Linking Community Variables to Parenting Behaviours and Youth Risk Behaviours

by

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Abstract

The purpose of this thesis is to test a model linking community disadvantage and urbanicity factors to parenting variables (i.e., monitoring, warmth, and knowledge) and to youth risk behavior (i.e., substance use and delinquency), measured both concurrently and one year after the assessment of parenting variables. The model builds on the work of Fletcher, Steinberg, and Williams-Wheeler (2004) but a) includes a more comprehensive measure of SES than that conceptualized by Fletcher et al.; b) considers whether the role of community disadvantage is indirectly as well as directly linked to youth risk behavior, by way of its association with parenting variables; c) considers whether level of community urbanicity plays a direct role in predicting both parenting variables and risk behaviors, or whether its influence on risk behaviours is primarily indirect through parenting variables. Both community disadvantage and urbanicity had virtually no relation to parenting and risk behaviour variables. Results found for relations of parenting variables and risk behaviour were similar to Fletcher et al. Although urban youth are typically perceived as being more at risk for substance use and delinquency, no evidence was found for a distinction between urban and rural youth within this sample. Targeting risk behaviour prevention/reduction programs toward only urban youth, therefore, is not supported by these findings.
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Introduction

A wealth of research has demonstrated associations between youth risk behaviours and parental monitoring activities (e.g., Dishion & McMahon, 1998; Fletcher, Steinberg, & Williams-Wheeler, 2004; Laird, Pettit, Bates, & Dodge, 2003; Rai et al., 2003; Wood, Read, Mitchell, & Brand, 2004). Although parental monitoring has been defined and operationalized in different ways across studies, it is a construct that generally relates negatively to youth substance use and delinquent activities (e.g., Dishion & McMahon, 1998; Fletcher et al., 2004; Kerr & Stattin, 2000; Laird et al., 2003; Rai et al., 2003; Stattin & Kerr, 2000; Wood et al., 2004). Community disadvantage (e.g., low education levels, low income, few professional adults) and urbanicity (i.e., degree to which a geographical unit is urban) also have been linked to youth risk behaviours (Atav and Spencer, 2002; Briggs, 1997; CASA, 2000; Ramirez, Crano, Quist, Burgoon, Alvaro, & Grandpre, 2004; Simons, Johnson, Beaman, Conger, & Whitbeck, 1996; Williams, 2001). Schneiders et al. (2003), for example, found that youth in disadvantaged neighbourhoods exhibited more externalizing behaviours than youth in less disadvantaged communities. However, whether the relation of community disadvantage to youth risk behaviours is direct or indirect is not yet fully understood. Furthermore, results for urbanicity have been equivocal. While some studies have found that urban youth engage in risk behaviours more frequently than rural youth, others have found the opposite result (CASA, 2000; Cronk & Sarvela, 1997; Dawkins, 1996; Forsyth and Barnard, 1999; Ramirez et al., 2004) or no difference between the two groups at all (Elgar, Arlett and Groves, 2003; Levine & Coupey, 2003).
Researchers have speculated, however, that urbanicity and community disadvantage may be linked to youth risk behaviours primarily through their influence on parenting skills and parent-child relationships. In other words, community factors may have primarily an indirect link to youth risk behaviours (Leventhal & Brooks-Gunn, 2000). Research examining this hypothesis is limited. While some researchers examining the indirect effect of individual parents’ SES on youth outcomes, specifically through parenting factors, have found no relation (Fletcher et al., 2004; Simons et al., 1996—for boys), others have found significant relations (Shumow & Lomax, 2002; Simons et al., 1996—for girls). However, community-level variables have been found to affect youth outcomes above and beyond the effects of individual family variables, because of the degree of access youth have to the community (e.g. Leventhal & Brooks-Gunn, 2000). Looking beyond individual family disadvantage, research exploring more comprehensive measures of community disadvantage have found that higher levels of neighborhood disadvantage and residential instability are associated with lower rates of parental monitoring (Beyers, Bates, Pettit, & Dodge, 2003), less warm and more controlling parenting (Furstenberg, 1993), and more restrictive parenting (Briggs, 1997). In addition, monitoring has been found to be higher in urban neighborhoods than in rural neighborhoods (Armistead, Forehand, Brody & Maguen, 2002; Jones, Forehand, Brody, & Armistead, 2003). These studies, however, did not examine youth outcome measures, and therefore, the hypothesis that urbanicity and community disadvantage may also have indirect links to youth risk behaviours through parenting factors was not investigated.

The purpose of this thesis is to test a model linking community disadvantage and urbanicity factors to parenting variables (i.e., monitoring, warmth, and knowledge) and to
youth risk behavior (i.e., substance use and delinquency), measured both concurrently and one year after the assessment of parenting variables. The model builds on the work of Fletcher et al. (2004) (see Figures 1 and 2) but a) includes a more comprehensive measure of SES than that conceptualized by Fletcher et al.; b) considers whether the role of community disadvantage is indirectly as well as directly linked to youth risk behavior, by way of its association with parenting variables; c) considers whether level of community urbanicity plays a direct role in predicting both parenting variables and risk behaviors, or whether its influence on risk behaviours is primarily indirect through parenting variables (See Figure 3). Urbanicity and community disadvantage are important constructs to study when examining factors that may influence youth risk behaviours. Government funding for the prevention of substance use and delinquent behaviour is directed at communities shown to be most in need of services, traditionally urban centers (CASA, 2000). Knowing what communities are most at risk, and what factors put them at risk, will be beneficial for the direction of funding and for programs that address youth risk behaviours. Further, understanding pathways through which youth behaviour is affected is critical to creating effective prevention and treatment programs.

The following literature review will include a discussion of the construct of parental monitoring as well as a summary of the research examining the relation between parenting variables and youth risk behaviours. Research also will be included examining the link among community disadvantage, urbanicity, parenting variables, and youth risk behaviours.
The Construct of Parental Monitoring

Parental monitoring has been studied extensively during the past few decades as a protective factor for prevention of youth involvement in risk behaviour. This construct has been conceptualized as "a set of correlated parenting behaviours involving attention to and tracking of the child’s whereabouts, activities, and adaptations (Dishion & McMahon, 1998, p.61)." Monitoring is seen to "facilitate parental awareness of the child’s activities," "communicate to the child that the parent is concerned about, and aware of, the child’s activities," and "include both structuring the child’s home, school, and community environments, and tracking the child’s behaviour in those environments (Dishion & McMahon, 1998, p.65-66)." In sum, monitoring is behaviour that parents perform in order to gain knowledge and control of the activities of their children.

