporte, L., Jiang, D., Pepler, D., & Chamberland, C. (2009). The relationship between adolescents' experience of family violence and dating violence. *Youth and Society*. *43*, 3-27. doi:10.1177/0044118X09336631

Lenhart, A., Madden, M., Smith, A., Purcell, K., Zickuhr, K., & Rainie, L. (2011). *Teens, Kindness and Cruelty on Social Network Sites: How American teens navigate the new world of "digital citizenship".* Report of the Pew Research Center. Washington D.C. Available at: http://pewinternet.org/Reports/2011/Teens-and-social-media.aspx

Lerner, R. (2005). Promoting Positive Youth Development: Theoretical and Empirical Bases. White paper prepared for Workshop on the Science of Adolescent Health and Development, National Research Council, Washington, DC.

Liu, D. & Meaney, M. J. (1997). Maternal care, hippocampal glucocorticoid receptors, and hypothalamic-pituitary-adrenal responses to stress. *Science, 277,* 1659+

Loeber, R. D. P. Farrington, M. Stouthamer-Loeber, W. Van Kammen. (1998). Multiple risk factors for multiproblem boys: co-occurrence of delinquency, substance use, attention deficit, conduct problems, physical aggression, covert behaviour, depressed mood, and shy/withdrawn behaviour. In Jessor R. (Ed). *New perspectives on adolescent risk behavior*. Cambridge: Cambridge University Press, 90-149.

Lupien, S. J., King, S., Meaney, M. J., & McEwen, B. S. (2000). Child's stress hormone levels correlate with mother's socioeconomic status and depressive state. *Biological Psychiatry, 48,* 976-980.

Lupien, S. J., King, S., Meaney, M. J., & McEwen, B. S. (2001). Can poverty get under your skin? Basal cortisol levels and cognitive function in children from low and high socioeconomic status. *Development and Psychopathology, 13,* 653-676.

McEwen, B. S., (2008). Central effects of stress hormones in health and disease: Understanding the protective and damaging effects of stress and stress mediators. *European Journal of Pharmacology, 583,* 174-185.

McCuaig Edge, H. & Craig, W, M. (2011). Peers. In J.G. Freeman, M. King, W. Pickett, W. Craig, F. Elgar, D. Klinger, & I. Janssen (Eds.) The Health of Young People in Canada: A mental health Focus. Ottawa: Public Health Agency Canada.

Nachmias, M., Gunnar, M., Mangelsdorf, S., Parritz, R. H., & Buss, K. (1996). Behavioural inhibition and stress reactivity: The moderating role of attachment security. *Child Development, 67(2),* 508-522.

National Scientific Council on the Developing Child (2004). Young people develop in an environment of relationships: Working paper no. 1. Retrieved from http://www.developingchild.net on January 1, 2012.

National Scientific Council on the Developing Child (2005). Excessive stress disrupts the architecture of the developing brain: Working paper # 3. Retrieved from http://www.developingchild.net on January 1, 2012.

O'Connell, P., Pepler, D., & Craig, W. (1999). Peer involvement in bullying: Issues and challenges for intervention. *Journal of Adolescence, 22*, 437-452.

Pagani, L., Japel, C., Girard, A., Farhat, A., Côté, S., & Tremblay, R.E. (2006). Middle childhood life-course trajectories: Links between family dysfunction and children's behavioral development, In. A. Huston & M. Ripke (Eds.) *Developmental contexts in middle childhood.* Cambridge University Press, New York: 130-149.

Parent, C., Zhang, T., Caldji, C., Bagot, F. A., Champagne, J. P., & Meaney, M. J. (2005). Maternal care and individual differences in defensive responses. *Current Directions in Psychological Science, 14(5),* 229-233.

Patterson, G.R. (1982). *Coercive Family Processes*. Eugene, Oregon: Castalia Publishing.

Pepler, D.J., Craig, W. M., Connolly, J., & Henderson, K. (2001). Bullying, sexual harassment, dating violence, and substance use among adolescents." In C. Wekerle and A.M. Wall, (Eds.). *The Violence and Addiction Equation: Theoretical and Clinical Issues in Substance Abuse and Relationship Violence*. New York: Brunner/Routledge.

Pepler, D., Craig, W., Connolly, J., Yuile, A. & McMaster, L. (2006a). A developmental perspective on bullying. *Aggressive Behavior, 32,* 376-384.

Pepler, D., Jiang, D., Craig, W., & Connolly, J. (2008). Developmental trajectories of bullying and associated factors. *Child Development, 79,* 325-338.

Pepler, D., Waddell, J., Jiang, D., Lamb, J., Craig, W., & Connolly, J. (2006a). Aggressive girls' health and parent-daughter conflict. *Women's Health and Urban Life Journal. 5*, 25-41.

Pepler, D., Walsh, M., Yuile, A., Levene, K., Jiang, D., Vaughan, A., & Webber, J. (2010). Bridging the *gender* gap: Interventions with aggressive girls and their parents. *Prevention Science*, 229- 238, DOI 10.1007/s11121-009-0167-4

Pickett, W., Janssen, I., & Rosu, A. (2011). Neighbourhoods. In J.G. Freeman, M. King, W. Pickett, W. Craig, F. Elgar, D. Klinger, & I. Janssen (Eds.) *The Health of Young People in Canada: A Mental Health Focus*. Ottawa: Public Health Agency Canada.

Public Health Agency Canada. Health Behavior Survey of School-aged children and youth (2009). Public Health Agency Canada.

Putnam, R. Inequality: Growing Civic Class Gap. The Seguaro Seminar, Harvard University. Retrieved from http://www.hks.harvard.edu/saguaro/research/inequality.htm on July 14, 2012.

Ranson, K. E. & Urichuck, L. A. (2008). The effect of parent-child attachment on child biopsychosocial outcomes: A review. *Early Child Development and Care, 178(2),* 129-152.

Raphael, D. (2010). The health of Canada's children. Part II: Health mechanisms and pathways. *Pediatric Child Health, 15*, 71-76.

Repetti, R.L., Taylor, S.E., & Seeman, T.E. (2002). Risky families: Family social environments and the mental and physical health of offspring. *Psychological Bulletin, 128*, 330-366.

Resnick, M,D,, Bearman, B.S., Blum, R.W. Bauman, K.E. Harris, K.M., Jones, J. Tabor, J., Beuhring, T., Sieving, R.E., Shew, M. Ireland, M., Bearinger, L. H., & Udry, R. (1997). Protecting adolescents from harm: Findings from the National Longitudinal Study on Adolescent Health. *Journal of the American Medical Association, 279*, 823-832.

Rutter, M., Maughan, B., Mortimore, P., & Ousten, J. (1979). *Fifteen Thousand Hours: Secondary Schools and Their Effects on Children*. Cambridge MA: Harvard University Press.

Sameroff, A. (2010). A unified theory of development: A dialectic integration of nature and nurture, *Child Development, 81,* 6-22. doi: 10.1111/j.1467-8624. 2009. 01378.x

Sampson, R. J., Raudenbush, S. W., Earls, F. (1997). Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy, *Science, 277*, 918-924.

Scholte, R.H.J. & Van Aken, M.A.G. (2006). Peer relations in adolescence. In S. Jackson & L. Goossens (Eds.), Handbook of Adolescent Development (pp.175-199). New York: Psychology Press.

Shalev, I., Moffitt, T. E., Sugden, K. Williams, B., Houts, R. M., Danese, A., Mill, J., Arseneault, L., & Caspi. A. (2012). Exposure to violence during childhood is associated with telomere erosion from 5 to 10 years of age: a longitudinal study. *Molecular Psychiatry*, doi:10.1038/mp.2012.32

Shonkoff, J. P. & Phillips, D. A. (2000). From neurons to neighbourhoods. Washington: National Academy Press.

Spitz, R.A. (1945). Hospitalism—An Inquiry Into the Genesis of Psychiatric Conditions in Early Childhood, *Psychoanalytic Study of the Child*, *1*, 53-74.

Statistics Canada. (2012). Number of children in Canada. Retrieved from: http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/tbt-tt/Rp-eng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=0&GK=0&GRP=0&PID=102073&PRID=0&PTYPE=101955&S=0&SHOWALL=0&SUB=0&Temporal=2011&THEME=89&VID=0&VNAMEE=&VNAMEF=

Taylor, C., Peter, T., & Paquin, S. (2011). "School Is Not a Safe Place for Anyone Like Me": The First National Climate Survey on Homophobia in Canadian Schools. In D. Pepler, J. Cummings, & W. Craig, W. (Eds.) *Creating a World without Bullying*. PREVNet Series, Volume 3. Kingston, Canada: PREVNet Inc.

Thompson, R. A. (2000). The legacy of early attachments. *Child Development, 71(1),* 145-152.

Tremblay, R., Nagin, D.S., Séguin, J.R., Zoccolillo, M., Zelazo, P.D., Boivin, M., Pérusse, D., & Japel, C. (2004). Physical aggression during early childhood: Trajectories and predictors. *Pediatrics, 114*, 43-50.

UNICEF (2007). *Child poverty in perspective: An overview of child well-being in rich countries, Innocenti Report Card 7*, UNICEF Innocenti Research Centre, Florence.

Vaillancourt, T., Duku, E., Becker, S., Schmidt, L., Nicol, J., Muir, C., MacMillan, H. (2011) Peer victimization, depressive symptoms, and high salivary cortisol predict poorer memory in children, Brain and Cognition, 77, 191–199.

Williams, K., M. Chambers, S. Logan, and D. Robinson 1996. "Association of common health symptoms with bullying in primary school children". *British Medical Journal,* 313: 17-9.

Williams, T., Connolly, J., Pepler, D., & Craig, W. (2005). Peer victimization, social support, and psychosocial adjustment of sexual minority adolescents. *Journal of Youth and Adolescence, 34* (5), 471-482.

Wolfe, D. A., Crooks, C. V., Lee, V., McIntyre-Smith, A., & Jaffe, P. (2003). The effects of children's exposure to domestic violence: A meta-analysis and critique. *Clinical Child and Family Psychology Review, 6, 171-187.*

Xue, Y., Leventa l, T., Brooks-Gunn, J., & Earls, F. J. (2005). Neighborhood residence and mental health Problems of 5- to 11-year-olds, *Archives of General Psychiatry, 62*, 554-563. doi:10.1001/archpsyc.62.5.554

Appendix A: Factor Analyses for Relationship Scales

Relationship Constructs

1. Parent Relationship

Items: 67 a, g, i, m, 69h, 71f
Variable names: Q67A, Q67G, Q67I, Q67M, Q69H, PH7
Variable reverse coded: Q67G, Q67M, 71F
Direction of scoring: Lower scores indicate positive response

Table 1: Descriptive Statistics for Parent Relationship Items

	N	Min	Max	Mean	Std. Dev.
Q67A My parents understand me	23193	1	5	2.07	1.051
Q67GX My parents expect too much of me (*reversed*)	23193	1	5	2.89	1.194
Q67I My parents trust me	23193	1	5	1.96	.999
Q67MX I have a lot of arguments with my parents (*reversed*)	23193	1	5	2.59	1.190
Q69H I disobey my parents	23193	1	6	2.06	1.374
PH7X Have your parents treated you fairly (*reversed*)	23193	1	5	2.03	1.105

Table 2: Correlation Matrix for Parent Relationship Items

	Q67A	Q67GX	Q67I	Q67MX	Q69H	PH7X
Q67A My parents understand me	1.000					
Q67GX My parents expect too much of me (*reversed*)	.306	1.000				
Q67I My parents trust me	.563	.274	1.000			
Q67MX I have a lot of arguments with my parents (*reversed*)	.406	.431	.381	1.000		
Q69H I disobey my parents	.346	.219	.350	.386	1.000	
PH7X Have your parents treated you fairly (*reversed*)	.474	.365	.448	.436	.301	1.000

Table 3: Factor Analysis Extracts One-Factor Solution for Parent Relationship Scale

Items	Factor Loadings	Chronbach's alpha
Q67A My parents understand me	.758	0.78
Q67GX My parents expect too much of me (*reversed*)	.736	
Q67I My parents trust me	.735	
Q67MX I have a lot of arguments with my parents (*reversed*)	.731	
Q69H I disobey my parents	.603	
PH7X Have your parents treated you fairly (*reversed*)	.600	

Extraction Method: Principal Component Analysis.
1 factor extracted.

2. Teacher Relationship

Items: 22 a, b, c, d, e, f, g, h, i, j, l
Variable names: SOP6_1, SOP6_3, SOP6_4, SOP6_5, SOP6_6, SOP6_7, SOP6_8, SOP7_1, SOP7_2, SOP7_4, SOP7_3,
Variables reverse coded: None
Direction of scoring: Lower scores indicate positive response

Table 4: Descriptive Statistics for Teacher Relationship Scale

	N	Min	Max	Mean	Std. Dev.
SOP6_1 *My teachers encourage me when I do school work.*	23860	1	5	2.28	.927
SOP6_3 *My teachers tell me how to do better on school-tasks.*	23860	1	5	2.19	.920
SOP6_4 *My teachers guide me on how to solve school tasks.*	23860	1	5	2.24	.913
SOP6_5 *I feel that my teachers provide me choices and options.*	23860	1	5	2.36	.982
SOP6_6 *My teachers try to understand how I see things before suggesting a new way to do things.*	23860	1	5	2.64	1.068
SOP6_7 *My teachers make sure I really understand my goals and what I need to do.*	23860	1	5	2.42	1.007
SOP6_8 *My teachers listen to how I would like to do things.*	23860	1	5	2.71	1.075
SOP7_1 *I feel that my teachers accept me as I am.*	23860	1	5	2.05	.995
SOP7_2 *I feel that my teachers care about me as a person.*	23860	1	5	2.31	1.026
SOP7_4 *I feel a lot of trust in my teachers.*	23860	1	5	2.39	1.082
SOP7_3 *My teachers are interested in me as a student.*	23860	1	5	2.33	.925

Table 5: Correlation Matrix for Teacher Relationship Items

	SOP66_	SOP68_	SOP71_	SOP72_	SOP74_	SOP73_	SOP61_	SOP63_	SOP64_	SOP65_	SOP67_
SOP6_6 *My teachers try to understand how I see things before suggesting a new way to do things.*	1.000										
SOP6_8 *My teachers listen to how I would like to do things.*	.571	1.000									
SOP7_1 *I feel that my teachers accept me as I am.*	.443	.511	1.000								
SOP7_2 *I feel that my teachers care about me as a person.*	.449	.470	.621	1.000							
SOP7_4 *I feel a lot of trust in my teachers.*	.492	.510	.604	.656	1.000						
SOP7_3 *My teachers are interested in me as a student.*	.452	.474	.548	.578	.597	1.000					
SOP6_1 *My teachers encourage me when I do school work.*	.463	.434	.411	.432	.458	.441	1.000				
SOP6_3 *My teachers tell me how to do better on school-tasks.*	.445	.368	.364	.375	.403	.383	.551	1.000			
SOP6_4 *My teachers guide me on how to solve school tasks.*	.460	.417	.388	.409	.440	.416	.505	.553	1.000		
SOP6_5 *I feel that my teachers provide me choices and options.*	.556	.480	.450	.470	.497	.448	.473	.437	.495	1.000	
SOP6_7 *My teachers make sure I really understand my goals and what I need to do.*	.580	.552	.473	.455	.500	.477	.485	.461	.462	.488	1.000

Table 6: Factor Analysis Extracts Two-Factor Solution For Teacher Relationship Scale

	Factor	
	1	2
SOP7_2 I feel that my teachers care about me as a person.	.804	
SOP7_1 I feel that my teachers accept me as I am.	.794	
SOP7_4 I feel a lot of trust in my teachers.	.780	
SOP7_3 My teachers are interested in me as a student.	.729	
SOP6_8 My teachers listen to how I would like to do things.	.582	
SOP6_3 My teachers tell me how to do better on school-tasks.		.803
SOP6_4 My teachers guide me on how to solve school tasks.		.755
SOP6_1 My teachers encourage me when I do school work.		.719
SOP6_6 My teachers try to understand how I see things before suggesting a new way to do things.		.606
SOP6_5 I feel that my teachers provide me choices and options.		.594
SOP6_7 My teachers make sure I really understand my goals and what I need to do.		.589

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Factor 1 Alpha: 0.86

Factor 2 Alpha: 0.85

3. Peer Relationships

Items: 23 a, b, c, d, e, 55, 71g
Variable names: M108 M109 M110 Q23D Q23E M95 PH8
Items reverse coded: M95 PH8
Direction of scoring: Lower scores indicate positive response

Table 7: Descriptive Statistics for Peer Relationship Items

	N	Min	Max	Mean	Std. Dev.
M108 The students in my class enjoy being together	23624	1	5	2.27	.864
M109 Most of the students in my class are kind and helpful	23624	1	5	2.48	.965
M110 Other students accept me as I am	23624	1	5	2.19	.983
Q23D When a student in my class is feeling down, someone else in class tries to help	23624	1	5	2.40	1.042
Q23E The students in my class treat each other with respect	23624	1	5	2.76	1.043
M95X How often talk to friends on the phone or email (*reversed*)	23624	1	5	2.27	1.411
PH8X Have you had fun with your friends (*reversed*)	23624	1	5	1.93	1.050

Table 8: Correlation Matrix for Peer Relationship Items

	M108	M109	M110	Q23D	Q23E	M95X	PH8X
M108 The students in my class enjoy being together	1.000						
M109 Most of the students in my class are kind and helpful	.520	1.000					
M110 Other students accept me as I am	.411	.529	1.000				
Q23D When a student in my class is feeling down, someone else in class tries to help	.357	.480	.404	1.000			
Q23E The students in my class treat each other with respect	.469	.596	.478	.495	1.000		
M95X How often talk to friends on the phone or email (*reversed*)	.008	.023	.092	.040	.026	1.000	
PH8X Have you had fun with your friends (*reversed*)	.158	.185	.269	.168	.173	.157	1.000

Table 9: Factor Analysis Extracts Two-Factor Solution for Peer Relationship Scale

	Factor	
	1	2
M108 The students in my class enjoy being together	.830	
M109 Most of the students in my class are kind and helpful	.805	
M110 Other students accept me as I am	.723	
Q23D When a student in my class is feeling down, someone else in class tries to help	.709	
Q23E The students in my class treat each other with respect	.704	
M95X How often talk to friends on the phone or email (*reversed*)		.820
PH8X Have you had fun with your friends (*reversed*)		.674

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Factor 1 Alpha: 0.82

Factor 2 Alpha: 0.27 (only 2-item factor, results should be interpreted with caution).

4. School Relationship

Items: 22 p, r, s
Variable names: Q22P Q22R Q22S
Items reverse coded: None
Direction of scoring: Lower scores indicate positive response

Table 10: Descriptive Statistics for School Relationship Items

	N	Min	Max	Mean	Std. Dev.
Q22P The rules in this school are fair	25143	1	5	2.48	1.148
Q22R Our school is a nice place to be	25143	1	5	2.31	1.080
Q22S I feel I belong at this school	25143	1	5	2.31	1.096

Table 11: Correlation Matrix For School Relationship Items

	Q22P	Q22R	Q22S
Q22P The rules in this school are fair	1.000		
Q22R Our school is a nice place to be	.520	1.000	
Q22S I feel I belong at this school	.411	.529	1.000

Table 12: Factor analysis Extracts One-Factor Solution for School Relationship Scale

Items	Factor Loadings	Chronbach's alpha
Q22P The rules in this school are fair	.882	0.77
Q22R Our school is a nice place to be	.834	
Q22S I feel I belong at this school	.762	

Extraction Method: Principal Component Analysis.
1 factor extracted.

5. Neighbourhood Relationship

Items: 72 a, c, e, f
Variable names: Q72A Q72C Q72E Q72F
Items reverse coded: Q72F
Direction of scoring: Lower scores indicate positive response

Table 13: Descriptive Statistics for Neighbourhood Relationship Items

	N	Min	Max	Mean	Std. Dev.
Q72A People say 'hello' and often stop to talk to each other in the street	23941	1	5	2.46	1.106
Q72C You can trust people around here	23941	1	5	2.36	1.054
Q72E I could ask for help or a favour from neighbours	23941	1	5	2.28	1.061
Q72FX Most people around here would try to take advantage of you if they got the chance (*reversed*)	23941	1	5	2.40	1.166

Table 14: Correlation Matrix For Neighbourhood Relationship Items

	Q72A	Q72C	Q72E	Q72FX
Q72A People say 'hello' and often stop to talk to each other in the street	1.000			
Q72C You can trust people around here	.393	1.000		
Q72E I could ask for help or a favour from neighbours	.382	.468	1.000	
Q72FX Most people around here would try to take advantage of you if they got the chance (*reversed*)	.051	.260	.153	1.000

Table 15: Factor Analysis Extracts One-Factor Solution for Neighbourhood Relationship Scale

Items	Factor Loadings	Chronbach's alpha
Q72A People say 'hello' and often stop to talk to each other in the street	.813	0.61*
Q72C You can trust people around here	.776	
Q72E I could ask for help or a favour from neighbours	.698	
Q72FX Most people around here would try to take advantage of you if they got the chance (*reversed*)	.402	

Extraction Method: Principal Component Analysis. One Factor extracted. Dropping Q72FX increases reliability to .68

Factor Analysis for All Relationships Combined

The rotated matrix below generally extracts the same 5 constructs that have been factor analyzed separately.

Table 16: Rotated Factor Matrix for All Relationship Scales

	Factors					
	1	2	3	4	5	6
SOP6_6 My teachers try to understand how I see things before suggesting a new way to do things.	.726	*9 of the 11 teacher reported relationship items (page 4) are loaded here.*				
SOP6_1 My teachers encourage me when I do school work.	.723					
SOP6_3 My teachers tell me how to do better on school-tasks.	.721					
SOP6_4 My teachers guide me on how to solve school tasks.	.720					
SOP6_7 My teachers make sure I really understand my goals and what I need to do.	.711					
SOP6_5 I feel that my teachers provide me choices and options.	.677					
SOP6_8 My teachers listen to how I would like to do things.	.648					
SOP7_4 I feel a lot of trust in my teachers.	.574					
SOP7_3 My teachers are interested in me as a student.	.554					
M109 Most of the students in my class are kind and helpful.		.798	*Factor 1 of peer reported items (page 6) are loaded here.*			
q23e The students in my class treat each other with respect.		.778				
M108 The students in my class enjoy being together.		.706				
M110 Other students accept me as I am.		.679				
q23d When a student in my class is feeling down, someone else in class tries to help.		.660				
q67mx			.735	*All parent reported scale items (page 2) are loaded here.*		
ph7x			.721			
q67a My parents understand me.			.675			
q67i My parents trust me.			.668			

q67gx			.630			
q69h I disobey my parents.			.573			
q22r Our school is a nice place to be.	*3 school-level items + 3 other items are loaded here*			.625		
q22s I feel I belong at this school.				.600		
q22p The rules in this school are fair.				.566		
SOP7_2 I feel that my teachers care about me as a person.				.543		
SOP7_1 I feel that my teachers accept me as I am.				.536		
q72fx				.380		
q72c You can trust people around here.	*3 of the 4 neighbourhood-level items (page 8) are loaded here.*				.782	
q72e I could ask for help or a favour from neighbours.					.745	
q72a People say “hello” and often stop to talk to each other in the street.					.717	
m95x	*Factor 2 of peer reported items (page 6) are loaded here.*					.742
ph8x						.683

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Appendix B: Logistic Regression Data Analyses

Logistic Data Analyses

Outcome: Injury binary 0=Not injured in past 12 months (M56=1), 1=Yes injured (M56=2 to 5)
Covariates: Age, 4 relationship scales (excluded Parent rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	-.092	.063	.143	.912
RELTEA	.004	.022	.867	1.004
RELPEE	-.026	.041	.521	.974
RELSCH	**-.159**	**.064**	**.013**	**.853**
RELNEI	.007	.047	.884	1.007
AGE*RELTEA	-.001	.002	.587	.999
AGE*RELPEE	.003	.003	.389	1.003
AGE*RELSCH	.008	.005	.068	1.008
AGE*RELNEI	.000	.003	.999	1.000
CONSTANT	*1.621*	*.880*	*.065*	*5.060*

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	55.044[a]	5	11.009	45.266	.000
Intercept	9.657	1	9.657	39.709	.000
RELPCAT	**10.001**	**2**	**5.001**	**20.562**	**.000**
FEMALE	**27.056**	**1**	**27.056**	**111.249**	**.000**
RELPCAT * FEMALE	1.046	2	.523	2.150	.116
Error	4838.689	19896	.243		
Total	4893.760	19902			
Corrected Total	4893.733	19901			

Note: RELPCAT=Parent relationships category

Percent injured (adjusted)

Parent	Male	Female	Total
Low relation	52.0%	46.5%	49.0%
Medium relation	48.6%	40.0%	44.2%
High relation	43.9%	35.6%	39.8%
Total	48.5%	41.5%	44.8%

Outcome: Injury binary 0=Not injured in past 12 months (M56=1), 1=Yes injured (M56=2 to 5)
Covariates: Age, 4 relationship scales (excluded School rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	-.082	.065	.207	.922
RELPAR	-.016	.019	.397	.984
RELTEA	-.050	.041	.224	.951
RELPEE	**-.031**	**.007**	**.000**	**.970**
RELNEI	-.010	.048	.836	.990
AGE*RELPAR	**-.003**	**.000**	**.000**	**.997**
AGE*RELTEA	.001	.001	.505	1.001
AGE*RELPEE	.004	.003	.137	1.004
AGE*RELNEI	.002	.003	.521	1.002
CONSTANT	1.906	.907	.036	6.723

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	32.148[a]	5	6.430	26.524	.000
Intercept	15.956	1	15.956	65.826	.000
RELSCH	.604	2	.302	1.246	.288
FEMALE	**30.751**	**1**	**30.751**	**126.860**	**.000**
RELSCH * FEMALE	1.268	2	.634	2.615	.073
Error	4822.799	19896	.242		
Total	4854.947	19902			
Corrected Total	4854.947	19901			

Percent injured (adjusted)

School	Male	Female	Total
Low relation	48.7%	42.0%	45.0%
Medium relation	49.9%	41.1%	45.5%
High relation	48.2%	39.6%	43.9%
Total	49.0%	41.1%	44.8%

Outcome: Injury binary 0=Not injured in past 12 months (M56=1), 1=Yes injured (M56=2 to 5)
Covariates: Age, 4 relationship scales (excluded Neighbourhood rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	-.071	.057	.219	.932
RELPAR	.005	.022	.816	1.005
RELTEA	-.030	.041	.475	.971
RELPEE	**-.155**	**.065**	**.018**	**.856**
RELSCH	**-.003**	**.000**	**.000**	**.997**
AGE*RELPAR	-.001	.002	.699	.999
AGE*RELTEA	.003	.003	.284	1.003

AGE*RELPEE	**.009**	**.005**	**.049**	**1.009**
AGE*RELSCH	**1.893**	**.809**	**.019**	**6.642**
CONSTANT	-.105	.185	.570	.900

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	35.639[a]	5	7.128	29.408	.000
Intercept	17.336	1	17.336	71.525	.000
RELNEI	**2.773**	**2**	**1.387**	**5.721**	**.003**
FEMALE	**30.113**	**1**	**30.113**	**124.243**	**.000**
RELNEI * FEMALE	.261	2	.130	.538	.584
Error	4822.206	19896	.242		
Total	4857.846	19902			
Corrected Total	4857.845	19901			

Percent injured (adjusted)

Neighbourhood	**Male**	**Female**	**Total**
Low relation	48.5%	42.0%	45.0%
Medium relation	49.9%	41.1%	45.5%
High relation	48.3%	39.6%	44.0%
Total	48.9%	41.1%	44.8%

Outcome: Self rated health binary 0= Poor/Fair (M104=3,4), 1=Good/Excellent (M104=1,2)
Covariates: Age, 4 relationship scales (excluded parent rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	-.121	.084	.149	.886
RELTEA	.019	.030	.516	1.020
RELPEE	.014	.057	.807	1.014
RELSCH	.159	.088	.070	1.172
RELNEI	.129	.066	.050	1.138
AGE*RELTEA	.000	.002	.993	1.000
AGE*RELPEE	.003	.004	.452	1.003
AGE*RELSCH	-.008	.006	.196	.992
AGE*RELNEI	-.002	.005	.677	.998
CONSTANT	-.340	1.201	.777	.712

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	33.154[a]	5	6.631	52.284	.000
Intercept	7.829	1	7.829	61.727	.000
RELPAR	**2.811**	**2**	**1.405**	**11.081**	**.000**
FEMALE	**10.407**	**1**	**10.407**	**82.061**	**.000**
RELPAR * FEMALE	**3.068**	**2**	**1.534**	**12.095**	**.000**
Error	2511.519	19803	.127		
Total	2544.674	19809			
Corrected Total	2544.673	19808			

Percent good/excellent health (adjusted)

Parent	**Male**	**Female**	**Total**
Low relation	84.5%	76.4%	80.1%
Medium relation	86.2%	83.2%	84.7%
High relation	88.7%	85.9%	87.3%
Total	86.3%	81.1%	83.6%

Outcome: Self rated health binary 0= Poor/Fair (M104=3,4), 1=Good/Excellent (M104=1,2)
Covariates: Age, 4 relationship scales (excluded teacher rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	-.041	.086	.632	.960
RELPAR	**.162**	**.043**	**.000**	**1.176**
RELPEE	.041	.057	.478	1.041
RELSCH	.045	.078	.567	1.046
RELNEI	.089	.068	.191	1.093
AGE* RELPAR	**-.006**	**.003**	**.035**	**.994**
AGE*RELPEE	.001	.004	.760	1.001
AGE*RELSCH	.000	.005	.997	1.000
AGE*RELNEI	-.001	.005	.903	.999
CONSTANT	-2.043	1.233	.097	.130

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	11.916[a]	5	2.383	18.920	.000
Intercept	4.657	1	4.657	36.973	.000
RELTEA	.026	2	.013	.105	.901
FEMALE	8.205	1	8.205	65.138	.000
RELTEA * FEMALE	1.135	2	.567	4.504	.011
Error	2494.454	19803	.126		
Total	2506.370	19809			
Corrected Total	2506.370	19808			

Percent good/excellent health (adjusted)

Teacher	**Male**	**Female**	**Total**
Low relation	85.7%	79.8%	82.6%
Medium relation	85.7%	81.5%	83.6%
High relation	86.1%	83.9%	84.9%
Total	85.8%	81.5%	83.6%

Outcome: Self rated health binary 0= Poor/Fair (M104=3,4), 1=Good/Excellent (M104=1,2)
Covariates: Age, 4 relationship scales (excluded peer rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	-.004	.091	.963	.996
RELPAR	**.155**	**.044**	**.000**	**1.168**
RELTEA	.008	.031	.807	1.008
RELSCH	.112	.088	.207	1.118
RELNEI	.092	.068	.178	1.096
AGE* RELPAR	-.006	.003	.053	.994
AGE*RELTEA	.000	.002	.843	1.000
AGE*RELSCH	-.004	.006	.526	.996
AGE*RELNEI	.000	.005	.994	1.000
CONSTANT	-2.358	1.298	.069	.095