There is controversy about the term “parental monitoring,” however, due to the disparity found in many studies between the conceptualization and the operationalization of this construct. Although this line of research has conceptualized parental monitoring as actions performed by parents, measures used to operationalize monitoring typically have measured the extent of parental knowledge, without regard to the source of such knowledge (Kerr & Stattin, 2000; Stattin & Kerr, 2000). It is assumed within the bulk of the extant literature that this knowledge is gained through the efforts of parents. Some of the more recent research, however, has attempted to evaluate other sources and means of parental knowledge of children’s activities. Stattin and Kerr’s (2000) landmark evaluation of parental monitoring research brought the problems inherent in its study to the forefront.
Stattin and Kerr (2000; Kerr & Stattin, 2000) were the first researchers to evaluate the potential sources of parental knowledge, which they conceptualized as a possible end product of actual monitoring actions by parents, but also a product of other activities as well. They examined parental control (rules and restrictions that would restrict the freedom of children to participate in activities without parental knowledge), parental solicitation (parents asking children and/or children’s friends for wanted information), and child disclosure (children spontaneously divulging information concerning their activities) as possible sources of parental knowledge. Stattin and Kerr found that child disclosure was the most important contributor to parental knowledge, rather than measures of parents’ active efforts to gain knowledge or control the activities of youth. Although the tracking and surveillance efforts initiated by parents did relate to knowledge in some cases, the relation between child disclosure and parental knowledge was much stronger. They concluded that previous studies that claimed to be measuring the parental activity of monitoring were actually measuring the outcomes of the child activity of voluntary disclosure.\footnote{Following the lead of Stattin and Kerr, I will herein use “monitoring” (in quotations) when referring to research that has used the term monitoring but has actually measured knowledge levels, and monitoring (without quotations) when referring to research that has actually measured parental monitoring activities.}

Waizenhofer, Buchanan, and Jackson-Newson (2004) expanded on Stattin and Kerr’s examination of information source and looked at several active and passive methods through which parents gain knowledge about their adolescents. Active methods included directly asking the adolescent, teacher, friends, or spouse for information, or
participating in shared activities with their adolescents (e.g. going to church, driving to swim practice). Passive methods included knowing the schedule of routine activities (e.g. parent knowing the time of soccer practice) and receiving information from the adolescent, spouse, or knowledgeable others without directly asking for it (i.e. voluntary disclosure). In contrast to Stattin and Kerr, Waizenhofer et al. (2004) found greater knowledge was not predicted by the voluntary disclosure by the child, but rather by active parental inquiry, shared activity participation, and information shared by people outside of the family.

The characteristics of the participants in the studies may have had an effect on these results, however, as Waizenhofer et al. (2004) studied Caucasian youth with high SES (79% of families studied had incomes greater than $80,000), while Stattin and Kerr’s (2000) sample represented “the whole range of socioeconomic backgrounds in the communities” (p.1074). Waizenhofer et al. (2004) concluded that, in the families represented in their data, “parents who are more integrated into their adolescent’s world—who know their routines, who talk to people outside the family who interact with their adolescent, and who actively inquire about the adolescent’s activities and behaviour—are on the whole more knowledgeable about their adolescent’s daily experiences (p.356).”

Parenting Variables and Risk Behaviours

Research has revealed connections between parental “monitoring” and numerous constructs of youth behaviour and well-being. For the purposes of this review, I will concentrate specifically on the studies that have examined the relation between parental
“monitoring” and substance use (Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003; Cottrell et al., 2003; Fletcher, Darling, & Steinberg, 1995; Rai et al., 2003; Ramirez, Crano, Quist, Burgoon, Alvaro, & Grandpre, 2004; Richards, Viegas Miller, O’Donnell, Wasserman, & Colder, 2004; Svensson, 2003; Wood et al., 2004), delinquent behaviour (Brody, 2003; Jacobson & Crockett, 2000); and a combined measure of substance use and delinquency (Fletcher et al., 2004; Kerr & Stattin, 2000; Laird et al., 2003; Stattin & Kerr, 2000; Waizenhofer et al., 2004).

Substance Use

Substance use levels and “monitoring” have been studied extensively in the literature. In an analysis of six cross-sectional datasets that assessed youth’s perceptions of parental knowledge of where they go, what they do and whom they go with, and the relation of that knowledge to their own engagement in deviant behaviours, higher levels of parental knowledge were related to lower levels of youth substance use and aggression in comparison to youth who reported lower levels of parental knowledge (Rai et al., 2003). In order to maintain consistency across data sets, however, Rai et al. recoded the risk behaviour data from all sets into a dichotomous variable; participants had either smoked cigarettes, drunk alcohol, used marijuana or physically fought someone at least once during the past six months, or they had not. Using a dichotomous variable functioned to maintain consistency across the data sets used in the study, but eliminated the possibility of assessing how frequency of use of each substance and/or fighting was related to “monitoring.” For example, possible differences were lost between youth who had used marijuana daily in comparison to youth who had used marijuana once during the past six months.
Borawski et al. (2003) used a more precise measure of substance use, comparing experimental and regular users, as well as non-users, of tobacco, alcohol, and marijuana. Their “monitoring” measure also differed from many previous studies, including youth perceptions of parents’ knowledge of their friends and of their whereabouts, but also including child disclosure of information. However, these factors were combined for the analysis, and not assessed individually. They found significant associations between higher levels of “monitoring” and lower levels of substance use overall, but when broken down by sex, only males showed this association, and only for alcohol.

Youth perceptions of parental knowledge also were assessed by Svensson (2003). A two-item measure was used to assess whether youth perceived their parents to know where they are and whom they are with, specifically in the evening. Narcotic and alcohol use were measured dichotomously, with lifetime instance of narcotic use versus no use ever, and every weekend use of alcohol, versus less frequently. Svensson found that in families where “monitoring” was low, peer deviance was high and both correlated with higher prevalence of narcotic and alcohol use. Also, where peer deviance was high, the relation of parental “monitoring” to lower levels of substance use was stronger. Parental “monitoring” was not directly related to substance use levels, but was indirectly related through peer deviance. Again, however, the dichotomous measure of substance usage in this study was a problem. Most of the youth in this study (77.5 of males and 90.5% of females) used substances less than every weekend, so the results were highly skewed.

Cottrell et al. (2003) compared parent and youth reports of parental “monitoring,” assessing parental perceptions of their own knowledge of their child’s activities, and youth perceptions of the level of parents’ knowledge. They found associations between
higher levels of parental knowledge and lower incidence (within the past six months) of smoking and drinking for both parent and youth reports of knowledge, and marijuana use for youth reports only.

Combining monitoring and knowledge measures into one variable, Wood et al. (2004) assessed youths’ perceptions of how often parents try to know about their activities and how much parents really do know. Wood et al. found that higher levels of this measure were related to lower rates of heavy episodic drinking and lower rates of consequences related to drinking, such as hangovers, memory impairment, and engaging in regretted sexual situations in their older youth sample.

Using a multi-wave design, Fletcher et al. (1995) examined youth substance use, measuring the use of alcohol, marijuana, and other drugs over the previous school year. Less parental “monitoring” was associated with an increased likelihood to use substances. As well, less “monitoring” at Time One increased the likelihood of moving from non-user to user at Time Two. Males who were heavy substance users at Time One were more likely to decrease their usage if monitoring levels were higher at Time One. However, monitoring did not predict which participants classified as ‘experimenters’ with substances would stop using and which ones would go on to heavily use the substances studied.

In their study of young adolescent African Americans, Richards et al. (2004) questioned both youth and parents for their perceptions of “monitoring” and drug and alcohol use. The drug and alcohol measure evaluated frequency of use of drugs and alcohol, quantity of alcohol consumed per incidence, and drunkenness within the past
year. Adolescent reports of “monitoring” were related to less frequent use of drugs and alcohol, while parental reports of “monitoring” were not.

Finally, Ramirez et al. (2004) looked at the youth’s assessment of parental knowledge, and marijuana and inhalant use ever and in the last 30 days, to differentiate between lifetime and current users. They found that higher rates of youth-reported parental knowledge were related to a lower likelihood of ever having tried these drugs, as well as being current users.

Delinquent Behaviour

Most studies measuring delinquent behaviour include numerous examples of deviant behaviour, including minor stealing, truancy, property damage, and physical fighting. Jacobson and Crockett (2000) created a composite score for minor delinquency that consisted of theft under five dollars, theft between five and fifty dollars, disobeying parents, getting in trouble at school, skipping school, damaging others’ property and physically hurting others. Higher levels of parental “monitoring” were associated with a lower likelihood of engaging in minor delinquent behaviour.