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	21.021[a]	5	4.204	33.353	.000
Intercept	5.542	1	5.542	43.964	.000
RELPEE	**4.255**	**2**	**2.128**	**16.880**	**.000**
FEMALE	**7.809**	**1**	**7.809**	**61.950**	**.000**
RELPEE * FEMALE	.292	2	.146	1.160	.314
Error	2496.224	19803	.126		
Total	2517.247	19809			
Corrected Total	2517.245	19808			

Percent good/excellent health (adjusted)

Peer	**Male**	**Female**	**Total**
Low relation	83.4%	78.2%	80.8%
Medium relation	87.9%	84.0%	85.9%
High relation	87.1%	83.8%	85.3%
Total	85.8%	81.6%	83.6%

Outcome: Self rated health binary 0= Poor/Fair (M104=3,4), 1=Good/Excellent (M104=1,2)
Covariates: Age, 4 relationship scales (excluded school rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	-.021	.094	.822	.979
RELPAR	**.167**	**.044**	**.000**	**1.181**
RELTEA	.032	.027	.243	1.032
RELPEE	.023	.057	.686	1.023
RELNEI	.073	.069	.294	1.076
AGE* RELPAR	**-.007**	**.003**	**.026**	**.993**
AGE*RELTEA	-.001	.002	.550	.999
AGE*RELPEE	.003	.004	.501	1.003
AGE*RELNEI	.001	.005	.863	1.001
CONSTANT	-2.549	1.340	.057	.078

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	11.766[a]	5	2.353	18.679	.000
Intercept	4.436	1	4.436	35.215	.000
RELSCH	.021	2	.011	.085	.919
FEMALE	**8.118**	**1**	**8.118**	**64.440**	**.000**
RELSCH * FEMALE	**1.600**	**2**	**.800**	**6.352**	**.002**
Error	2494.709	19803	.126		
Total	2506.475	19809			
Corrected Total	2506.475	19808			

Percent good/excellent health (adjusted)

School	**Male**	**Female**	**Total**
Low relation	85.9%	79.3%	82.5%
Medium relation	85.9%	83.0%	84.4%
High relation	85.6%	82.8%	84.1%
Total	85.8%	81.6%	83.6%

Outcome: Self rated health binary 0= Poor/Fair (M104=3,4), 1=Good/Excellent (M104=1,2)
Covariates: Age, 4 relationship scales (excluded neighbourhood rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	-.011	.087	.896	.989
RELPAR	**.179**	**.043**	**.000**	**1.196**
RELTEA	.012	.031	.698	1.012
RELPEE	.037	.058	.519	1.038
RELSCH	.072	.092	.430	1.075
AGE* RELPAR	**-.007**	**.003**	**.018**	**.993**
AGE*RELTEA	.000	.002	.993	1.000
AGE*RELPEE	.002	.004	.602	1.002
AGE*RELSCH	-.002	.006	.725	.998
CONSTANT	-2.060	1.243	.097	.127

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	26.408[a]	5	5.282	41.883	.000
Intercept	4.626	1	4.626	36.685	.000
RELNEI	**1.632**	**2**	**.816**	**6.470**	**.002**
FEMALE	**7.025**	**1**	**7.025**	**55.704**	**.000**
RELNEI * FEMALE	**3.484**	**2**	**1.742**	**13.814**	**.000**
Error	2497.258	19803	.126		
Total	2523.666	19809			
Corrected Total	2523.666	19808			

Percent good/excellent health (adjusted)

Neighbourhood	Male	Female	Total
Low relation	84.0%	76.4%	80.1%
Medium relation	86.5%	83.3%	84.9%
High relation	87.1%	86.2%	86.6%
Total	85.8%	81.6%	83.6%

Outcome: **Healthy eating binary 0= low healthy eating, 1=high healthy eating (Healthy eating scale split into 3 equal parts and "top third" is considered as high healthy eating group)**

Covariates: **Age, 4 relationship scales (excluded parent rated) and their pairwise interactions.**

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.066	.072	.353	1.069
RELTEA	**.068**	**.024**	**.005**	**1.071**
RELPEE	.057	.045	.209	1.059
RELSCH	**-.163**	**.071**	**.021**	**.850**
RELNEI	.046	.052	.367	1.048
AGE*RELTEA	**-.004**	**.002**	**.031**	**.996**
AGE*RELPEE	-.003	.003	.346	.997
AGE*RELSCH	**.012**	**.005**	**.014**	**1.012**
AGE*RELNEI	.001	.004	.783	1.001
CONSTANT	*-3.529*	*1.005*	*.000*	*.029*

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	31.381[a]	5	6.276	28.875	.000
Intercept	5.456	1	5.456	25.103	.000
RELPAR	**5.625**	**2**	**2.813**	**12.941**	**.000**
FEMALE	**14.203**	**1**	**14.203**	**65.345**	**.000**
RELPAR * FEMALE	1.214	2	.607	2.793	.061
Error	4141.917	19056	.217		
Total	4173.299	19062			
Corrected Total	4173.297	19061			

Percent eaten high healthy food (adjusted)

Parent	Male	Female	Total
Low relation	28.4%	34.0%	31.5%
Medium relation	30.5%	33.9%	32.2%
High relation	34.5%	42.1%	38.3%
Total	30.9%	36.1%	33.6%

Outcome: Healthy eating binary 0= low healthy eating, 1=high healthy eating
Covariates: Age, 4 relationship scales (excluded teacher rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	.010	.073	.889	1.010
RELPAR	.065	.035	.061	1.067
RELPEE	.045	.045	.311	1.046
RELSCH	-.098	.062	.115	.907
RELNEI	.045	.052	.388	1.046
AGE* RELPAR	-.002	.002	.340	.998
AGE*RELPEE	-.002	.003	.484	.998
AGE*RELSCH	.008	.004	.057	1.009
AGE*RELNEI	.000	.004	.902	1.000
CONSTANT	-2.797	1.019	.006	.061

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	26.992[a]	5	5.398	24.833	.000
Intercept	7.236	1	7.236	33.286	.000
RELTEA	**4.986**	**2**	**2.493**	**11.468**	**.000**
FEMALE	**14.852**	**1**	**14.852**	**68.319**	**.000**
RELTEA * FEMALE	.188	2	.094	.431	.650
Error	4142.555	19056	.217		
Total	4169.581	19062			
Corrected Total	4169.547	19061			

Percent eaten high healthy food (adjusted)

Teacher	**Male**	**Female**	**Total**
Low relation	29.1%	35.4%	32.4%
Medium relation	29.0%	33.8%	31.4%
High relation	34.3%	40.0%	37.3%
Total	30.5%	36.2%	33.5%

Outcome: Healthy eating binary 0= low healthy eating, 1=high healthy eating
Covariates: Age, 4 relationship scales (excluded peer rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	.075	.076	.320	1.078
RELPAR	.059	.036	.098	1.061
RELTEA	**.064**	**.024**	**.009**	**1.066**
RELSCH	**-.163**	**.070**	**.020**	**.850**
RELNEI	.048	.052	.355	1.050
AGE* RELPAR	-.002	.003	.396	.998
AGE*RELTEA	**-.004**	**.002**	**.043**	**.996**
AGE*RELSCH	**.012**	**.005**	**.016**	**1.012**
AGE*RELNEI	.000	.004	.908	1.000
CONSTANT	-3.868	1.069	.000	.021

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	21.990[a]	5	4.398	20.241	.000
Intercept	5.875	1	5.875	27.039	.000
RELPEE	**1.569**	**2**	**.785**	**3.612**	**.027**
FEMALE	**15.372**	**1**	**15.372**	**70.746**	**.000**
RELPEE * FEMALE	.340	2	.170	.783	.457
Error	4140.527	19056	.217		
Total	4162.518	19062			
Corrected Total	4162.517	19061			

Percent eaten high healthy food (adjusted)

Peer	**Male**	**Female**	**Total**
Low relation	30.1%	35.0%	32.6%
Medium relation	29.7%	35.4%	32.6%
High relation	33.1%	40.2%	37.0%
Total	30.6%	36.3%	33.6%

Outcome: Healthy eating binary 0= low healthy eating, 1=high healthy eating
Covariates: Age, 4 relationship scales (excluded school rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	.073	.078	.349	1.076
RELPAR	.040	.035	.253	1.041
RELTEA	.034	.022	.119	1.034
RELPEE	.009	.045	.845	1.009
RELNEI	.030	.053	.578	1.030
AGE* RELPAR	-.001	.003	.718	.999
AGE* RELTEA	-.001	.002	.383	.999
AGE*RELPEE	.000	.003	.957	1.000
AGE*RELNEI	.002	.004	.667	1.002
CONSTANT	-3.928	1.099	.000	.020

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	17.776[a]	5	3.555	16.346	.000
Intercept	7.610	1	7.610	34.990	.000
RELSCH	**1.331**	**2**	**.666**	**3.061**	**.047**
FEMALE	**15.211**	**1**	**15.211**	**69.937**	**.000**
RELSCH * FEMALE	.370	2	.185	.850	.428
Error	4144.552	19056	.217		
Total	4162.328	19062			
Corrected Total	4162.328	19061			

Percent eaten high healthy food (adjusted)

School	**Male**	**Female**	**Total**
Low relation	31.0%	35.6%	33.4%
Medium relation	29.0%	35.7%	32.5%
High relation	32.0%	37.9%	35.2%
Total	30.6%	36.3%	33.6%

Outcome: Healthy eating binary 0= low healthy eating, 1=high healthy eating
Covariates: Age, 4 relationship scales (excluded neighbourhood rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.130	.073	.075	1.139
RELPAR	**.075**	**.035**	**.031**	**1.078**
RELTEA	**.063**	**.025**	**.011**	**1.065**
RELPEE	.066	.045	.148	1.068
RELSCH	**-.194**	**.072**	**.007**	**.824**
AGE* RELPAR	-.003	.002	.245	.997
AGE* RELTEA	-.003	.002	.056	.997
AGE*RELPEE	-.003	.003	.314	.997
AGE*RELSCH	**.014**	**.005**	**.006**	**1.014**
CONSTANT	-4.354	1.033	.000	.013

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	40.971[a]	5	8.194	37.727	.000
Intercept	5.329	1	5.329	24.533	.000
RELNEI	**8.137**	**2**	**4.069**	**18.733**	**.000**
FEMALE	**15.764**	**1**	**15.764**	**72.579**	**.000**
RELNEI * FEMALE	.584	2	.292	1.343	.261
Error	4138.915	19056	.217		
Total	4179.892	19062			
Corrected Total	4179.886	19061			

Percent eaten high healthy food (adjusted)

Neighbourhood	Male	Female	Total
Low relation	27.7%	32.1%	29.9%
Medium relation	30.1%	36.2%	33.3%
High relation	35.6%	42.9%	39.5%
Total	30.5%	36.3%	33.6%

Outcome: BMI binary 0= Normal (BMI<25), 1=Overweight/obese (BMI>=25)
Covariates: Age, 4 relationship scales (excluded parent rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	.158	.106	.136	1.171
RELTEA	.066	.039	.089	1.068
RELPEE	-.042	.072	.562	.959
RELSCH	-.138	.114	.223	.871
RELNEI	-.124	.081	.127	.884
AGE* RELTEA	-.004	.003	.129	.996
AGE*RELPEE	.000	.005	.950	1.000
AGE*RELSCH	.009	.008	.252	1.009
AGE* RELNEI	.006	.006	.278	1.006
CONSTANT	-3.238	1.525	.034	.039

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	2.809[a]	5	.562	5.327	.000
Intercept	1.125	1	1.125	10.664	.001
RELPAR	.169	2	.084	.801	.449
FEMALE	**2.477**	**1**	**2.477**	**23.485**	**.000**
RELPAR * FEMALE	.028	2	.014	.131	.877
Error	1722.805	16336	.105		
Total	1725.614	16342			
Corrected Total	1725.614	16341			

Percent overweight/obese (adjusted)

Parent	**Male**	**Female**	**Total**
Low relation	13.9%	11.5%	12.6%
Medium relation	13.5%	10.6%	12.1%
High relation	12.8%	10.6%	11.7%
Total	13.4%	11.0%	12.2%

Outcome: BMI binary 0= Normal (BMI<25), 1=Overweight/obese (BMI>=25)
Covariates: Age, 4 relationship scales (excluded teacher rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	.069	.107	.519	1.071
RELPAR	-.031	.054	.570	.970
RELPEE	-.036	.072	.612	.964
RELSCH	-.024	.101	.810	.976
RELNEI	-.088	.083	.292	.916
AGE* RELPAR	.002	.004	.683	1.002
AGE*RELPEE	.000	.005	.980	1.000
AGE*RELSCH	.002	.007	.762	1.002
AGE* RELNEI	.004	.006	.519	1.004
CONSTANT	-1.700	1.543	.271	.183

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	3.140[a]	5	.628	5.955	.000
Intercept	1.484	1	1.484	14.072	.000
RELTEA	.113	2	.057	.538	.584
FEMALE	**2.585**	**1**	**2.585**	**24.509**	**.000**
RELTEA * FEMALE	.146	2	.073	.691	.501
Error	1722.841	16336	.105		
Total	1725.981	16342			
Corrected Total	1725.981	16341			

Percent overweight/obese (adjusted)

Teacher	**Male**	**Female**	**Total**
Low relation	13.4%	10.2%	11.7%
Medium relation	13.2%	11.3%	12.3%
High relation	14.1%	11.6%	12.8%
Total	13.5%	11.0%	12.2%

Outcome: BMI binary 0= Normal (BMI<25), 1=Overweight/obese (BMI>=25)
Covariates: Age, 4 relationship scales (excluded peer rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	.095	.112	.397	1.100
RELPAR	-.056	.056	.314	.946
RELTEA	.068	.039	.083	1.071
RELSCH	-.183	.112	.102	.833
RELNEI	-.110	.083	.186	.896
AGE* RELPAR	.003	.004	.446	1.003
AGE*RELTEA	-.004	.003	.119	.996
AGE*RELSCH	.011	.008	.157	1.011
AGE* RELNEI	.005	.006	.399	1.005
CONSTANT	-2.427	1.626	.136	.088

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	4.538[a]	5	.908	8.601	.000
Intercept	.948	1	.948	8.988	.003
RELPEE	**1.052**	**2**	**.526**	**4.983**	**.007**
FEMALE	**2.379**	**1**	**2.379**	**22.545**	**.000**
RELPEE * FEMALE	.026	2	.013	.125	.882
Error	1723.648	16336	.106		
Total	1728.186	16342			
Corrected Total	1728.186	16341			

Percent overweight/obese (adjusted)

Peer	**Male**	**Female**	**Total**
Low relation	14.9%	12.0%	13.5%
Medium relation	12.5%	10.0%	11.2%
High relation	12.6%	10.5%	11.5%
Total	13.5%	10.9%	12.2%

Outcome: BMI binary 0= Normal (BMI<25), 1=Overweight/obese (BMI>=25)
Covariates: Age, 4 relationship scales (excluded school rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	.110	.115	.339	1.116
RELPAR	-.067	.055	.226	.936
RELTEA	.051	.035	.144	1.052
RELPEE	-.075	.070	.283	.927
RELNEI	-.088	.084	.296	.916
AGE* RELPAR	.004	.004	.327	1.004
AGE*RELTEA	-.003	.002	.218	.997
AGE*RELPEE	.002	.005	.613	1.002
AGE* RELNEI	.004	.006	.499	1.004
CONSTANT	-2.397	1.661	.149	.091