In his longitudinal study of “monitoring” and externalizing behaviour, Brody (2003) observed that higher levels of “monitoring” at Time One of data collection were associated with lower levels of externalizing behaviour over time. Externalizing behaviour consisted of items from Achenbach’s (1991) aggressive and delinquent behaviour subscales on the Teacher Report Form of the Child Behaviour Checklist, which included questions about lying, cheating, stealing, delinquent friends, school truancy, arguing, bullying, physical fighting, and temper tantrums.
Other studies have found links between combined measures of youth risk behaviour (i.e., substance use and delinquent behaviour) and parenting factors. Stattin and Kerr (2000; also Kerr & Stattin, 2000) found a relation between “monitoring” and children’s norm-breaking behaviour, a measure that included instances of drunkenness, trying marijuana, stealing, vandalism, bullying, and police contact. They found that the more parents knew about their child’s activities and associations, the less they participated in norm-breaking behaviour. However, the bulk of parents’ knowledge came from child disclosure, not from solicitation, control, or qualities of the parent-child relationship. The authors concluded that the link between parental knowledge and risk behaviour participation exists because youth who freely disclose to their parents commit fewer antisocial acts; the actions of the parents to solicit information from youth had little bearing on deviancy.

Waizenhofer et al. (2004) also used a composite measure of what they called “delinquency,” which included alcohol use, cheating on a test, and police contact. They found that higher levels of actual maternal knowledge (measured through comparison of child and parent reports of daily activities), independent of source, were correlated with lower levels of “deviancy.”

Similarly, Laird et al. (2003) used a composite score for measurement of “antisocial” behaviour in youth, combining stealing, substance use, swearing, truancy and lying measures, among others, from the delinquency scales of Achenbach’s (1991) Youth Self Report Form for the adolescents, and the Child Behaviour Checklist for the parents. They assessed both child and parent reports of these behaviours, as well as perceived
parental knowledge reported by adolescents, and “monitoring” activities as reported by parents. The parental monitoring measure included questions related to monitoring, control, and knowledge, but which they called “parent-reported knowledge.” Laird et al. found that both at grade nine and over time, lower levels of adolescent-reported parental knowledge were associated with higher levels of parent- and adolescent-reported delinquent behaviour. Lower levels of parental knowledge one year earlier predicted more delinquent behaviour in later high school years, while higher levels of parental knowledge predicted less delinquent behaviour, for both parent- and adolescent-reported delinquent behaviour.

Parental knowledge also was found by Fletcher et al. (2004) to be the strongest predictor of substance use (smoking and chewing tobacco, using other drugs, drinking alcohol, being drunk, and marijuana use) and delinquency (using a fake identification card, stealing from a person, running away from home, getting into trouble with police, carrying a weapon at school, physically fighting, and damaging school property) among youth. The authors found that their measures of parental control and parental monitoring had some direct effects on youth substance use, but their effects were primarily indirect through their contribution to parental knowledge. The effects of parental warmth on risk behaviours were measured indirectly only, and significantly contributed to parental knowledge levels. For Fletcher et al.’s (2004) parental control measure, participants responded on a five-point scale (from “I decide this without discussing it with my parents” to “my parents decide this without discussing it with me”) to six statements, such as “How late I can stay out” and “Whether or not I can drink alcohol”. To measure monitoring, participants were asked to state how much their parents “TRY to know”
about their lives, such as who the participant’s friends are and what they do with their free time, on a three-point scale (“don’t try to know” to “try a lot to know”). For parental warmth, participants were asked a series of questions about parents praising/encouraging for good/bad grades, parents spending time just talking with them, and assisting with problems and school work. See Figure 1 for an illustration of the model.

Similar findings were found with delinquency, but the effect of parental monitoring on youth delinquent behaviour was indirect through parental knowledge (see Figure 2). Fletcher et al. proposed that parental warmth and monitoring deter youth involvement in risk behaviour through knowledge of youth’s activities and friends. Fletcher et al. did acknowledge, however, that youth were more likely to disclose if they had a warm, positive relationship with their parents, although disclosure was not accounted for in their model. The authors also included a measure of social class in their model and hypothesized that social class would have a direct link with both youth substance use and delinquency. This hypothesis was not supported.

Community Disadvantage and Risk Behaviours

Results from research examining the link between community disadvantage and youth risk behaviours have been equivocal. Schneiders et al. (2003), for example, used a composite measure to operationalize community disadvantage (percentages of 17 year olds not in school, adults receiving welfare, immigrants, male unemployment, residents leaving neighbourhood per year, single-parent households, mean income, and age of residential buildings). The authors found that early adolescents in disadvantaged neighbourhoods exhibited higher rates of externalizing behaviours than those in less
Figure 1. Model predicting youth substance abuse from parenting variables. Only pathways that are significant at $p < .01$ are included. Fletcher et al. (2004, p.790)

Figure 2. Model predicting youth delinquency from parenting variables. Only pathways that are significant at $p < .01$ are included. Fletcher et al. (2004, p.790)
disadvantaged neighbourhoods. In contrast, Spencer, Cole, Jones and Swanson (1997) did not find a direct link between neighbourhood factors (measure of poverty, SES, and joblessness) and adolescent externalizing behaviour, but rather an indirect link through "process constructs" such as positive context, positive identity, and adaptive coping. Similarly, Allison et al. (1999) found only an indirect link between neighbourhood and youth substance use through parent and peer relationships. The authors caution, however, that with a low percentage of male respondents (23%), these results may only hold for females. Interestingly, Simons et al. (1996) found a direct relation between community disadvantage and adolescent conduct problems, and an indirect relation through quality of parenting and deviant peer relationships. The link between community disadvantage and youth risk behaviour participation, therefore, is not straightforward and warrants further study.

Community Disadvantage and Parenting Variables

Research that evaluates the relations between community contexts and parenting variables is limited (Armistead, Forehand, Brody & Maguen, 2002). In their review of the research, Leventhal and Brooks-Gunn (2000) suggest that it is theoretically reasonable to hypothesize that neighborhood effects could affect youth outcomes through parenting. In fact, there is evidence from several studies to support this hypothesized pathway.

For example, Briggs (1997) reported that parents who moved to middle-income neighborhoods from low-income neighborhoods used less restrictive monitoring practices than parents who remained in low-income neighborhoods. Klebanov, Brooks-Gunn and Duncan (1994) found that lower maternal warmth was associated with families residing
in neighborhoods with higher proportions of poor residents compared to neighborhoods with higher proportions of middle-income residents. Furstenberg (1993) allowed that parents are less warm and more controlling in impoverished and dangerous neighborhoods in comparison to parents in advantaged and safe neighborhoods. The parenting dimensions of responsivity and warmth, as well as harshness and control, may be influenced by community characteristics over and above particular family factors like income, race, and family structure (Leventhal & Brooks-Gunn, 2000). The evidence that follows reveals the possibility of a pathway from neighborhood characteristics to parenting qualities that could affect youth outcomes.