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	3.242[a]	5	.648	6.152	.000
Intercept	1.391	1	1.391	13.192	.000
RELSCH	.386	2	.193	1.829	.161
FEMALE	**2.788**	**1**	**2.788**	**26.453**	**.000**
RELSCH * FEMALE	.089	2	.045	.423	.655
Error	1721.936	16336	.105		
Total	1725.182	16342			
Corrected Total	1725.179	16341			

Percent overweight/obese (adjusted)

School	**Male**	**Female**	**Total**
Low relation	13.7%	10.7%	12.2%
Medium relation	12.6%	10.6%	11.6%
High relation	14.3%	11.4%	12.7%
Total	13.5%	10.9%	12.2%

Outcome: BMI binary 0= Normal (BMI<25), 1=Overweight/obese (BMI>=25)
Covariates: Age, 4 relationship scales (excluded neighbourhood rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.169	.109	.121	1.184
RELPAR	-.061	.055	.264	.941
RELTEA	**.082**	**.039**	**.039**	**1.085**
RELPEE	-.097	.072	.179	.907
RELSCH	-.110	.116	.345	.896
AGE* RELPAR	.003	.004	.380	1.003
AGE*RELTEA	-.005	.003	.063	.995
AGE*RELPEE	.004	.005	.452	1.004
AGE* RELSCH	.007	.008	.398	1.007
CONSTANT	-3.520	1.577	.026	.030

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	4.282[a]	5	.856	8.121	.000
Intercept	1.313	1	1.313	12.450	.000
RELNEI	.423	2	.211	2.005	.135
FEMALE	**2.899**	**1**	**2.899**	**27.497**	**.000**
RELNEI * FEMALE	.253	2	.126	1.198	.302
Error	1722.534	16336	.105		
Total	1726.819	16342			
Corrected Total	1726.816	16341			

Percent overweight/obese (adjusted)

Neighbourhood	Male	Female	Total
Low relation	14.4%	12.4%	13.4%
Medium relation	12.8%	10.6%	11.7%
High relation	13.3%	9.4%	11.3%
Total	13.5%	10.9%	12.2%

Outcome: Bullying binary 0=No bully (M59=1), 1=yes bully (M59=2 through 5)
Covariate: Age, 4 relationship scales (excluded Parent rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.320**	**.067**	**.000**	**.726**
RELTEA	-.004	.022	.872	.996
RELPEE	**-.156**	**.042**	**.000**	**.856**
RELSCH	-.112	.066	.087	.894
RELNEI	**-.179**	**.047**	**.000**	**.836**
AGE* RELTEA	-.001	.002	.602	.999
AGE*RELPEE	**.009**	**.003**	**.005**	**1.009**
AGE*RELSCH	.003	.005	.584	1.003
AGE* RELNEI	**.011**	**.003**	**.001**	**1.011**
CONSTANT	*7.108*	*.938*	*.000*	*1221.163*

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	149.444[a]	5	29.889	129.168	.000
Intercept	1.012	1	1.012	4.376	.036
RELPAR	**50.435**	**2**	**25.218**	**108.982**	**.000**
FEMALE	**10.269**	**1**	**10.269**	**44.379**	**.000**
RELPAR * FEMALE	**4.226**	**2**	**2.113**	**9.132**	**.000**
Error	4618.389	19959	.231		
Total	4767.868	19965			
Corrected Total	4767.833	19964			

Percent bullied (adjusted)

Parent	**Male**	**Female**	**Total**
Low relation	62.2%	61.5%	61.8%
Medium relation	56.7%	49.7%	53.2%
High relation	44.4%	38.3%	41.4%
Total	55.2%	51.5%	53.3%

Outcome: Bullying binary 0=No bully (M59=1), 1=yes bully (M59=2 through 5)
Covariate: Age, 4 relationship scales (excluded teacher rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.506**	**.070**	**.000**	**.603**
RELPAR	**-.221**	**.034**	**.000**	**.802**
RELTEA	**-.134**	**.042**	**.002**	**.875**
RELPEE	-.037	.059	.530	.964
RELSCH	**-.128**	**.049**	**.009**	**.880**
AGE* RELPAR	**.009**	**.002**	**.000**	**1.009**
AGE*RELTEA	**.007**	**.003**	**.017**	**1.007**
AGE* RELPEE	-.002	.004	.710	.998
AGE* RELSCH	**.009**	**.003**	**.009**	**1.009**
CONSTANT	10.810	.992	.000	49501.356

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	15.750[a]	5	3.150	13.759	.000
Intercept	6.588	1	6.588	28.775	.000
RELTEA	.002	2	.001	.004	.996
FEMALE	**14.913**	**1**	**14.913**	**65.135**	**.000**
RELTEA * FEMALE	.569	2	.285	1.243	.289
Error	4569.632	19959	.229		
Total	4585.448	19965			
Corrected Total	4585.382	19964			

Percent bullied (adjusted)

Teacher	**Male**	**Female**	**Total**
Low relation	57.0%	52.9%	54.8%
Medium relation	57.0%	50.4%	53.7%
High relation	57.1%	51.2%	53.9%
Total	57.0%	51.6%	54.2%

Outcome: Bullying binary 0=No bully (M59=1), 1=yes bully (M59=2 through 5)
Covariate: Age, 4 relationship scales (excluded peer rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.434**	**.073**	**.000**	**.648**
RELPAR	**-.211**	**.035**	**.000**	**.810**
RELTEA	-.001	.023	.955	.999
RELSCH	-.118	.066	.074	.888
RELNEI	**-.167**	**.049**	**.001**	**.846**
AGE* RELPAR	**.008**	**.002**	**.001**	**1.008**
AGE*RELTEA	.000	.002	.783	1.000
AGE*RELSCH	.004	.005	.432	1.004
AGE* RELNEI	**.012**	**.004**	**.001**	**1.012**
CONSTANT	9.635	1.033	.000	15296.801

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	22.413[a]	5	4.483	19.559	.000
Intercept	5.248	1	5.248	22.899	.000
RELPEE	**1.551**	**2**	**.775**	**3.383**	**.034**
FEMALE	**14.301**	**1**	**14.301**	**62.400**	**.000**
RELPEE * FEMALE	1.055	2	.528	2.302	.100
Error	4574.268	19959	.229		
Total	4596.683	19965			
Corrected Total	4596.682	19964			

Percent bullied (adjusted)

Peer	**Male**	**Female**	**Total**
Low relation	58.1%	54.4%	56.3%
Medium relation	57.5%	50.6%	53.9%
High relation	54.8%	48.7%	51.5%
Total	57.2%	51.7%	54.3%

Outcome: Bullying binary 0=No bully (M59=1), 1=yes bully (M59=2 through 5)
Covariate: Age, 4 relationship scales (excluded school rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.473**	**.075**	**.000**	**.623**
RELPAR	**-.211**	**.034**	**.000**	**.809**
RELTEA	.000	.020	.998	1.000
RELPEE	**-.142**	**.042**	**.001**	**.867**
RELNEI	**-.133**	**.050**	**.008**	**.876**
AGE* RELPAR	**.008**	**.002**	**.001**	**1.008**
AGE*RELTEA	-.001	.001	.498	.999
AGE* RELPEE	**.007**	**.003**	**.014**	**1.007**
AGE* RELNEI	**.009**	**.004**	**.009**	**1.009**
CONSTANT	10.386	1.064	.000	32391.080

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	22.344[a]	5	4.469	19.500	.000
Intercept	7.585	1	7.585	33.098	.000
RELSCH	.862	2	.431	1.881	.152
FEMALE	**16.179**	**1**	**16.179**	**70.598**	**.000**
RELSCH * FEMALE	**2.039**	**2**	**1.019**	**4.448**	**.012**
Error	4574.103	19959	.229		
Total	4596.450	19965			
Corrected Total	4596.447	19964			

Percent bullied (adjusted)

School	Male	Female	Total
Low relation	58.4%	54.0%	56.1%
Medium relation	56.2%	52.1%	54.1%
High relation	57.0%	48.3%	52.3%
Total	57.3%	51.6%	54.3%

Outcome: Bullying binary 0=No bully (M59=1), 1=yes bully (M59=2 through 5)
Covariate: Age, 4 relationship scales (excluded neighbourhood) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.408**	**.072**	**.000**	**.665**
RELPAR	**-.232**	**.034**	**.000**	**.793**
RELTEA	.011	.023	.632	1.011
RELPEE	**-.170**	**.043**	**.000**	**.844**
RELSCH	-.047	.069	.489	.954
AGE* RELPAR	**.010**	**.002**	**.000**	**1.010**
AGE*RELTEA	-.001	.002	.486	.999
AGE* RELPEE	**.010**	**.003**	**.001**	**1.010**
AGE* RELSCH	.000	.005	.926	1.000
CONSTANT	9.510	1.019	.000	13499.156

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	15.827[a]	5	3.165	13.823	.000
Intercept	6.815	1	6.815	29.761	.000
RELNEI	.844	2	.422	1.842	.158
FEMALE	**13.817**	**1**	**13.817**	**60.338**	**.000**
RELNEI * FEMALE	.918	2	.459	2.004	.135
Error	4570.569	19959	.229		
Total	4586.398	19965			
Corrected Total	4586.397	19964			

Percent bullied (adjusted)

Neighbourhood	Male	Female	Total
Low relation	56.1%	52.5%	54.3%
Medium relation	58.3%	51.7%	54.9%
High relation	56.9%	50.9%	53.7%
Total	57.2%	51.8%	54.4%

Outcome: Victimization binary 0=No victim (M58=1), 1=yes victim (M58=2 through 5)
Covariate: Age, 4 relationship scales (excluded Teacher rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.456**	**.075**	**.000**	**.634**
RELATPAR	**-.113**	**.036**	**.002**	**.893**
RELATPEE	**-.133**	**.046**	**.004**	**.875**
RELATSCH	.111	.062	.076	1.117
RELATNEI	**-.230**	**.052**	**.000**	**.794**
AGE*RELPAR	.002	.003	.464	1.002
AGE*RELPEE	.003	.003	.396	1.003
AGE*RELSCH	-.008	.004	.078	.992
AGE*RELNEI	**.016**	**.004**	**.000**	**1.016**
CONSTANT	*10.903*	*1.068*	*.000*	*54361.765*

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	40.274[a]	5	8.055	38.424	.000
Intercept	17.808	1	17.808	84.951	.000
RELTCAT	**2.145**	**2**	**1.072**	**5.116**	**.006**
FEMALE	**34.306**	**1**	**34.306**	**163.651**	**.000**
RELTCAT * FEMALE	.803	2	.401	1.914	.147
Error	4193.215	20003	.210		
Total	4233.523	20009			
Corrected Total	4233.489	20008			

Percent victimized (adjusted)

Teacher	Male	Female	Total
Low relation	58.2%	67.9%	63.3%
Medium relation	59.8%	66.5%	63.2%
High relation	62.0%	70.6%	66.6%
Total	59.8%	68.2%	64.2%

Outcome: Victimization binary 0=No victim (M58=1), 1=yes victim (M58=2 through 5)
Covariate: Age, 4 relationship scales (excluded parent rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.340**	**.071**	**.000**	**.712**
RELTEA	.045	.024	.058	1.046
RELPEE	**-.181**	**.046**	**.000**	**.835**
RELSCH	.013	.070	.855	1.013
RELNEI	**-.257**	**.051**	**.000**	**.773**
AGE*RELTEA	-.003	.002	.063	.997
AGE* RELPEE	.006	.003	.071	1.006
AGE* RELSCH	-.004	.005	.467	.996
AGE* RELNEI	**.016**	**.004**	**.000**	**1.016**
CONSTANT	8.036	1.005	.000	3089.001

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	132.015[a]	5	26.403	124.914	.000
Intercept	30.873	1	30.873	146.062	.000
RELPAR	**31.419**	**2**	**15.709**	**74.322**	**.000**
FEMALE	**41.464**	**1**	**41.464**	**196.169**	**.000**
RELPAR * FEMALE	.884	2	.442	2.092	.123
Error	4228.017	20003	.211		
Total	4360.033	20009			
Corrected Total	4360.032	20008			

Percent victimized (adjusted)

Parent	**Male**	**Female**	**Total**
Low relation	65.4%	76.3%	71.4%
Medium relation	59.2%	68.1%	63.7%
High relation	51.2%	59.0%	55.1%
Total	59.2%	69.1%	64.3%

Outcome: Victimization binary 0=No victim (M58=1), 1=yes victim (M58=2 through 5)
Covariate: Age, 4 relationship scales (excluded Teacher rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.456**	**.075**	**.000**	**.634**
RELPAR	**-.113**	**.036**	**.002**	**.893**
RELPEE	**-.133**	**.046**	**.004**	**.875**
RELSCH	.111	.062	.076	1.117
RELNEI	**-.230**	**.052**	**.000**	**.794**
AGE*RELPAR	.002	.003	.464	1.002
AGE*RELPEE	.003	.003	.396	1.003
AGE*RELSCH	-.008	.004	.078	.992
AGE*RELNEI	**.016**	**.004**	**.000**	**1.016**
CONSTANT	*10.903*	*1.068*	*.000*	*54361.765*

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	40.274[a]	5	8.055	38.424	.000
Intercept	17.808	1	17.808	84.951	.000
RELTEA	**2.145**	**2**	**1.072**	**5.116**	**.006**
FEMALE	**34.306**	**1**	**34.306**	**163.651**	**.000**
RELTEA * FEMALE	.803	2	.401	1.914	.147
Error	4193.215	20003	.210		
Total	4233.523	20009			
Corrected Total	4233.489	20008			

Percent victimized (adjusted)

Teacher	Male	Female	Total
Low relation	58.2%	67.9%	63.3%
Medium relation	59.8%	66.5%	63.2%
High relation	62.0%	70.6%	66.6%
Total	59.8%	68.2%	64.2%

Outcome: Victimization binary 0=No victim (M58=1), 1=yes victim (M58=2 through 5)
Covariate: Age, 4 relationship scales (excluded peer rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.356**	**.076**	**.000**	**.700**
RELPAR	**-.123**	**.037**	**.001**	**.885**
RELTEA	.045	.024	.063	1.046
RELSCH	-.030	.070	.671	.971
RELNEI	**-.266**	**.051**	**.000**	**.766**
AGE*RELPAR	.002	.003	.398	1.002
AGE*RELTEA	-.003	.002	.087	.997
AGE*RELSCH	-.002	.005	.756	.998
AGE*RELNEI	**.017**	**.004**	**.000**	**1.017**
CONSTANT	8.632	1.075	.000	5607.736

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	76.157[a]	5	15.231	71.935	.000
Intercept	25.072	1	25.072	118.410	.000
RELPEE	**20.836**	**2**	**10.418**	**49.201**	**.000**
FEMALE	**33.588**	**1**	**33.588**	**158.626**	**.000**
RELPEE * FEMALE	.088	2	.044	.208	.812
Error	4235.439	20003	.212		
Total	4311.600	20009			
Corrected Total	4311.597	20008			

Percent victimized (adjusted)

Peer	**Male**	**Female**	**Total**
Low relation	65.3%	73.8%	69.6%
Medium relation	57.4%	65.4%	61.6%
High relation	54.1%	63.2%	59.1%
Total	60.1%	68.3%	64.3%

Outcome: Victimization binary 0=No victim (M58=1), 1=yes victim (M58=2 through 5)
Covariate: Age, 4 relationship scales (excluded school rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.387**	**.080**	**.000**	**.679**
RELPAR	**-.121**	**.037**	**.001**	**.886**
RELTEA	**.066**	**.022**	**.002**	**1.068**
RELPEE	**-.147**	**.046**	**.001**	**.863**
RELNEI	**-.230**	**.053**	**.000**	**.794**
AGE*RELPAR	.002	.003	.417	1.002
AGE*RELTEA	**-.004**	**.002**	**.008**	**.996**
AGE*RELPEE	.003	.003	.304	1.003
AGE*RELNEI	**.015**	**.004**	**.000**	**1.016**
CONSTANT	9.798	1.137	.000	18001.866

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	38.041[a]	5	7.608	36.303	.000
Intercept	17.928	1	17.928	85.542	.000
RELSCH	**1.384**	**2**	**.692**	**3.302**	**.037**
FEMALE	**33.837**	**1**	**33.837**	**161.452**	**.000**
RELSCH * FEMALE	.708	2	.354	1.689	.185
Error	4192.190	20003	.210		
Total	4230.234	20009			
Corrected Total	4230.232	20008			

Percent victimized (adjusted)

School	Male	Female	Total
Low relation	60.4%	69.8%	65.2%
Medium relation	58.3%	67.1%	62.8%
High relation	61.2%	67.7%	64.7%
Total	59.9%	68.3%	64.3%

Outcome: Victimization binary 0=No victim (M58=1), 1=yes victim (M58=2 through 5)
Covariate: Age, 4 relationship scales (excluded neighbour rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.306**	**.076**	**.000**	**.737**
RELPAR	**-.161**	**.036**	**.000**	**.851**
RELTEA	**.054**	**.025**	**.031**	**1.055**
RELPEE	**-.205**	**.047**	**.000**	**.814**
RELNEI	.035	.073	.630	1.036
AGE*RELPAR	.005	.003	.055	1.005
AGE*RELTEA	-.003	.002	.083	.997
AGE*RELPEE	**.008**	**.003**	**.024**	**1.008**
AGE*RELNEI	-.004	.005	.491	.996
CONSTANT	8.573	1.086	.000	5289.038

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	36.630[a]	5	7.326	34.910	.000
Intercept	18.739	1	18.739	89.295	.000
RELNEI	.531	2	.265	1.265	.282
FEMALE	**35.332**	**1**	**35.332**	**168.370**	**.000**
RELNEI * FEMALE	.298	2	.149	.709	.492
Error	4197.641	20003	.210		
Total	4234.271	20009			
Corrected Total	4234.270	20008			

Percent victimized (adjusted)

Neighbourhood	**Male**	**Female**	**Total**
Low relation	60.7%	69.0%	65.0%
Medium relation	59.8%	67.7%	63.9%
High relation	58.7%	68.6%	64.0%
Total	59.9%	68.3%	64.3%

Outcome: Quality of life binary 0=Low quality (M105=0 to 8), 1=High quality (M105=9, 10) (M105 split into 3 equal groups, low quality is 1st two groups and high quality is the top group)
Covariate: Age, 4 relationship scales (excluded parent rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.011	.088	.904	1.011
RELTEA	.038	.027	.154	1.039
RELPEE	**.141**	**.050**	**.005**	**1.152**
RELSCH	.020	.079	.796	1.021
RELNEI	**.131**	**.056**	**.020**	**1.140**
AGE*RELTEA	.000	.002	.804	1.000
AGE* RELPEE	-.005	.004	.135	.995
AGE* RELSCH	.005	.006	.398	1.005
AGE* RELNEI	-.003	.004	.512	.997
CONSTANT	-6.004	1.226	.000	.002

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	184.811[a]	5	36.962	218.482	.000
Intercept	8.086	1	8.086	47.798	.000
RELPAR	**74.632**	**2**	**37.316**	**220.573**	**.000**
FEMALE	**6.084**	**1**	**6.084**	**35.963**	**.000**
RELPAR * FEMALE	.638	2	.319	1.886	.152
Error	3336.006	19719	.169		
Total	3520.885	19725			
Corrected Total	3520.817	19724			

Percent reporting high quality of life (adjusted)

Parent	Male	Female	Total
Low relation	21.7%	17.0%	19.1%
Medium relation	27.1%	23.0%	25.0%
High relation	43.2%	41.2%	42.2%
Total	29.8%	25.4%	27.5%

Outcome: Quality of life binary 0=Low quality (M105=0 to 8), 1=High quality (M105=9, 10)
Covariate: Age, 4 relationship scales (excluded teacher rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.118	.099	.234	1.126
RELPAR	**.197**	**.044**	**.000**	**1.217**
RELPEE	**.138**	**.051**	**.007**	**1.148**
RELSCH	.023	.071	.752	1.023
RELNEI	.109	.058	.058	1.116
AGE*RELPAR	-.002	.003	.427	.998
AGE*RELPEE	-.005	.004	.139	.995
AGE*RELSCH	.004	.005	.424	1.004
AGE*RELNEI	-.004	.004	.373	.996
CONSTANT	-9.446	1.382	.000	.000

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	11.661[a]	5	2.332	14.013	.000
Intercept	2.237	1	2.237	13.441	.000
RELTEA	**2.911**	**2**	**1.455**	**8.744**	**.000**
FEMALE	**3.775**	**1**	**3.775**	**22.683**	**.000**
RELTEA * FEMALE	.096	2	.048	.288	.749
Error	3281.801	19719	.166		
Total	3293.483	19725			
Corrected Total	3293.462	19724			

Percent reporting high quality of life (adjusted)

Teacher	Male	Female	Total
Low relation	28.2%	25.0%	26.5%
Medium relation	27.7%	24.7%	26.2%
High relation	31.9%	29.7%	30.7%
Total	29.1%	26.3%	27.6%

Outcome: Quality of life binary 0=Low quality (M105=0 to 8), 1=High quality (M105=9, 10)
Covariate: Age, 4 relationship scales (excluded peer rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.114	.102	.262	1.121
RELPAR	**.192**	**.045**	**.000**	**1.212**
RELTEA	.048	.028	.084	1.049
RELSCH	.019	.080	.816	1.019
RELNEI	**.136**	**.058**	**.019**	**1.145**
AGE*RELPAR	-.002	.003	.448	.998
AGE*RELTEA	-.002	.002	.340	.998
AGE*RELSCH	.004	.006	.440	1.004
AGE*RELNEI	-.005	.004	.263	.995
CONSTANT	-9.244	1.422	.000	.000

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	19.388[a]	5	3.878	23.245	.000
Intercept	3.982	1	3.982	23.872	.000
RELPEE	**6.709**	**2**	**3.355**	**20.111**	**.000**
FEMALE	**3.348**	**1**	**3.348**	**20.071**	**.000**
RELPEE * FEMALE	.038	2	.019	.114	.892
Error	3289.321	19719	.167		
Total	3308.709	19725			
Corrected Total	3308.709	19724			

Percent reporting high quality of life (adjusted)

Peer	Male	Female	Total
Low relation	26.7%	23.7%	25.2%
Medium relation	29.1%	26.3%	27.6%
High relation	33.8%	31.5%	32.5%
Total	29.1%	26.5%	27.7%

Outcome: Quality of life binary 0=Low quality (M105=0 to 8), 1=High quality (M105=9, 10)
Covariate: Age, 4 relationship scales (excluded school rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	.125	.106	.238	1.133
RELPAR	**.195**	**.045**	**.000**	**1.216**
RELTEA	.031	.025	.210	1.031
RELPEE	**.104**	**.051**	**.041**	**1.110**
RELNEI	.098	.059	.097	1.103
AGE*RELPAR	-.002	.003	.439	.998
AGE*RELTEA	.000	.002	.829	1.000
AGE*RELPEE	-.003	.004	.493	.997
AGE*RELNEI	-.003	.004	.520	.997
CONSTANT	-9.795	1.474	.000	.000

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	12.126[a]	5	2.425	14.575	.000
Intercept	2.108	1	2.108	12.669	.000
RELSCH	**3.068**	**2**	**1.534**	**9.218**	**.000**
FEMALE	**3.445**	**1**	**3.445**	**20.704**	**.000**
RELSCH * FEMALE	.190	2	.095	.571	.565
Error	3281.045	19719	.166		
Total	3293.177	19725			
Corrected Total	3293.171	19724			

Percent reporting high quality of life (adjusted)

School	**Male**	**Female**	**Total**
Low relation	27.8%	24.4%	26.1%
Medium relation	27.9%	25.4%	26.7%
High relation	31.9%	29.9%	30.8%
Total	29.0%	26.4%	27.7%

Outcome: Quality of life binary 0=Low quality (M105=0 to 8), 1=High quality (M105=9, 10)
Covariate: Age, 4 relationship scales (excluded neighbour rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.085	.101	.403	1.088
RELPAR	**.195**	**.044**	**.000**	**1.215**
RELTEA	.041	.028	.144	1.042
RELPEE	**.141**	**.052**	**.006**	**1.152**
RELNEI	-.052	.083	.536	.950
AGE*RELPAR	-.002	.003	.513	.998
AGE*RELTEA	-.002	.002	.417	.998
AGE*RELPEE	-.005	.004	.172	.995
AGE*RELNEI	.008	.006	.182	1.008
CONSTANT	-8.892	1.412	.000	.000

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	17.855[a]	5	3.571	21.429	.000
Intercept	3.548	1	3.548	21.289	.000
RELNEI	**5.619**	**2**	**2.809**	**16.859**	**.000**
FEMALE	**3.249**	**1**	**3.249**	**19.497**	**.000**
RELNEI * FEMALE	.118	2	.059	.354	.702
Error	3286.041	19719	.167		
Total	3303.901	19725			
Corrected Total	3303.896	19724			

Percent reporting high quality of life (adjusted)

Neighbourhood	Male	Female	Total
Low relation	27.1%	24.3%	25.7%
Medium relation	28.5%	25.4%	26.9%
High relation	33.5%	31.6%	32.5%
Total	29.2%	26.5%	27.8%

Outcome: **Mental health well-being binary 0=Low well-being, 1=High well-being (Emotional Well-being scale split into 3 equal groups, low well-being is the 1st two groups and high well-being is the top group)**

Covariate: **Age, 4 relationship scales (excluded parent rated) and their pairwise interactions.**

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.281**	**.100**	**.005**	**.755**
RELTEA	.006	.029	.841	1.006
RELPEE	.106	.054	.051	1.111
RELSCH	.111	.084	.184	1.117
RELNEI	.107	.061	.079	1.113
AGE*RELTEA	.003	.002	.181	1.003
AGE* RELPEE	-.002	.004	.699	.998
AGE* RELSCH	-.004	.006	.480	.996
AGE* RELNEI	.003	.004	.570	1.003
CONSTANT	-3.366	1.373	.014	.035

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	254.847[a]	5	50.969	349.563	.000
Intercept	30.000	1	30.000	205.748	.000
RELPAR	**117.540**	**2**	**58.770**	**403.062**	**.000**
FEMALE	**30.431**	**1**	**30.431**	**208.702**	**.000**
RELPAR * FEMALE	**1.527**	**2**	**.763**	**5.236**	**.005**
Error	2918.366	20015	.146		
Total	3173.268	20021			
Corrected Total	3173.213	20020			

Percent reporting high well-being (adjusted)

Parent	**Male**	**Female**	**Total**
Low relation	19.3%	13.8%	16.3%
Medium relation	26.6%	17.3%	21.9%
High relation	46.2%	37.4%	41.8%
Total	29.7%	21.2%	25.3%

Outcome: Mental health well-being binary 0=Low well-being, 1=High well-being
Covariate: Age, 4 relationship scales (excluded teacher rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.235**	**.118**	**.047**	**.791**
RELPAR	**.163**	**.050**	**.001**	**1.178**
RELPEE	**.112**	**.055**	**.043**	**1.119**
RELSCH	.067	.076	.377	1.069
RELNEI	.068	.063	.280	1.070
AGE*RELPAR	.003	.004	.333	1.003
AGE*RELPEE	-.002	.004	.676	.998
AGE*RELSCH	-.001	.006	.816	.999
AGE*RELNEI	.002	.005	.615	1.002
CONSTANT	-6.740	1.619	.000	.001

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	43.870[a]	5	8.774	61.763	.000
Intercept	14.598	1	14.598	102.759	.000
RELTEA	**14.228**	**2**	**7.114**	**50.076**	**.000**
FEMALE	**24.829**	**1**	**24.829**	**174.776**	**.000**
RELTEA * FEMALE	**1.135**	**2**	**.568**	**3.995**	**.018**
Error	2843.341	20015	.142		
Total	2887.222	20021			
Corrected Total	2887.212	20020			

Percent reporting high well-being (adjusted)

Teacher	Male	Female	Total
Low relation	26.7%	21.1%	23.7%
Medium relation	25.7%	19.3%	22.5%
High relation	34.7%	25.5%	29.8%
Total	28.6%	21.8%	25.0%

Outcome: Mental health well-being binary 0=Low well-being, 1=High well-being
Covariate: Age, 4 relationship scales (excluded peer rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	-.185	.120	.123	.831
RELPAR	**.183**	**.051**	**.000**	**1.201**
RELTEA	.015	.030	.620	1.015
RELSCH	.144	.085	.092	1.155
RELNEI	.091	.063	.145	1.096
AGE*RELPAR	.002	.004	.654	1.002
AGE*RELTEA	.001	.002	.542	1.001
AGE*RELSCH	-.007	.006	.256	.993
AGE*RELNEI	.001	.005	.784	1.001
CONSTANT	-7.157	1.651	.000	.001

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	60.618[a]	5	12.124	85.203	.000
Intercept	21.686	1	21.686	152.408	.000
RELPEE	**22.703**	**2**	**11.352**	**79.777**	**.000**
FEMALE	**23.958**	**1**	**23.958**	**168.374**	**.000**
RELPEE * FEMALE	.641	2	.320	2.251	.105
Error	2847.934	20015	.142		
Total	2908.553	20021			
Corrected Total	2908.551	20020			

Percent reporting high well-being (adjusted)

Peer	Male	Female	Total
Low relation	25.5%	19.2%	22.3%
Medium relation	26.8%	20.6%	23.5%
High relation	38.0%	29.0%	33.0%
Total	28.6%	22.0%	25.1%

Outcome: Mental health well-being binary 0=Low well-being, 1=High well-being
Covariate: Age, 4 relationship scales (excluded school rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	-.191	.127	.132	.826
RELPAR	**.194**	**.051**	**.000**	**1.214**
RELTEA	.021	.027	.433	1.021
RELPEE	.107	.055	.053	1.113
RELNEI	.072	.064	.263	1.075
AGE*RELPAR	.001	.004	.797	1.001
AGE*RELTEA	.001	.002	.732	1.001
AGE*RELPEE	-.002	.004	.671	.998
AGE*RELNEI	.002	.005	.701	1.002
CONSTANT	-7.795	1.740	.000	.000

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	31.758[a]	5	6.352	44.700	.000
Intercept	12.651	1	12.651	89.037	.000
RELSCH	**5.503**	**2**	**2.752**	**19.365**	**.000**
FEMALE	**23.288**	**1**	**23.288**	**163.896**	**.000**
RELSCH * FEMALE	.157	2	.078	.552	.576
Error	2843.979	20015	.142		
Total	2875.738	20021			
Corrected Total	2875.737	20020			

Percent reporting high well-being (adjusted)

School	Male	Female	Total
Low relation	28.6%	21.7%	25.1%
Medium relation	25.8%	19.7%	22.7%
High relation	31.9%	24.4%	27.8%
Total	28.6%	21.9%	25.1%

Outcome: Mental health well-being binary 0=Low well-being, 1=High well-being
Covariate: Age, 4 relationship scales (excluded neighbour rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	-.156	.119	.190	.855
RELPAR	**.206**	**.050**	**.000**	**1.228**
RELTEA	.014	.030	.648	1.014
RELPEE	**.111**	**.056**	**.047**	**1.117**
RELNEI	.059	.088	.502	1.061
AGE*RELPAR	.001	.004	.802	1.001
AGE*RELTEA	.001	.002	.590	1.001
AGE*RELPEE	-.001	.004	.807	.999
AGE*RELNEI	-.003	.006	.647	.997
CONSTANT	-7.581	1.642	.000	.001