Simons et al. (1996) hypothesized effects on parenting variables by the family-level factor of socioeconomic status, as well as neighborhood-level factors of community disadvantage and proportion of single parents within the community. Community disadvantage was a composite variable consisting of the proportion of adult males unemployed or underemployed, the proportion of persons receiving government assistance, and the proportion of adults with less than a high school education. These family and community factors were hypothesized to affect quality of parenting and youth association with deviant peers, which might then affect child adjustment. For male youth, the authors found that conduct problems were affected by community disadvantage through quality of parenting (a composite measure which included parental monitoring), as well as through deviant peer association. Deviant peer involvement was also affected through quality of parenting. For females, conduct problems were affected directly by proportion of single parents in the community, as well as indirectly through deviant peers
association. Deviant peer association was affected by quality of parenting and family SES.

Another study that focused on pathways from neighborhood characteristics to adverse affects on youth well-being was conducted by Taylor (1997). In this conceptual work, Taylor developed a model specifically tailored for African American families. The pathway this author hypothesized led from financial hardship and neighborhood problems to psychological distress for the parents, to less adequate parenting practices, to adverse effects on youth, again stressing the indirect route through which neighborhoods affect youth. The author, however, did not directly test this model.

Beyers et al. (2003) looked at differences in monitoring by neighborhood characteristics. The authors hypothesized, based upon previous work by Sampson and colleagues (e.g. Sampson, Morenoff, & Earls, 1999), that communities with more renters than owners of dwellings, with high proportions of residents who had lived there less than five years, and with few residents with high income and/or professional jobs would have low social capital\(^2\). Low social capital, in turn, would place the burden upon individual parents to socialize youth, instead of relying on the community monitoring exhibited in neighborhoods with high social capital, thereby requiring higher levels of parental monitoring to prevent youth from engaging in risk behaviour. Using a composite measure of "monitoring" (predominantly knowledge), they found higher levels of neighborhood disadvantage and residential instability associated with lower rates of

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\(^2\) Social capital, as derived from the work of Coleman (1990), is part of the structure of social organization. Sampson et al. (1999) include three dimensions in their formulation that they claim affect the lives of children: intergenerational closure (adults and children in community linked to one another), reciprocated exchange (exchanges between families and adults with respect to childrearing), and informal social control and mutual support of children (neighborhood residents have the agency to intervene on the behalf of neighborhood children).
parental “monitoring”. Because the burden of socialization was hypothesized to lie with parents in communities with low social capital, the effects of “monitoring” would presumably be greater in the disadvantaged neighborhoods. Although levels of “monitoring” were found to be lower in these neighborhoods overall, the association between higher rates of “monitoring” and lower rates of externalizing behaviour was stronger in the disadvantaged neighborhoods than the advantaged areas. When social capital is low, as it is in neighborhoods characterized as disadvantaged by the authors, parental monitoring may become more important because the community does not support this function. The burden of tracking children is placed on the parents of the children instead of being shared with the community.

_Urbanicity and Risk Behaviours_

Urban youth have been characterized in Western culture as having greater access to substances and being at greater risk for delinquency and substance use, while rural youth have been assumed to be protected from the “corrupting urban influences” (Williams, 2001). Consequently, a more substantial body of research exists that examines the risk behaviour participation of urban youth than examines the risk behaviours of rural youth (Rountree & Clayton, 1999; Williams, 2001). An emergent line of research, however, is finding that rural youth are exhibiting increasing incidence of risk behaviours, and are making gains on their urban counterparts (Donnermeyer, 1992; Cronk & Sarvela, 1997; CASA, 2000). For example, in an examination of risk factors for substance use, Spoth, Goldberg, Neppl, Trudeau and Ramisetty-Mikler (2001) found rural youth to be at greater risk than urban youth. The risk variable was cumulative and
included child risk behaviours, family financial stress, religious involvement, bonding, parent-child conflict, marital status, parent education, household income, and parental academic expectations.

In the CASA report of the Monitoring the Future data from 1999, rural youth who were in grade eight were found to have a higher prevalence of tobacco, alcohol, marijuana, amphetamine and cocaine use than urban youth in the same grade (CASA, 2000). Rural tenth graders in the same study were found to have higher rates of usage than urban youth for all substances except for marijuana and ecstasy. Youth in both types of communities, however, reported no significant differences in the availability of drugs in their communities (CASA, 2000). The authors of this report maintain that the lack of resources and experienced counselors, nurses, and professionals contributes to the inability of rural areas to combat the growing substance use problem among youth.

In an exploratory 2002 study of junior and senior high school students conducted by Atav and Spencer, differences were found between rural, suburban, and urban students across many risk behaviours. The authors asserted that there is a lack of research on rural youth, because the rural environment has been traditionally viewed as lacking in stressors for youth. Rural students were almost twice as likely than suburban (S) or urban (U) students to frequently use tobacco [28% vs. 17.6% suburban (S), 15.4% urban (U)], alcohol [12% vs. 8.4 % (S), 7.8% (U)], and other drugs [14% vs. 8% (S), 7.2% (U)]. Rural students were also more likely to have brought a weapon to school one or more times [23% vs. 18.6% (S), 15.9% (U)], a gun to school at least once [10% vs. 7.2% (S), 5.3% (U)], carried a weapon in the community one or more times [29% vs. 23.8% (S), 25.6% (U)], or carried a gun in the community at least once [14% vs. 11.3% (S), 24.8% (U)].
The authors concluded from this data that rural students were at the most risk for deviant behaviour participation, followed by suburban youth, and then urban youth.

In comparing lifetime and past 30 days usage of marijuana and inhalants among urban and rural adolescents, Ramirez et al. (2004) found rural youth to be five times more likely to be current users of inhalants (i.e. within the past 30 days had used) than urban youth. They were also more likely to have ever tried inhalant substances, as well as to have ever tried or be current users of marijuana. These results counter past research that has found urban youth to be more likely to use marijuana than rural, although they concur with research that has found rural youth to be more likely to use inhalants than their urban contemporaries (Finke & Williams, 1999).

Other studies have also found that urban and rural adolescent participation in risk behaviours differs depending upon the particular substance or delinquent behaviour. Using the National Longitudinal Survey of Youth data from 1997, Williams (2001) examined urban and rural differences for lifetime incidence of substance use, petty theft, and several other deviant acts. No significant differences were found between urban and rural youth for alcohol use, marijuana use, destruction of property, stealing less than $50 or more than $50, selling drugs, or fighting. However, rural youth were significantly less likely to have attacked others, run away, been suspended or arrested than urban youth, suggesting that urban youth are more likely to be officially penalized for their deviant behaviour. In contrast, the author found that urban youth were less likely than rural youth to have committed a more serious criminal act (e.g. carrying a gun, belonging to a gang). Controlling for differences in social conditions (like negative peers and family and school environments), rural youth were significantly more likely to engage in deviant behaviours.
than urban youth. The author attributes the urban/rural differences to differences in the preparedness of the community to deal with conditions that may be conducive to crime.

Within an African-American population, Dawkins (1996) discovered differences between urban, suburban, and rural adolescents' levels of substance use. For those who had used alcohol on one or more occasions, rural adolescents were significantly less likely to have used over their lifetimes, but significantly more likely to have used within the past 30 days than both the suburban and urban youth. For those reporting alcohol use on 20 or more occasions, rural youth were significantly more likely to have used both over their lifetimes and over the last 30 days. No significant differences were found among the groups for marijuana and cocaine use either for lifetime, previous 12 months, or past 30 days durations. Dawkins found that rural African-American youth exhibited alcohol consumption patterns that reflected rural African-American community norms and values. Dawkins suggested that the results might be a result of the norms held by this specific rural community.