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	60.199[a]	5	12.040	84.416	.000
Intercept	20.418	1	20.418	143.156	.000
RELNEI	**27.374**	**2**	**13.687**	**95.964**	**.000**
FEMALE	**25.539**	**1**	**25.539**	**179.062**	**.000**
RELNEI * FEMALE	**2.635**	**2**	**1.317**	**9.236**	**.000**
Error	2854.654	20015	.143		
Total	2914.854	20021			
Corrected Total	2914.854	20020			

Percent reporting high well-being (adjusted)

Neighbourhood	Male	Female	Total
Low relation	24.9%	19.3%	22.0%
Medium relation	26.4%	20.9%	23.5%
High relation	38.3%	27.3%	32.5%
Total	28.6%	21.9%	25.1%

Outcome: **Prosocial binary 0=Low prosocial, 1=High prosocial**
(Prosocial scale split into 3 equal groups, low prosocial is the 1st two groups and high prosocial is the top group)
Covariate: **Age, 4 relationship scales (excluded parent rated) and their pairwise interactions.**

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**.419**	**.080**	**.000**	**1.521**
RELTEA	**.090**	**.026**	**.000**	**1.094**
RELPEE	.087	.048	.069	1.091
RELSCH	.081	.074	.277	1.084
RELNEI	**.213**	**.054**	**.000**	**1.238**
AGE*RELTEA	**-.004**	**.002**	**.018**	**.996**
AGE* RELPEE	-.002	.003	.513	.998
AGE* RELSCH	-.005	.005	.320	.995
AGE* RELNEI	**-.009**	**.004**	**.027**	**.991**
CONSTANT	-10.431	1.121	.000	.000

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	118.922[a]	5	23.784	125.861	.000
Intercept	40.789	1	40.789	215.846	.000
RELPAR	**13.132**	**2**	**6.566**	**34.745**	**.000**
FEMALE	**88.115**	**1**	**88.115**	**466.283**	**.000**
RELPAR * FEMALE	**2.002**	**2**	**1.001**	**5.296**	**.005**
Error	3696.509	19561	.189		
Total	3815.437	19567			
Corrected Total	3815.431	19566			

Percent reporting high prosocial (adjusted)

Parent	Male	Female	Total
Low relation	22.1%	32.9%	28.1%
Medium relation	18.7%	33.2%	26.0%
High relation	28.0%	43.4%	35.7%
Total	22.7%	35.8%	29.5%

Outcome: Prosocial binary 0=Low prosocial, 1=High prosocial
Covariate: Age, 4 relationship scales (excluded teacher rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**.554**	**.079**	**.000**	**1.741**
RELPAR	**.225**	**.036**	**.000**	**1.253**
RELPEE	.083	.047	.078	1.087
RELSCH	.120	.065	.066	1.127
RELNEI	**.193**	**.054**	**.000**	**1.213**
AGE*RELPAR	**-.014**	**.003**	**.000**	**.986**
AGE*RELPEE	-.002	.003	.636	.998
AGE*RELSCH	-.006	.005	.210	.994
AGE*RELNEI	-.008	.004	.054	.993
CONSTANT	-12.187	1.114	.000	.000

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	121.469[a]	5	24.294	128.311	.000
Intercept	41.923	1	41.923	221.422	.000
RELTEA	**9.319**	**2**	**4.659**	**24.609**	**.000**
FEMALE	**88.133**	**1**	**88.133**	**465.488**	**.000**
RELTEA * FEMALE	**1.588**	**2**	**.794**	**4.195**	**.015**
Error	3703.593	19561	.189		
Total	3825.082	19567			
Corrected Total	3825.062	19566			

Percent reporting high prosocial (adjusted)

Teacher	Male	Female	Total
Low relation	21.4%	33.0%	27.6%
Medium relation	19.7%	32.6%	26.1%
High relation	27.4%	43.4%	35.9%
Total	22.4%	35.9%	29.5%

Outcome: Prosocial binary 0=Low prosocial, 1=High prosocial
Covariate: Age, 4 relationship scales (excluded peer rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**.605**	**.082**	**.000**	**1.832**
RELPAR	**.207**	**.037**	**.000**	**1.230**
RELTEA	**.077**	**.026**	**.003**	**1.080**
RELSCH	.081	.073	.265	1.085
RELNEI	**.188**	**.055**	**.001**	**1.206**
AGE*RELPAR	**-.013**	**.003**	**.000**	**.987**
AGE*RELTEA	-.003	.002	.076	.997
AGE*RELSCH	-.004	.005	.434	.996
AGE*RELNEI	-.007	.004	.094	.993
CONSTANT	-12.947	1.166	.000	.000

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	134.485[a]	5	26.897	142.421	.000
Intercept	29.729	1	29.729	157.418	.000
RELPEE	**14.342**	**2**	**7.171**	**37.972**	**.000**
FEMALE	**86.026**	**1**	**86.026**	**455.512**	**.000**
RELPEE * FEMALE	.938	2	.469	2.484	.083
Error	3694.186	19561	.189		
Total	3828.675	19567			
Corrected Total	3828.670	19566			

Percent reporting high prosocial (adjusted)

Peer	**Male**	**Female**	**Total**
Low relation	20.7%	32.9%	26.9%
Medium relation	20.2%	33.6%	27.2%
High relation	30.1%	45.9%	38.7%
Total	22.5%	36.2%	29.6%

Outcome: Prosocial binary 0=Low prosocial, 1=High prosocial
Covariate: Age, 4 relationship scales (excluded school rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**.586**	**.086**	**.000**	**1.797**
RELPAR	**.208**	**.037**	**.000**	**1.232**
RELTEA	**.074**	**.023**	**.001**	**1.076**
RELPEE	.064	.047	.175	1.066
RELNEI	**.179**	**.056**	**.001**	**1.196**
AGE*RELPAR	**-.013**	**.003**	**.000**	**.987**
AGE*RELTEA	**-.003**	**.002**	**.044**	**.997**
AGE*RELPEE	-.001	.003	.846	.999
AGE*RELNEI	-.007	.004	.098	.993
CONSTANT	-13.049	1.211	.000	.000

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	100.933[a]	5	20.187	106.683	.000
Intercept	45.714	1	45.714	241.595	.000
RELSCH	**3.284**	**2**	**1.642**	**8.677**	**.000**
FEMALE	**89.444**	**1**	**89.444**	**472.700**	**.000**
RELSCH * FEMALE	**1.569**	**2**	**.784**	**4.146**	**.016**
Error	3701.320	19561	.189		
Total	3802.253	19567			
Corrected Total	3802.253	19566			

Percent reporting high prosocial (adjusted)

School	Male	Female	Total
Low relation	24.0%	35.8%	30.0%
Medium relation	19.9%	32.8%	26.5%
High relation	23.7%	39.8%	32.5%
Total	22.5%	36.0%	29.6%

Outcome: Prosocial binary 0=Low prosocial, 1=High prosocial
Covariate: Age, 4 relationship scales (excluded neighbour rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**.570**	**.080**	**.000**	**1.768**
RELPAR	**.243**	**.036**	**.000**	**1.275**
RELTEA	**.071**	**.026**	**.006**	**1.073**
RELPEE	**.102**	**.048**	**.033**	**1.107**
RELNEI	.030	.076	.692	1.030
AGE*RELPAR	**-.015**	**.003**	**.000**	**.985**
AGE*RELTEA	-.003	.002	.096	.997
AGE*RELPEE	-.003	.003	.463	.997
AGE*RELNEI	-.001	.005	.800	.999
CONSTANT	-12.200	1.131	.000	.000

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	144.262[a]	5	28.852	152.295	.000
Intercept	30.805	1	30.805	162.600	.000
RELNEI	**20.277**	**2**	**10.139**	**53.516**	**.000**
FEMALE	**86.356**	**1**	**86.356**	**455.823**	**.000**
RELNEI * FEMALE	.729	2	.364	1.923	.146
Error	3705.847	19561	.189		
Total	3850.112	19567			
Corrected Total	3850.109	19566			

Percent reporting high prosocial (adjusted)

Neighbourhood	Male	Female	Total
Low relation	20.0%	32.0%	26.2%
Medium relation	19.9%	33.8%	27.1%
High relation	31.0%	46.2%	39.1%
Total	22.5%	36.1%	29.6%

Outcome: Ever used cannabis binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded parent rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.257	.229	.263	1.293
RELTEA	.040	.086	.636	1.041
RELPEE	.219	.166	.188	1.245
RELSCH	-.298	.252	.237	.742
RELNEI	**-.572**	**.193**	**.003**	**.565**
AGE*RELTEA	-.005	.006	.375	.995
AGE* RELPEE	-.012	.011	.247	.988
AGE* RELSCH	.013	.016	.414	1.013
AGE* RELNEI	**.032**	**.012**	**.010**	**1.033**
CONSTANT	-2.100	3.544	.554	.122

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	41.299[a]	5	8.260	47.050	.000
Intercept	.574	1	.574	3.270	.071
RELPAR	**14.670**	**2**	**7.335**	**41.782**	**.000**
FEMALE	**.944**	**1**	**.944**	**5.378**	**.020**
RELPAR * FEMALE	1.024	2	.512	2.916	.054
Error	1450.087	8260	.176		
Total	1491.386	8266			
Corrected Total	1491.386	8265			

Percent used cannabis (adjusted)

Parent	**Male**	**Female**	**Total**
Low relation	33.1%	33.2%	33.1%
Medium relation	24.5%	19.6%	22.0%
High relation	17.4%	15.4%	16.4%
Total	27.0%	25.7%	26.3%

Outcome: Ever used cannabis binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded teacher rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.071	.232	.760	1.073
RELPAR	**-.297**	**.118**	**.012**	**.743**
RELPEE	.125	.168	.458	1.133
RELSCH	-.068	.229	.766	.934
RELNEI	-.365	.198	.066	.694
AGE*RELPAR	.012	.008	.124	1.012
AGE*RELPEE	-.007	.011	.550	.993
AGE*RELSCH	-.002	.015	.891	.998
AGE*RELNEI	.021	.013	.104	1.021
CONSTANT	1.615	3.585	.652	5.028

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	4.825[a]	5	.965	5.611	.000
Intercept	.415	1	.415	2.410	.121
RELTEA	**1.159**	**2**	**.580**	**3.371**	**.034**
FEMALE	**1.975**	**1**	**1.975**	**11.486**	**.001**
RELTEA * FEMALE	.006	2	.003	.017	.983
Error	1420.571	8260	.172		
Total	1425.423	8266			
Corrected Total	1425.396	8265			

Percent used cannabis (adjusted)

Teacher	Male	Female	Total
Low relation	29.7%	26.6%	28.0%
Medium relation	26.2%	22.7%	24.4%
High relation	26.3%	23.0%	24.6%
Total	27.8%	24.6%	26.1%

Outcome: Ever used cannabis binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded peer rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	.201	.242	.408	1.222
RELPAR	**-.291**	**.121**	**.016**	**.747**
RELTEA	.124	.089	.161	1.132
RELSCH	-.149	.257	.563	.862
RELNEI	**-.393**	**.198**	**.047**	**.675**
AGE*RELPAR	.012	.008	.137	1.012
AGE*RELTEA	-.009	.006	.111	.991
AGE*RELSCH	.006	.017	.722	1.006
AGE*RELNEI	.023	.013	.072	1.023
CONSTANT	.028	3.742	.994	1.028

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	3.256[a]	5	.651	3.788	.002
Intercept	.712	1	.712	4.139	.042
RELPEE	**1.139**	**2**	**.569**	**3.312**	**.036**
FEMALE	**1.364**	**1**	**1.364**	**7.933**	**.005**
RELPEE * FEMALE	.584	2	.292	1.699	.183
Error	1420.100	8260	.172		
Total	1423.358	8266			
Corrected Total	1423.356	8265			

Percent used cannabis (adjusted)

Peer	**Male**	**Female**	**Total**
Low relation	26.4%	24.4%	25.4%
Medium relation	30.0%	24.8%	27.3%
High relation	27.1%	25.6%	26.3%
Total	27.9%	24.8%	26.2%

Outcome: Ever used cannabis binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded school rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	.248	.253	.328	1.281
RELPAR	**-.303**	**.120**	**.012**	**.738**
RELTEA	.066	.078	.395	1.068
RELPEE	.118	.164	.473	1.125
RELNEI	**-.427**	**.203**	**.035**	**.652**
AGE*RELPAR	.012	.008	.116	1.012
AGE*RELTEA	-.006	.005	.206	.994
AGE*RELPEE	-.006	.011	.553	.994
AGE*RELNEI	.025	.013	.061	1.025
CONSTANT	-.856	3.909	.827	.425

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	5.465[a]	5	1.093	6.359	.000
Intercept	.754	1	.754	4.389	.036
RELSCH	.376	2	.188	1.093	.335
FEMALE	**2.614**	**1**	**2.614**	**15.205**	**.000**
RELSCH * FEMALE	.506	2	.253	1.473	.229
Error	1419.797	8260	.172		
Total	1425.267	8266			
Corrected Total	1425.262	8265			

Percent used cannabis (adjusted)

School	**Male**	**Female**	**Total**
Low relation	29.1%	27.3%	28.1%
Medium relation	27.5%	24.1%	25.8%
High relation	26.6%	20.7%	23.4%
Total	28.0%	24.7%	26.2%

Outcome: Ever used cannabis binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded neighbour rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.401	.236	.089	1.493
RELPAR	**-.358**	**.118**	**.002**	**.699**
RELTEA	.109	.089	.221	1.115
RELPEE	.033	.168	.847	1.033
RELNEI	-.191	.269	.477	.826
AGE*RELPAR	**.016**	**.008**	**.040**	**1.016**
AGE*RELTEA	-.008	.006	.147	.992
AGE*RELPEE	-.001	.011	.957	.999
AGE*RELNEI	.007	.017	.669	1.007
CONSTANT	-3.573	3.634	.326	.028

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	5.742[a]	5	1.148	6.686	.000
Intercept	.727	1	.727	4.234	.040
RELNEI	.574	2	.287	1.672	.188
FEMALE	**2.231**	**1**	**2.231**	**12.986**	**.000**
RELNEI * FEMALE	.382	2	.191	1.112	.329
Error	1418.834	8260	.172		
Total	1424.596	8266			
Corrected Total	1424.576	8265			

Percent used cannabis (adjusted)

Neighbourhood	Male	Female	Total
Low relation	29.4%	27.9%	28.6%
Medium relation	27.0%	22.9%	24.9%
High relation	26.9%	22.1%	24.2%
Total	27.9%	24.6%	26.1%

Outcome: Ever used hard drugs binary 0=No, 1=Yes (if the response to any of the 10 drugs was a yes)
Covariate: Age, 4 relationship scales (excluded parent rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	.270	.277	.331	1.309
RELTEA	-.064	.106	.545	.938
RELPEE	-.041	.209	.844	.960
RELSCH	.180	.321	.575	1.197
RELNEI	-.277	.245	.257	.758
AGE*RELTEA	.002	.007	.778	1.002
AGE* RELPEE	.004	.013	.766	1.004
AGE* RELSCH	-.018	.021	.376	.982
AGE* RELNEI	.012	.016	.465	1.012
CONSTANT	-2.797	4.296	.515	.061

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	10.718[a]	5	2.144	21.571	.000
Intercept	1.050	1	1.050	10.565	.001
RELPAR	**2.716**	**2**	**1.358**	**13.665**	**.000**
FEMALE	.277	1	.277	2.785	.095
RELPAR * FEMALE	.448	2	.224	2.254	.105
Error	814.795	8199	.099		
Total	825.513	8205			
Corrected Total	825.513	8204			