Cronk and Sarvela (1997) found rural youth to have similar or higher prevalence of cigarette and alcohol use during the previous 30 days, especially binge drinking, than the urban youth studied. The urban sample exhibited higher rates of marijuana and cocaine usage. Considering changes over time in rural and urban prevalence rates, the authors speculated that substance availability had increased in rural areas, the prevention efforts were inadequate, or that social factors that protected rural youth from substance use in the past had changed.

Forsyth and Barnard (1999) discovered rural youth were more likely to use heroin, while urban youth were more likely to use LSD and ecstasy. These differences were
credited to differences in local subculture. In previous work by these authors, the popularity of certain types of music in different localities, for example, were found to be associated with the types of drugs used, such as rave music being associated with the popularity of ecstasy.

Brown, Schulenberg, Bachman, O’Malley, & Johnston (2001), on the other hand, found inconsistent results across their cohorts. Urbanicity was both positively and negatively related to cocaine use across time points, while cigarette smoking had the same mixed result depending upon the cohort. Higher prevalence of alcohol use, however, was consistently related to more rural youth while marijuana use was associated with more urban youth.

A review by Donnermeyer (1992) reported little to no difference in lifetime prevalence of alcohol use between urban and rural adolescents in national studies, but inconsistent differences in more localized studies. What was consistent, however, was a trend over time for rural rates of marijuana use to increase while urban rates decreased. Inhalants were found to be a greater problem for rural youth, while there where mixed results for stimulant usage. Urban youth were found to be more likely to use hard drugs like crack, cocaine, heroin, LSD, and hallucinogens. Again, differences here were attributed to normative behaviour expectations within communities that either encourage or discourage youth from participating in certain risk behaviours.

Still other studies have found no differences between urban, suburban and rural rates of risk behaviours among adolescents. In 2003, Levine and Coupey found no significant differences between rural, suburban, and urban youth for their measures of lifetime and past 30 days use of substances. These authors asserted that researchers
frequently confuse urban with at-risk, and ignore specific factors within particular environments that influence behaviour, such as overcrowded living conditions, and access to educational, extracurricular, and health care opportunities. According to these authors, living in an “urban” environment is not necessarily a risk factor.

Elgar, Arlett and Groves (2003) found no significant differences between urban and rural youth for externalizing behaviour, but did find an interaction between urban-rural designation and sex: urban males exhibited significantly more behaviour problems than urban females and both male and female rural youth. To explain these results, the authors referred to variables that affect youth in dissimilar areas—urban adolescent males reported more conflict in their lives, greater opportunities to associate with deviant peers, and subscribing to cultural norms for handling of conflict and stress that encourage externalizing problem behaviour. These studies demonstrate that urban youth are not necessarily at greater risk for participation in risk behaviours, and may in fact be better off in terms of risk behaviour involvement than their suburban and rural counterparts. Researchers have hypothesized that urban and rural areas might have distinct subcultures that would explain the differences in risk behaviour participation, such as living conditions, community values, resources, and availability of substances. The evidence to date, however, is inconsistent, necessitating further research in this area.

Urbanicity and Parenting Variables

Research that evaluates the effects of urbanicity on parenting is limited (Armistead, Forehand, Brody & Maguen, 2002). Jones, Forehand, Brody and Armistead (2003) found that “monitoring,” measured through knowledge of aspects of youth’s lives, such as
knowing where and what the child is doing when away from home, was higher in urban neighborhoods than in rural neighborhoods with similar levels of SES (i.e. impoverished). Looking at the same data, Armistead et al. (2002) found evidence to suggest that more parental knowledge was necessary due to increased risk of violence in the urban community. In fact, higher levels of parental knowledge in the urban communities were associated with fewer internalizing and externalizing problems in youth, effects not found for the rural youth. To the best of my knowledge, no other research that examines the link between urbanicity and parenting exists in the literature.

**Measurement of Urbanicity**

How urbanicity is operationalized is critical to its descriptive usefulness. The determination of which participants are urban and which are rural, however, is not uniform across studies, since the extant literature reveals several methods for dichotomizing urban and rural areas. The two most prevalent methods are the United States Office of Management and Budget (OMB) and the United States Census Bureau (CB). The OMB classifies by counties, designating as Metropolitan (urban) those counties with an incorporated city or urbanized area with at least 50,000 residents and a total county population of 100,000 or greater residents, as well as fringe counties that are tied to the core counties economically (Spoth et al., 2001; Ricketts, Johnson-Webb & Taylor, 1998; Hewitt, 1989). All other counties are considered nonmetropolitan (rural). The CB designates as urban those housing units in urbanized areas (i.e. with populations of 50,000 or more, as well as surrounding areas with population densities exceeding 1000 per square mile), and areas with at least 2500 residents outside of urbanized areas; areas
with less than 2500 residents are considered rural (Spoth et al., 2001; Ricketts et al., 1998; Hewitt, 1989). Ricketts et al. (1998) point out a great disparity in this definition, because “rural” areas “can have population densities as high as 999 per square mile and as low as 1 or 2 per square mile” (p.3). There is also a significant amount of overlap in these definitions, so that some areas are considered rural in one classification scheme, and urban in another (Ricketts et al., 1998; Hewitt, 1989). This overlap could create difficulty for the generalization of results, because the characteristics of communities considered rural may vary widely, as well as the needs of those populations.

Researchers also use their own particular methods, or use terms like “urban”, “rural” and “metropolitan” without reference to how participants were designated into these groups. For example, Armistead et al. (2002; also Jones et al., 2003) designated as rural their sample from counties of 7500 inhabitants or less. Their urban sample was from an urban center of 1.3 million inhabitants. With such a great disparity between urban and rural groups, it is difficult to realize the subtleties that may exist in the gradient between urban and rural. Because equivocal results have been found for youth risk behaviours using existing schemes of dichotomizing urban and rural communities, an alternative method of examining the effects of urbanicity on youth risk behaviour may prove more effective in determining true differences between gradients of urbanicity. My thesis extends this work by using a continuous measure of urbanicity.

Conger (1997) addresses some of the ways in which research has defined rural and urban status and concludes, “there is no simple way to distinguish rural from urban” (p.49). The “crude dichotomy” (p.38) that differentiates rural from urban in many published works fails to capture more subtle qualities that affect residents of various
localities, such as distinct economic conditions, diversity of the population, social norms, and subcultures.

Considering the equivocal results of studies comparing urban and rural rates of risk behaviour participation, and the paucity of research pertaining to urban and rural differences in parental monitoring behaviours and parental knowledge, further study in this area is required. An examination of locality influences on youth and parents in terms of monitoring and risk behaviour participation is critical to our understanding of the complex pathways that affect the lives of youth.

Purpose and Hypotheses

Overall, community disadvantage and urbanicity have been found to have various, equivocal associations with substance use and delinquency, and there is some evidence for relations between community factors, such as community disadvantage and urbanicity, and parenting factors. It may be that urbanicity and community disadvantage have both direct and indirect links (through parenting factors) to youth risk behaviours. This hypothesis has not directly been tested. The purpose of this thesis is to test a model linking community disadvantage and urbanicity factors to parenting variables (i.e., monitoring, warmth, and knowledge) and to youth risk behaviour (i.e., substance use and delinquency), measured both concurrently and one year after the assessment of parenting variables. The model builds on the work of Fletcher et al. (2004) (see Figures 1 and 2) but a) includes a more comprehensive measure of SES than that conceptualized by Fletcher et al.; b) considers whether the role of community disadvantage is indirectly rather than directly linked to youth risk behavior, by way of its association with parenting
variables; c) considers whether level of community urbanicity plays a direct role in predicting both parenting variables and risk behaviors, or whether its influence on risk behaviours is primarily indirect through parenting variables (See Figure 3).

Following from the findings of Fletcher et al. (2004), this model includes both indirect and direct effects for parental monitoring on youth substance use and delinquency, as well as direct and indirect effects for parental warmth. Parental control is not included in this model because the survey data available for this thesis did not contain an adequate measure of parental control.

The model also tested for direct associations of urbanicity and community disadvantage with risk behaviour, as well as indirect associations through parenting factors. In contrast with Fletcher et al. (2004) who only used a single measure of SES in their study, the measure of community disadvantage in this thesis is comprehensive, including empirically supported community level factors such as percentage of professional or managerial workers, percentage of adults with at least some college education, and percentage of workers with incomes greater than $30 000.

I expected to find similar results to Fletcher et al. (2004) for the parenting variables of parental monitoring, warmth, and knowledge and their links to youth risk behaviour participation. I expected to find similar results to Stattin and Kerr (2000; Kerr & Stattin 2000) for parental knowledge. Due to inconsistent results in previous research, the analysis of indirect and direct links among community disadvantage, urbanicity, parental factors, and youth behaviours are exploratory and therefore, no hypotheses were formed.
Figure 3. Proposed model predicting youth substance use (and delinquency) from parenting variables and community variables.
Method

This study is part of a larger study designed to examine youth resilience and positive lifestyle choices in areas such as substance use, aggression, gambling, sexual activity, physical activity, and academic achievement. Approval by Brock University's Research Ethics Board was obtained for the larger study, and approval for the current study was obtained from the Youth Lifestyle Choices - Community University Research Alliance. The participants for this study were recruited from secondary schools in one region of Ontario, Canada. The total population of the region was 410,574 (Profile for Canada, Provinces, Territories and Forward Sortation Areas, 2001 Census) in mid-sized cities, towns, and agricultural areas. A passive parental consent procedure was used in this study to ensure a representative sample (see Weinberger, Tublin, Ford, & Feldman, 1990 for a discussion on how active parental consent procedures may result in overrepresentation of well-functioning adolescents and families). Active informed assent, however, was obtained from the adolescent participants. Several strategies were applied in order to ensure parental awareness of the study. First, parents were provided with written correspondence mailed directly to each student's home prior to the survey administration outlining the study; this letter indicated that parents could request that their child not participate in the study (prior to the Time 2 survey, an automated phone message was also left at each student's home phone number). Second, several parent information sessions were held throughout the school district. Third, there was extensive media coverage outlining the study.
Participants

Students from eight high schools encompassing a school district in Ontario, Canada took part in the study. At Time 1, the overall participation rate was 83% of all students enrolled in the participating high schools \( N = 5524 \); non-participation was due to student absenteeism (14%), parental refusal (2.1%), or student refusal (0.7%). At Time 2, the participation rate was 84% of all students enrolled in the participating high schools \( N = 7367 \); non-participation was due to student absenteeism (13%) or refusals (1.4% of parents; 1.3% of students). Consistent with the broader Canadian population (Statistics Canada, 2001), 92% of the adolescents were born in Canada and the most common ethnic backgrounds reported other than Canadian were Italian (34%), French (20%), British (15%), and German (11%). Data on socioeconomic status indicated mean levels of education for mothers and fathers falling between “some college, university or apprenticeship program” and “completed a college/apprenticeship/technical diploma”. Further, 73% of the longitudinal respondents reporting living with both birth parents, 11% with two parents (including one birth parent), 14% with one birth parent (mother or father only), and the remainder living with neither parent (e.g., other relatives, foster parents, guardians etc.).

The present results are based on 1213 students who completed the survey at both time points. At Time 1, these participants (50.4% male, 49.1% were female, 0.7% missing) were in grades 9 through 12, with an average grade between 9 and 10, and an average age of 14 years, 10 months \( SD = 10 \) months. At time 2, these participants had an average grade of 11 or 12 and had an average age of 16 years, 6 months \( SD = 8 \) months.
Longitudinal participants were compared at Time 1 to grade 9 and 10 students who did not complete the survey at Time 2 in terms of risk behavior involvement (measures are detailed below). Differences between groups were significant ($ps < .001$) for alcohol use, smoking, marijuana, and hard drug use (but not for delinquency and aggression) such that longitudinal participants reported less substance use. Magnitudes of the between group differences, however, were small (less than 0.50 units on each measurement scale; individual $\eta^2$ values were not greater than .02; risk behaviors explained a total of 3% of the difference between the groups in a discriminant function analysis).

Procedure

The survey was administered in 8 secondary schools in both 2003 and 2004. The procedure was identical for each wave of the survey. A research assistant implemented the survey in each classroom. Prior to beginning the survey, research assistants explained the importance of the survey, what the survey was about, that participation was voluntary and that no answer was incorrect. Any students who were not participating in the study were given alternative materials to be completed while the other students were completing the study. The alternative materials consisted of small exercises, such as crossword puzzles, word and picture matching, and 'what if' scenarios, dealing with stress management, conflict, and nutrition.

Students with parental consent were given the questionnaire package and instructed to remove the face sheet and consent form prior to removing the questionnaire from their envelope. The face sheet was a single page asking for the student's name, birth date, school name, and grade. This information was requested so that longitudinal data could be obtained in subsequent years, which was explained to them in the consent form.
Students were ensured that this information would remain confidential. Once completed, these two sheets were collected and placed in a sealed envelope and returned to the YLC-CURA office. After completing the survey, participants placed their completed survey in an unsigned envelope and sealed it. Research assistants immediately removed the surveys from the schools.

Measures

The data used in this study is part of a larger study examining adolescent resilience and risk behaviours in relation to community, interpersonal, and intrapersonal factors. The questionnaire was developed based on a review of the adolescent risk behavior literature (Hawkins, Catalano, & Miller, 1992; Petraitis, Flay, & Miller, 1995; Petraitis, Flay, Miller, Torpy, & Greiner, 1998).

Demographics

This section ascertained individual background information. The response categories for questions about ethnic background and other languages spoken were developed by YLC-CURA according to the top ten ethnic populations and languages based on 1996 census data for the region. Participants responded to 10 demographic questions across various response categories. Questions are scored individually for separate assessment of question domain.

Urbanicity

Due to the inconsistency of designations of urban or rural areas in the extant literature, urbanicity was measured as a continuous variable based upon the population density of the city, town, or settlement area in which the participant resided. Population density figures were determined using the FSA boundary file (Census Geography, 2001),
Statistics Canada data (Profile for Canada, Provinces, Territories and Forward Sortation Areas, 2001 Census) and the Forward Sortation Area (i.e. the first three component symbols of the Canadian postal code) provided by participants on the survey. This avoided the complications of dichotomizing urban and rural youth, as recommended by Conger (1997) and Patton (1989), who pointed out that most research of urban-rural differences fail to recognize the heterogeneity between and within rural and urban populations. Using census data, rather than participant-reported community information, also allowed for a less-biased assessment of neighborhood characteristics. Higher scores indicated greater population density and thus greater urbanicity.

Community Disadvantage

Community disadvantage was measured using a composite score. The measure was similar to the one used by Brooks-Gunn and colleagues (e.g. Chase-Lansdale, Gordon, Brooks-Gunn, & Klebanov, 1997); a composite of the percentage of non-managerial/professional workers, percentage of residents with income less than $30,000, and percentage of residents without at least some college education in the community. The data for these variables was obtained from Census Canada data of 2001. The three components of the composite were standardized and then averaged, and yielded an alpha of .91. Higher scores mean greater community disadvantage.