Percent used hard drugs (adjusted)

Parent	**Male**	**Female**	**Total**
Low relation	14.0%	17.1%	15.7%
Medium relation	9.2%	9.0%	9.1%
High relation	8.0%	8.8%	8.4%
Total	11.1%	13.1%	12.1%

Outcome: Ever used hard drugs binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded teacher rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	-.001	.275	.996	.999
RELPAR	**-.601**	**.141**	**.000**	**.548**
RELPEE	-.098	.212	.644	.907
RELSCH	.489	.284	.085	1.631
RELNEI	-.102	.247	.678	.903
AGE*RELPAR	**.031**	**.009**	**.001**	**1.032**
AGE*RELPEE	.008	.014	.581	1.008
AGE*RELSCH	**-.038**	**.018**	**.035**	**.962**
AGE*RELNEI	.002	.016	.876	1.002
CONSTANT	2.107	4.255	.620	8.224

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	1.009[a]	5	.202	2.077	.065
Intercept	.046	1	.046	.478	.489
RELTEA	.107	2	.054	.553	.575
FEMALE	.031	1	.031	.316	.574
RELTEA * FEMALE	.152	2	.076	.782	.457
Error	796.705	8199	.097		
Total	797.714	8205			
Corrected Total	797.714	8204			

Percent used hard drugs (adjusted)

Teacher	**Male**	**Female**	**Total**
Low relation	12.3%	13.7%	13.1%
Medium relation	11.1%	10.6%	10.9%
High relation	11.9%	12.1%	12.0%
Total	11.8%	12.4%	12.1%

Outcome: Ever used hard drugs binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded peer rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	.206	.285	.471	1.228
RELPAR	**-.575**	**.144**	**.000**	**.563**
RELTEA	.046	.109	.669	1.047
RELSCH	.412	.319	.196	1.510
RELNEI	-.129	.245	.598	.879
AGE*RELPAR	**.030**	**.009**	**.001**	**1.031**
AGE*RELTEA	-.004	.007	.546	.996
AGE*RELSCH	-.031	.021	.131	.970
AGE*RELNEI	.005	.016	.773	1.005
CONSTANT	-.663	4.419	.881	.515

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	.438[a]	5	.088	.902	.479
Intercept	.000	1	.000	.004	.952
RELPEE	.342	2	.171	1.761	.172
FEMALE	.008	1	.008	.083	.774
RELPEE * FEMALE	.175	2	.088	.902	.406
Error	795.485	8199	.097		
Total	795.929	8205			
Corrected Total	795.922	8204			

Percent used hard drugs (adjusted)

Peer	**Male**	**Female**	**Total**
Low relation	10.9%	12.4%	11.7%
Medium relation	11.9%	12.2%	12.0%
High relation	13.7%	12.5%	13.0%
Total	11.7%	12.3%	12.0%

Outcome: Ever used hard drugs binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded school rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	.214	.300	.475	1.239
RELPAR	**-.533**	**.143**	**.000**	**.587**
RELTEA	.112	.093	.229	1.119
RELPEE	.041	.203	.839	1.042
RELNEI	-.116	.251	.644	.890
AGE*RELPAR	**.027**	**.009**	**.003**	**1.027**
AGE*RELTEA	-.009	.006	.120	.991
AGE*RELPEE	-.002	.013	.882	.998
AGE*RELNEI	.003	.016	.851	1.003
CONSTANT	-.904	4.650	.846	.405

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	1.525[a]	5	.305	3.141	.008
Intercept	.070	1	.070	.718	.397
RELSCH	.050	2	.025	.259	.772
FEMALE	.021	1	.021	.213	.644
RELSCH * FEMALE	.457	2	.229	2.354	.095
Error	796.417	8199	.097		
Total	797.944	8205			
Corrected Total	797.942	8204			

Percent used hard drugs (adjusted)

School	**Male**	**Female**	**Total**
Low relation	12.1%	14.5%	13.4%
Medium relation	11.7%	10.9%	11.3%
High relation	11.2%	10.6%	10.9%
Total	11.8%	12.3%	12.1%

Outcome: Ever used hard drugs binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded neighbour rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	.214	.280	.444	1.239
RELPAR	**-.560**	**.141**	**.000**	**.571**
RELTEA	.055	.108	.608	1.057
RELPEE	-.070	.209	.739	.933
RELNEI	.345	.334	.301	1.412
AGE*RELPAR	**.029**	**.009**	**.002**	**1.029**
AGE*RELTEA	-.005	.007	.477	.995
AGE*RELPEE	.006	.013	.681	1.006
AGE*RELNEI	-.028	.021	.190	.972
CONSTANT	-1.388	4.337	.749	.250

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	1.598[a]	5	.320	3.289	.006
Intercept	.067	1	.067	.693	.405
RELNEI	.178	2	.089	.916	.400
FEMALE	.014	1	.014	.139	.709
RELNEI * FEMALE	.282	2	.141	1.450	.235
Error	796.970	8199	.097		
Total	798.578	8205			
Corrected Total	798.568	8204			

Percent used hard drugs (adjusted)

Neighbourhood	**Male**	**Female**	**Total**
Low relation	12.6%	14.4%	13.5%
Medium relation	11.2%	11.6%	11.4%
High relation	11.3%	9.8%	10.4%
Total	11.7%	12.3%	12.0%

Outcome: Ever had sex binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded parent rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.477	.245	.051	1.612
RELTEA	.013	.090	.881	1.014
RELPEE	.030	.179	.868	1.030
RELSCH	-.308	.276	.264	.735
RELNEI	-.210	.210	.316	.810
AGE*RELTEA	-.001	.006	.804	.999
AGE* RELPEE	-.002	.012	.893	.998
AGE* RELSCH	.013	.018	.452	1.013
AGE* RELNEI	.009	.014	.484	1.010
CONSTANT	-6.216	3.787	.101	.002

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	11.357[a]	5	2.271	13.049	.000
Intercept	.089	1	.089	.513	.474
RELPAR	**3.499**	**2**	**1.750**	**10.051**	**.000**
FEMALE	.596	1	.596	3.424	.064
RELPAR * FEMALE	.311	2	.156	.894	.409
Error	1273.339	7315	.174		
Total	1284.762	7321			
Corrected Total	1284.696	7320			

Percent ever had sex (adjusted)

Parent	**Male**	**Female**	**Total**
Low relation	29.4%	29.2%	29.3%
Medium relation	23.1%	21.2%	22.1%
High relation	22.9%	19.2%	21.0%
Total	25.9%	24.9%	25.4%

Outcome: Ever had sex binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded teacher rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.015	.240	.952	1.015
RELPAR	**-.459**	**.127**	**.000**	**.632**
RELPEE	-.051	.179	.778	.951
RELSCH	-.188	.249	.450	.829
RELNEI	-.047	.216	.827	.954
AGE*RELPAR	**.025**	**.008**	**.002**	**1.025**
AGE*RELPEE	.004	.012	.738	1.004
AGE*RELSCH	.007	.016	.681	1.007
AGE*RELNEI	.000	.014	.975	1.000
CONSTANT	1.648	3.711	.657	5.196

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	2.981[a]	5	.596	3.480	.004
Intercept	1.064	1	1.064	6.210	.013
RELTEA	**1.643**	**2**	**.821**	**4.796**	**.008**
FEMALE	**1.291**	**1**	**1.291**	**7.539**	**.006**
RELTEA * FEMALE	.365	2	.182	1.065	.345
Error	1253.044	7315	.171		
Total	1256.044	7321			
Corrected Total	1256.024	7320			

Percent ever had sex (adjusted)

Teacher	**Male**	**Female**	**Total**
Low relation	26.4%	24.0%	25.1%
Medium relation	25.1%	24.0%	24.5%
High relation	31.3%	26.1%	28.5%
Total	26.8%	24.4%	25.5%

Outcome: Ever had sex binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded peer rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.208	.250	.407	1.231
RELPAR	**-.543**	**.130**	**.000**	**.581**
RELTEA	.105	.093	.261	1.110
RELSCH	-.162	.275	.555	.850
RELNEI	-.080	.215	.710	.923
AGE*RELPAR	**.030**	**.008**	**.000**	**1.031**
AGE*RELTEA	-.007	.006	.273	.993
AGE*RELSCH	.005	.018	.771	1.005
AGE*RELNEI	.002	.014	.860	1.002
CONSTANT	-1.306	3.875	.736	.271

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	1.873[a]	5	.375	2.185	.053
Intercept	1.063	1	1.063	6.203	.013
RELPEE	.725	2	.362	2.114	.121
FEMALE	**1.684**	**1**	**1.684**	**9.822**	**.002**
RELPEE * FEMALE	.656	2	.328	1.913	.148
Error	1253.977	7315	.171		
Total	1255.854	7321			
Corrected Total	1255.850	7320			

Percent ever had sex (adjusted)

Peer	**Male**	**Female**	**Total**
Low relation	26.0%	24.8%	25.3%
Medium relation	26.7%	24.5%	25.5%
High relation	30.3%	23.5%	26.5%
Total	26.9%	24.5%	25.6%

Outcome: Ever had sex binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded school rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.240	.262	.359	1.272
RELPAR	**-.555**	**.129**	**.000**	**.574**
RELTEA	.076	.082	.356	1.079
RELPEE	-.042	.174	.809	.959
RELNEI	-.038	.220	.864	.963
AGE*RELPAR	**.031**	**.008**	**.000**	**1.031**
AGE*RELTEA	-.006	.005	.289	.994
AGE*RELPEE	.002	.011	.835	1.002
AGE*RELNEI	-.001	.014	.958	.999
CONSTANT	-1.826	4.058	.653	.161

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	8.211[a]	5	1.642	9.585	.000
Intercept	.512	1	.512	2.986	.084
RELSCH	**1.033**	**2**	**.517**	**3.015**	**.049**
FEMALE	**1.510**	**1**	**1.510**	**8.815**	**.003**
RELSCH * FEMALE	.873	2	.436	2.547	.078
Error	1253.303	7315	.171		
Total	1261.515	7321			
Corrected Total	1261.515	7320			

Percent ever had sex (adjusted)

School	**Male**	**Female**	**Total**
Low relation	29.0%	28.9%	28.9%
Medium relation	25.1%	20.3%	22.6%
High relation	26.8%	22.7%	24.6%
Total	27.1%	24.5%	25.7%

Outcome: Ever had sex binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded neighbour rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	.258	.244	.291	1.294
RELPAR	**-.525**	**.127**	**.000**	**.592**
RELTEA	.096	.093	.303	1.101
RELPEE	.012	.179	.948	1.012
RELNEI	-.199	.288	.490	.820
AGE*RELPAR	**.029**	**.008**	**.000**	**1.029**
AGE*RELTEA	-.006	.006	.307	.994
AGE*RELPEE	-.001	.012	.952	.999
AGE*RELNEI	.007	.019	.708	1.007
CONSTANT	-2.424	3.778	.521	.089

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	3.850[a]	5	.770	4.485	.000
Intercept	.822	1	.822	4.787	.029
RELNEI	.599	2	.300	1.745	.175
FEMALE	**1.857**	**1**	**1.857**	**10.818**	**.001**
RELNEI * FEMALE	**1.223**	**2**	**.611**	**3.561**	**.028**
Error	1255.790	7315	.172		
Total	1259.646	7321			
Corrected Total	1259.639	7320			

Percent ever had sex (adjusted)

Neighbourhood	Male	Female	Total
Low relation	27.8%	27.1%	27.4%
Medium relation	25.5%	23.7%	24.6%
High relation	28.7%	21.1%	24.4%
Total	27.0%	24.4%	25.6%

Outcome: Any birth control used binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded parent rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	-.342	.490	.485	.710
RELTEA	.155	.173	.369	1.168
RELPEE	-.346	.409	.398	.707
RELSCH	-.133	.601	.825	.876
RELNEI	-.146	.434	.736	.864
AGE*RELTEA	-.009	.011	.430	.991
AGE* RELPEE	.025	.026	.350	1.025
AGE* RELSCH	.005	.038	.904	1.005
AGE* RELNEI	.015	.028	.582	1.015
CONSTANT	5.425	7.673	.480	227.061

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	1.225[a]	5	.245	2.494	.029
Intercept	.144	1	.144	1.463	.227
RELPAR	.519	2	.260	2.643	.071
FEMALE	.036	1	.036	.370	.543
RELPAR * FEMALE	.058	2	.029	.295	.745
Error	183.452	1867	.098		
Total	184.696	1873			
Corrected Total	184.677	1872			

Percent used birth control (adjusted)

Parent	**Male**	**Female**	**Total**
Low relation	87.1%	87.2%	87.2%
Medium relation	89.1%	91.8%	90.4%
High relation	94.0%	94.4%	94.2%
Total	88.7%	89.2%	89.0%

Outcome: Any birth control used binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded teacher rated) and their pairwise interactions.

Logistic regression results:

	B	**S.E.**	**Sig.**	**Odds Ratio**
AGE	-.310	.444	.485	.733
RELPAR	.144	.268	.592	1.154
RELPEE	-.191	.412	.642	.826
RELSCH	.058	.532	.913	1.060
RELNEI	-.118	.454	.795	.889
AGE*RELPAR	-.006	.017	.746	.994
AGE*RELPEE	.015	.026	.578	1.015
AGE*RELSCH	-.006	.034	.867	.994
AGE*RELNEI	.013	.029	.667	1.013
CONSTANT	4.413	6.983	.527	82.493

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	.466[a]	5	.093	.948	.448
Intercept	.054	1	.054	.545	.460
RELTEA	.168	2	.084	.857	.424
FEMALE	.159	1	.159	1.618	.204
RELTEA * FEMALE	.131	2	.066	.667	.513
Error	183.395	1867	.098		
Total	183.869	1873			
Corrected Total	183.860	1872			

Percent used birth control (adjusted)

Teacher	**Male**	**Female**	**Total**
Low relation	88.4%	88.2%	88.3%
Medium relation	89.5%	91.8%	90.6%
High relation	85.5%	89.6%	87.4%
Total	88.2%	89.4%	88.9%

Outcome: Any birth control used binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded peer rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	-.298	.475	.531	.743
RELPAR	.012	.270	.965	1.012
RELTEA	.118	.176	.501	1.126
RELSCH	-.333	.561	.553	.717
RELNEI	-.174	.454	.701	.840
AGE*RELPAR	.003	.017	.872	1.003
AGE*RELTEA	-.007	.011	.553	.993
AGE*RELSCH	.018	.036	.612	1.018
AGE*RELNEI	.017	.029	.565	1.017
CONSTANT	4.408	7.421	.553	82.112

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	.553[a]	5	.111	1.127	.344
Intercept	.001	1	.001	.012	.914
RELPEE	.441	2	.221	2.249	.106
FEMALE	.016	1	.016	.167	.682
RELPEE * FEMALE	.093	2	.046	.473	.623
Error	183.159	1867	.098		
Total	183.712	1873			
Corrected Total	183.712	1872			

Percent used birth control (adjusted)

Peer	**Male**	**Female**	**Total**
Low relation	86.0%	88.4%	87.2%
Medium relation	90.5%	90.0%	90.3%
High relation	89.8%	90.0%	89.9%
Total	88.1%	89.1%	88.6%

Outcome: Any birth control used binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded school rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	-.365	.509	.473	.694
RELPAR	.029	.273	.915	1.030
RELTEA	.081	.157	.608	1.084
RELPEE	-.302	.381	.428	.739
RELNEI	-.052	.464	.911	.949
AGE*RELPAR	.001	.017	.937	1.001
AGE*RELTEA	-.005	.010	.630	.995
AGE*RELPEE	.021	.024	.401	1.021
AGE*RELNEI	.008	.030	.776	1.009
CONSTANT	5.196	7.961	.514	180.621

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	.596[a]	5	.119	1.215	.299
Intercept	.164	1	.164	1.668	.197
RELSCH	.439	2	.219	2.236	.107
FEMALE	.127	1	.127	1.294	.256
RELSCH * FEMALE	.334	2	.167	1.704	.182
Error	183.168	1867	.098		
Total	183.765	1873			
Corrected Total	183.764	1872			

Percent used birth control (adjusted)

School	**Male**	**Female**	**Total**
Low relation	89.0%	89.8%	89.5%
Medium relation	89.2%	87.4%	88.4%
High relation	83.2%	89.8%	86.4%
Total	88.1%	89.2%	88.7%

Outcome: Any birth control used binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded neighbour rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	-.455	.488	.351	.634
RELPAR	.030	.263	.910	1.030
RELTEA	.094	.176	.591	1.099
RELPEE	-.457	.410	.265	.633
RELNEI	-.005	.613	.993	.995
AGE*RELPAR	.002	.017	.907	1.002
AGE*RELTEA	-.005	.011	.653	.995
AGE*RELPEE	.032	.026	.229	1.032
AGE*RELNEI	-.002	.039	.966	.998
CONSTANT	7.057	7.635	.355	1161.063

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	1.458[a]	5	.292	2.969	.011
Intercept	.015	1	.015	.155	.693
RELNEI	.017	2	.008	.085	.919
FEMALE	.272	1	.272	2.771	.096
RELNEI * FEMALE	.564	2	.282	2.868	.057
Error	183.395	1867	.098		
Total	184.855	1873			
Corrected Total	184.853	1872			

Percent used birth control (adjusted)

Neighbourhood	Male	Female	Total
Low relation	87.7%	85.5%	86.6%
Medium relation	88.6%	91.4%	90.0%
High relation	88.3%	95.7%	91.9%
Total	88.1%	89.3%	88.7%

Outcome: **Any incidence of drinking and driving binary 0=No, 1=Yes**
(when both q88 and q89 are "Never", the binary is a no, otherwise it is yes)
Covariate: **Age, 4 relationship scales (excluded parent rated) and their pairwise interactions.**

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**.373**	**.074**	**.000**	**1.451**
RELTEA	.037	.026	.152	1.038
RELPEE	.000	.050	.997	1.000
RELSCH	.100	.076	.191	1.105
RELNEI	-.099	.056	.081	.906
AGE*RELTEA	-.003	.002	.071	.997
AGE* RELPEE	.001	.004	.817	1.001
AGE* RELSCH	**-.013**	**.005**	**.019**	**.987**
AGE* RELNEI	.003	.004	.511	1.003
CONSTANT	-4.527	1.051	.000	.011

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	34.890[a]	5	6.978	40.859	.000
Intercept	.003	1	.003	.018	.893
RELPAR	**6.267**	**2**	**3.133**	**18.348**	**.000**
FEMALE	**1.295**	**1**	**1.295**	**7.583**	**.006**
RELPAR * FEMALE	**3.255**	**2**	**1.628**	**9.531**	**.000**
Error	3362.829	19691	.171		
Total	3397.977	19697			
Corrected Total	3397.719	19696			

Percent drinking and driving (adjusted)

Parent	**Male**	**Female**	**Total**
Low relation	26.9%	28.8%	28.0%
Medium relation	22.0%	18.7%	20.3%
High relation	21.2%	17.7%	19.4%
Total	23.6%	22.6%	23.1%

Outcome: Any incidence of drinking and driving binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded teacher rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**.397**	**.076**	**.000**	**1.488**
RELPAR	.003	.037	.937	1.003
RELPEE	.049	.050	.331	1.050
RELSCH	**.159**	**.068**	**.019**	**1.173**
RELNEI	-.101	.058	.080	.904
AGE*RELPAR	**-.005**	**.003**	**.048**	**.995**
AGE*RELPEE	-.002	.004	.523	.998
AGE*RELSCH	**-.016**	**.005**	**.001**	**.984**
AGE*RELNEI	.004	.004	.288	1.004
CONSTANT	-4.238	1.073	.000	.014

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	3.157[a]	5	.631	3.729	.002
Intercept	.915	1	.915	5.404	.020
RELTEA	.692	2	.346	2.044	.130
FEMALE	**2.512**	**1**	**2.512**	**14.835**	**.000**
RELTEA * FEMALE	.785	2	.392	2.318	.099
Error	3334.331	19691	.169		
Total	3337.582	19697			
Corrected Total	3337.488	19696			

Percent drinking and driving (adjusted)

Teacher	**Male**	**Female**	**Total**
Low relation	23.4%	22.8%	23.1%
Medium relation	24.2%	21.8%	23.0%
High relation	25.6%	21.9%	23.6%
Total	24.3%	22.2%	23.2%

Outcome: Any incidence of drinking and driving binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded peer rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**.433**	**.080**	**.000**	**1.542**
RELPAR	.012	.038	.761	1.012
RELTEA	.049	.027	.072	1.050
RELSCH	.070	.077	.366	1.072
RELNEI	-.097	.058	.096	.908
AGE*RELPAR	**-.006**	**.003**	**.034**	**.994**
AGE*RELTEA	-.003	.002	.079	.997
AGE*RELSCH	-.009	.005	.092	.991
AGE*RELNEI	.004	.004	.299	1.004
CONSTANT	-4.630	1.133	.000	.010

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	3.563[a]	5	.713	4.207	.001
Intercept	1.517	1	1.517	8.953	.003
RELPEE	**1.390**	**2**	**.695**	**4.102**	**.017**
FEMALE	**2.580**	**1**	**2.580**	**15.232**	**.000**
RELPEE * FEMALE	.598	2	.299	1.764	.171
Error	3335.529	19691	.169		
Total	3339.098	19697			
Corrected Total	3339.091	19696			

Percent drinking and driving (adjusted)

Peer	**Male**	**Female**	**Total**
Low relation	23.1%	22.1%	22.6%
Medium relation	25.0%	22.8%	23.8%
High relation	26.1%	22.3%	24.0%
Total	24.4%	22.4%	23.4%

Outcome: Any incidence of drinking and driving binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded school rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**.449**	**.082**	**.000**	**1.567**
RELPAR	.007	.038	.847	1.007
RELTEA	**.050**	**.024**	**.036**	**1.051**
RELPEE	.056	.050	.264	1.057
RELNEI	-.088	.059	.138	.916
AGE*RELPAR	**-.006**	**.003**	**.033**	**.994**
AGE*RELTEA	**-.004**	**.002**	**.010**	**.996**
AGE*RELPEE	-.004	.004	.314	.996
AGE*RELNEI	.003	.004	.467	1.003
CONSTANT	-4.898	1.160	.000	.007

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	8.174[a]	5	1.635	9.634	.000
Intercept	.970	1	.970	5.717	.017
RELSCH	.941	2	.471	2.774	.062
FEMALE	**2.734**	**1**	**2.734**	**16.115**	**.000**
RELSCH * FEMALE	.739	2	.370	2.179	.113
Error	3341.227	19691	.170		
Total	3349.429	19697			
Corrected Total	3349.401	19696			

Percent drinking and driving (adjusted)

School	**Male**	**Female**	**Total**
Low relation	25.7%	25.0%	25.3%
Medium relation	23.3%	20.4%	21.8%
High relation	24.3%	20.8%	22.4%
Total	24.5%	22.2%	23.3%

Outcome: Any incidence of drinking and driving binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded neighbour rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**.482**	**.077**	**.000**	**1.620**
RELPAR	-.009	.038	.805	.991
RELTEA	.037	.027	.170	1.038
RELPEE	.019	.051	.702	1.020
RELNEI	.094	.080	.238	1.099
AGE*RELPAR	-.005	.003	.086	.995
AGE*RELTEA	-.003	.002	.150	.997
AGE*RELPEE	-.001	.004	.866	.999
AGE*RELNEI	**-.012**	**.006**	**.038**	**.988**
CONSTANT	-5.687	1.095	.000	.003

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	9.849[a]	5	1.970	11.631	.000
Intercept	.576	1	.576	3.399	.065
RELNEI	**1.088**	**2**	**.544**	**3.213**	**.040**
FEMALE	**2.145**	**1**	**2.145**	**12.667**	**.000**
RELNEI * FEMALE	**3.013**	**2**	**1.507**	**8.897**	**.000**
Error	3334.646	19691	.169		
Total	3344.501	19697			
Corrected Total	3344.495	19696			

Percent drinking and driving (adjusted)

Neighbourhood	Male	Female	Total
Low relation	24.4%	25.6%	25.0%
Medium relation	25.5%	21.3%	23.3%
High relation	22.8%	19.4%	20.9%
Total	24.5%	22.3%	23.4%

Outcome: **High academic achievement binary 0=Low achievement, 1=High achievement (when q19 is 1=excellent or 2=above average, the binary is 1, otherwise it is 0)**
Covariate: **Age, 4 relationship scales (excluded parent rated) and their pairwise interactions.**

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.193**	**.071**	**.007**	**.824**
RELTEA	.022	.025	.375	1.022
RELPEE	.057	.046	.222	1.058
RELSCH	-.084	.072	.242	.919
RELNEI	.058	.053	.276	1.060
AGE*RELTEA	-.001	.002	.754	.999
AGE* RELPEE	-.003	.003	.337	.997
AGE* RELSCH	**.012**	**.005**	**.021**	**1.012**
AGE* RELNEI	.002	.004	.553	1.002
CONSTANT	.646	1.008	.522	1.908

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	54.019[a]	5	10.804	56.532	.000
Intercept	9.024	1	9.024	47.220	.000
RELPAR	**15.582**	**2**	**7.791**	**40.768**	**.000**
FEMALE	**26.513**	**1**	**26.513**	**138.735**	**.000**
RELPAR * FEMALE	.217	2	.108	.567	.567
Error	3756.988	19659	.191		
Total	3811.133	19665			
Corrected Total	3811.007	19664			

Percent with high achievement (adjusted)

Parent	**Male**	**Female**	**Total**
Low relation	62.5%	70.4%	66.9%
Medium relation	68.6%	76.5%	72.6%
High relation	72.4%	78.8%	75.6%
Total	67.5%	74.6%	71.2%

Outcome: High academic achievement binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded teacher rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.246**	**.074**	**.001**	**.782**
RELPAR	.011	.035	.745	1.011
RELPEE	.037	.046	.428	1.037
RELSCH	-.057	.063	.370	.945
RELNEI	.075	.054	.169	1.077
AGE*RELPAR	.003	.002	.219	1.003
AGE*RELPEE	-.002	.003	.533	.998
AGE*RELSCH	**.010**	**.005**	**.026**	**1.010**
AGE*RELNEI	.000	.004	.925	1.000
CONSTANT	.918	1.037	.376	2.504

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	33.797[a]	5	6.759	35.547	.000
Intercept	13.358	1	13.358	70.246	.000
RELTEA	**1.749**	**2**	**.875**	**4.599**	**.010**
FEMALE	**30.552**	**1**	**30.552**	**160.668**	**.000**
RELTEA * FEMALE	.607	2	.304	1.596	.203
Error	3738.290	19659	.190		
Total	3772.208	19665			
Corrected Total	3772.088	19664			

Percent with high achievement (adjusted)

Teacher	**Male**	**Female**	**Total**
Low relation	65.7%	74.7%	70.5%
Medium relation	66.7%	75.1%	70.9%
High relation	69.0%	75.4%	72.4%
Total	67.0%	75.0%	71.2%

Outcome: High academic achievement binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded peer rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.203**	**.077**	**.009**	**.817**
RELPAR	.009	.036	.810	1.009
RELTEA	.031	.025	.226	1.031
RELSCH	-.067	.072	.354	.935
RELNEI	.091	.055	.097	1.095
AGE*RELPAR	.003	.003	.225	1.003
AGE*RELTEA	-.002	.002	.393	.998
AGE*RELSCH	**.010**	**.005**	**.046**	**1.010**
AGE*RELNEI	-.001	.004	.825	.999
CONSTANT	.228	1.093	.835	1.256

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	33.911[a]	5	6.782	35.685	.000
Intercept	11.921	1	11.921	62.723	.000
RELPEE	**1.291**	**2**	**.646**	**3.397**	**.033**
FEMALE	**27.823**	**1**	**27.823**	**146.391**	**.000**
RELPEE * FEMALE	.520	2	.260	1.369	.254
Error	3736.373	19659	.190		
Total	3770.318	19665			
Corrected Total	3770.284	19664			

Percent with high achievement (adjusted)

Peer	**Male**	**Female**	**Total**
Low relation	66.0%	74.1%	70.1%
Medium relation	66.5%	75.6%	71.2%
High relation	69.1%	75.3%	72.5%
Total	66.8%	74.9%	71.1%

Outcome: High academic achievement binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded school rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.211**	**.079**	**.008**	**.810**
RELPAR	-.001	.036	.981	.999
RELTEA	.022	.022	.313	1.023
RELPEE	.010	.046	.826	1.010
RELNEI	.065	.056	.245	1.067
AGE*RELPAR	.004	.003	.112	1.004
AGE*RELTEA	.000	.002	.932	1.000
AGE*RELPEE	.001	.003	.832	1.001
AGE*RELNEI	.001	.004	.774	1.001
CONSTANT	.264	1.120	.814	1.302

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	40.637[a]	5	8.127	42.630	.000
Intercept	15.210	1	15.210	79.780	.000
RELSCH	**3.337**	**2**	**1.668**	**8.751**	**.000**
FEMALE	**32.683**	**1**	**32.683**	**171.429**	**.000**
RELSCH * FEMALE	.479	2	.239	1.256	.285
Error	3747.961	19659	.191		
Total	3788.608	19665			
Corrected Total	3788.598	19664			

Percent with high achievement (adjusted)

School	**Male**	**Female**	**Total**
Low relation	64.3%	72.7%	68.6%
Medium relation	67.6%	77.0%	72.4%
High relation	68.7%	75.6%	72.4%
Total	66.7%	75.0%	71.0%

Outcome: High academic achievement binary 0=No, 1=Yes
Covariate: Age, 4 relationship scales (excluded neighbour rated) and their pairwise interactions.

Logistic regression results:

	B	S.E.	Sig.	Odds Ratio
AGE	**-.187**	**.074**	**.011**	**.830**
RELPAR	.020	.035	.570	1.020
RELTEA	.031	.025	.226	1.031
RELPEE	.069	.047	.144	1.071
RELNEI	-.108	.074	.146	.897
AGE*RELPAR	.003	.002	.253	1.003
AGE*RELTEA	-.001	.002	.427	.999
AGE*RELPEE	-.004	.003	.292	.996
AGE*RELNEI	**.013**	**.005**	**.012**	**1.013**
CONSTANT	.503	1.043	.630	1.654

Tests of Between-Subjects Effects

Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	67.204[a]	5	13.441	70.739	.000
Intercept	10.393	1	10.393	54.698	.000
RELNEI	**17.758**	**2**	**8.879**	**46.731**	**.000**
FEMALE	**30.186**	**1**	**30.186**	**158.867**	**.000**
RELNEI * FEMALE	.073	2	.037	.193	.824
Error	3735.320	19659	.190		
Total	3802.598	19665			
Corrected Total	3802.524	19664			

Percent with high achievement (adjusted)

Neighbourhood	Male	Female	Total
Low relation	61.6%	70.1%	66.0%
Medium relation	68.0%	76.2%	72.2%
High relation	72.9%	80.4%	76.9%
Total	66.8%	75.1%	71.1%