This measure of community disadvantage allows for a neighborhood-based analysis, as opposed to the family-level and empirically non-significant “social class”

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3 According to Statistics Canada data (Profile for Canada, Provinces, Territories and Forward Sortation Areas, 2001 Census) for this geographic region, the majority of families were headed by two parents, and the average family had 1.1 children. The average Low Income Cut Off (LICO) for a three person family in settlement areas of the size found in this region was $24,566.75 in 2003 (National Council of Welfare, 2004). Due to Statistics Canada interval ranges, this amount was rounded up to $30,000 for analyses.
variable used by Fletcher et al. (2004). Leventhal and Brooks-Gunn (2000) recommended having three levels of SES, based upon their review of many studies using only two levels, in order to facilitate comparison among poor, middle-income, and affluent families. This study went a step beyond these dimensions and used a composite score comprised of continuous standardized variables, which enabled the evaluation of more subtle differences in community disadvantage.

*Parental Warmth*

The index of parental warmth was developed to approximate the responsiveness and strictness dimensions suggested by Baumrind (1971). The questionnaire contains items on parenting practices that were taken or adapted from existing measures, as found in Lamborn, Mounts, Steinberg, and Dornbusch (1991).

The acceptance/involvement scale measures the extent to which the adolescent perceives his or her parents as loving, responsive, and involved, which indicate parental warmth. In keeping with the measures utilized by Fletcher et al. (2004), this scale was reduced to the same six items found in that study for analysis. Participants were asked, for each of their parents, if each statement was usually true, or usually false: I can count on him/her to help me out if I have some kind of problem, he/she helps me with my school work if there is something that I don’t understand, and when he wants me to do something he explains why. Because responses were given pertaining to mothers and fathers, the scores for each parent were averaged in this analysis, which is consistent with Fletcher et al. (2004). The average score was then standardized.

Participants were asked about how their parents react to the youth’s grades: “When you get a poor grade in school, how often do your parents or guardians encourage you to
try harder?” and “If you get a good grade in school, how often do your parents or guardians praise you?” These items were measured on a four-point scale: 1(usually), 2(sometimes), 3(never), and 4(I always get good/poor grades, respectively). Responses of “I always get good/poor grades” (19.3% and 2.0%) were problematic as they did not specifically measure parental warmth. In order to prevent bias in assigning these scores, they were treated as missing data and imputed using the expectation-maximization method (EM). Scores for these questions were averaged and then standardized.

The last question included for this measure was the frequency of time parents spend just talking with the youth, a question also asked by Fletcher et al. (2004). Response categories were 1(almost every day), 2(a few times a week), 3(a few times a month), and 4(almost never). Responses to this question were standardized. All three standardized scores were then averaged to form a composite parental warmth construct with an alpha of .73. Higher scores denote less parental warmth.

Parental Monitoring

The monitoring and knowledge scales consist of portions of the strictness/supervision scales found in Lamborn et al. (1991). The monitoring scale measures the extent to which the adolescent perceives his/her parents attempt to gain knowledge about his/her whereabouts and associations, which is consistent with prior research measures of monitoring (e.g. Fletcher et al., 2004; Fletcher et al., 1995). Participants reported how often their parents asked “who your friends are”, “where you go at night”, “what you do with your free time”, and “where you are most afternoons after school”. They could respond with “they often ask”, “they sometimes ask” or “they never ask”, or “I tell them without their asking.” A response of “I tell them without their
asking" (13.8%, 8.1%, 13.0%, 15.0% for each of the four questions, respectively) was problematic as it did not specifically measure parental monitoring. In order to prevent bias in assigning these scores, they were treated as missing data and imputed using the expectation-maximization method (EM). Scores for the monitoring measure were averaged to form a composite with an alpha of .77. Higher scores signify less parental monitoring.

*Parental Knowledge*

The knowledge scale measures the extent to which the adolescent perceives his/her parents to really know about his/her whereabouts and associations as measured in the monitoring scale. The first four questions in the monitoring knowledge sections were included in knowledge measures by both Stattin and Kerr (2000; Kerr & Stattin, 2000) and Fletcher et al. (2004). As in Fletcher et al. (2004), these items were presented directly after the monitoring items in order to clearly indicate to respondents that this scale was attempting to measure the discrepancy between parental attempts at gaining knowledge and actual knowledge. The measure of knowledge has a four-point response scale that consists of “they always know”, “they usually know”, “they sometimes know”, and “they never know”. Scores for the knowledge scale were averaged, and yielded a scale alpha of .85. Higher scores represent less parental knowledge.

*Substance Use Frequency*

Substance use was assessed for alcohol, marijuana and tobacco use, consistent with Fletcher et al (2004). Alcohol use was measured by frequency of use (0-never to 8-every day), and average consumption per drinking episode (0-less than 1 drink, to 6-over 10 drinks). Smoking was indicated by the typical number of cigarettes smoked each day (0-
none, to 8-more than a pack). Marijuana use was assessed by the frequency of use in the past year (0-never, to 5-every day). All four of the substance use behaviours (marijuana, alcohol consumption, alcohol use, and cigarette use) were standardized and averaged to form a single substance use score with an alpha of .81 for time one, and .78 for time two. Higher scores signify more substance use and/or higher frequency of use.

Delinquency

Students were asked to indicate their rate of involvement over the past year in 27 risk behaviours, measured on a 4 point scale (0-never to 3-more than five times). These questions were adapted from the modified Risk Involvement and Perception Scale by Shapiro, Siegel, Scovill, and Hays (1998), and Zhang, Welte, and Wieczoret (2001). The number of behaviours kept for analysis was reduced from the original 27 in order to be consistent with Fletcher et al. (2004). For this analysis, the items included shoplifting, sneaking out at night when parents thought participant was asleep, wrecking other people’s property, joining a gang, and carrying a gun and/or knife as a weapon.

Several items from this survey’s aggression scale were included in the delinquency measure to maintain consistency with Fletcher et al. (2004). Physical fighting variables were adapted from Marini, Spear, and Bombay (1999), and included pushed and shoved someone and kicked and hit someone, which were measured on a five point scale (0-never to 4-everyday). For analyses within the proposed model, all nine behaviour scores were standardized and averaged to form a composite delinquency variable with an alpha of .82 for time one and .86 for time two. Higher scores denote more delinquency.

Refer to Table 1 (p.49) for means and standard deviations of variables, as well as alphas for components of final variables.
Plan of Analysis

Missing Data

Some students did not finish the entire study questionnaire. The amount of missing data was directly related to survey length, i.e., missing values were greatest towards the end of the survey. Further, the amount of missing data per participant was largely unrelated to scores on the study variables. Only 2% of the variance in the amount of missing data per student was explained by self-reported involvement in risk behaviours, age, gender, grade-level, and self-reported grades. Thus, missing data was likely due to time constraints, fatigue, and survey length. In total, 18% of the data was missing due to non-response, although the amount of missing data for each variable varied depending on its place in the survey (6% for alcohol, smoking, aggression, 10% for hard drugs, 11% for marijuana, and 17% for major and minor delinquency).

Missing data was imputed using the EM (expectation-maximization) algorithm in SPSS. EM is an iterative maximum-likelihood procedure in which a cycle of calculating means and covariances followed by data imputation is repeated until a stable set of estimated missing values is reached. Methodological research has demonstrated that maximum likelihood estimation of missing data is to preferable to more common methods such as pair-wise deletion, list-wise deletion, or mean substitution (see Schafer & Graham, 2002).

Analyses

Preliminary analyses included an examination of the reliability, intercorrelations, and multivariate normality of the measures. The structural model as outlined in Figure 3 was tested separately for each risk behaviour scale (substance use and delinquency),
using AMOS 5.0 software (Arbuckle & Wothke, 1999) and maximum likelihood estimation. In the context of a saturated model, the role of community and parenting variables in predicting adolescent risk behaviour longitudinally was estimated, as well as total, direct, and indirect effects (see Mistry, Biesanz, Taylor, Burchinal, & Cox, 2004).

Although goodness-of-fit tests are not appropriate for saturated models, using a just-identified (i.e. saturated) model is advantageous for the reduction of bias due to overidentifying restrictions (Cole & Maxwell, 2003; Reichardt, 2002; Tomarken & Waller, 2003). That is, by accounting for all possible pathways within the model, the analyses were not restricted to the biased testing of certain pathways over others. Accordingly, the most accurate estimate of each variable’s predictive effects is more certain. To account for the expected relations among predictors within each level of influence (i.e., community factors, parenting factors), correlations between community disadvantage and urbanicity, as well as between the parenting variables (correlated residuals) were specified.

Results

Normality

Preliminary analyses indicated that the distributions for several variables were nonnormal (see Lei & Lomax, 2005). Parental warmth showed moderate nonnormality for both skewness and kurtosis. Substance use at Time One and Time Two were moderately nonnormal for skewness, while at Time One kurtosis was severely nonnormal. Delinquency was severely nonnormal for both skewness and kurtosis. While it is common to transform data with severe nonnormality, this convention was not
followed for the current analysis. According to the study of the robustness of structural equation modeling under varying degrees of nonnormality and sample size conducted by Lei and Lomax, “nonnormality conditions do not produce significant differences in the standard errors of parameter estimates regardless of sample size and estimation method” (p.14). They recommend a sample size greater than 500 to reduce bias in parameter estimates, which was satisfied in the current analysis. Lei and Lomax concluded that, even under conditions of severe nonnormality, SEM estimates can be interpreted as if they were normally distributed.

*Bivariate Associations Among Model Variables*

Table 2 (p.50) presents the intercorrelations among analysis variables within the longitudinal sample. The high positive correlation between substance use at Time One and Time Two indicates stability in substance use over time. Although smaller in magnitude, there was also a substantial relation between delinquency at Time One and Time Two. At both waves, substance use and delinquency were also highly correlated, suggesting that adolescents who reported being involved with substance use were more likely to report being involved in delinquent activities, and vice versa.

Parental monitoring and warmth, monitoring and knowledge, and warmth and knowledge were also significantly correlated, indicating that adolescents who reported that their parents monitored them more were more likely to report having warm relationships with them, and adolescents who reported that their parents monitored them more and/or reported warm relationships with their parents were more likely to report that their parents were knowledgeable about their lives. Knowledge was significantly correlated with substance use and delinquency at both time points, such that adolescents
who reported that their parents were more knowledgeable were more likely to report less involvement in risk behaviors. Although monitoring was significantly correlated with substance use and delinquency at both waves, indicating that monitored adolescents were less likely to be involved in risk behaviors, adolescent-reported parental warmth had much stronger correlations.

A small but significant correlation was found between community disadvantage and parental monitoring, suggesting that adolescents in communities with more disadvantage were slightly more likely to report monitoring by parents. Urbanicity was not significantly correlated with any of the model variables.

*Predicting parental monitoring and warmth*

Urbanicity and community disadvantage accounted for 1% of the variance in adolescent-reported parental monitoring, and none of the variance in parental warmth. As shown in Table 3 (p.53), community disadvantage had a small but significant effect only on parental monitoring, such that adolescents in more disadvantaged communities were slightly more likely to report that their parents monitored them than those in less disadvantaged areas. Urbanicity did not have a significant effect on reports of either parental monitoring or parental warmth.

*Predicting parental knowledge*

In total, 17% of the variance in parental knowledge was accounted for by urbanicity, community disadvantage, parental monitoring, and parental warmth. As
Table 1

Description of Study Measures

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<tr>
<th>Domain</th>
<th>Variable</th>
<th>Items</th>
<th>Scale range</th>
<th>Mean</th>
<th>SD</th>
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<tr>
<td>Disadvantage</td>
<td>Disadvantage</td>
<td>3</td>
<td>0-100%</td>
<td>49.50</td>
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<tr>
<td>Urbanicity</td>
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<td>859.66</td>
<td>694.43</td>
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<tr>
<td>Parental Monitoring</td>
<td>Parental monitoring</td>
<td>4</td>
<td>1(they often ask) to 3 (they never ask)</td>
<td>1.72</td>
<td>.46</td>
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<tr>
<td>Parental Warmth</td>
<td>Parent helps/explains</td>
<td>6</td>
<td>1(usually true) or 2(usually false)</td>
<td>1.19</td>
<td>.22</td>
</tr>
<tr>
<td></td>
<td>Parent encourages/praises</td>
<td>2</td>
<td>1(usually) to 3(never)</td>
<td>1.27</td>
<td>.34</td>
</tr>
<tr>
<td></td>
<td>Parent talks with child</td>
<td>1</td>
<td>1(almost every day) to 4(almost never)</td>
<td>2.18</td>
<td>.89</td>
</tr>
<tr>
<td>Parental Knowledge</td>
<td>Parental knowledge</td>
<td>4</td>
<td>1 (they always know) to 4 (they never know)</td>
<td>1.79</td>
<td>.59</td>
</tr>
<tr>
<td>Substance Use Time One</td>
<td>Frequency of marijuana use</td>
<td>1</td>
<td>1(never) to 6(every day)</td>
<td>1.85</td>
<td>1.35</td>
</tr>
<tr>
<td></td>
<td>Frequency of alcohol use</td>
<td>1</td>
<td>1(never) to 8(every day)</td>
<td>2.26</td>
<td>1.09</td>
</tr>
<tr>
<td></td>
<td>Quantity of alcohol consumed</td>
<td>1</td>
<td>1(less than 1 drink) to 6(over 10 drinks)</td>
<td>2.62</td>
<td>1.26</td>
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<tr>
<td></td>
<td>Daily cigarette use</td>
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<td>0 (none) to 8 (more than a pack)</td>
<td>.49</td>
<td>1.02</td>
</tr>
<tr>
<td>Delinquency Time One</td>
<td>Frequency of bullying</td>
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<td>1(never) to 5(every day)</td>
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<td>.95</td>
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<tr>
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<td>Frequency of delinquency</td>
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<td>1(never) to 4 (more than a few times)</td>
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<td>.39</td>
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<tr>
<td>Substance Use Time Two</td>
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<td>1(never) to 6(every day)</td>
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<td>1.58</td>
</tr>
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<td></td>
<td>Frequency of alcohol use</td>
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<td>1(never) to 8(every day)</td>
<td>2.94</td>
<td>1.21</td>
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<td>Quantity of alcohol consumed</td>
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<td>1(less than 1 drink) to 6(over 10 drinks)</td>
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<td>1.17</td>
</tr>
<tr>
<td></td>
<td>Daily cigarette use</td>
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<td>0 (none) to 8 (more than a pack)</td>
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<td>1.43</td>
</tr>
<tr>
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<td>Frequency of bullying</td>
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<td>1(never) to 5(every day)</td>
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<td>.83</td>
</tr>
<tr>
<td></td>
<td>Frequency of delinquency</td>
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<td>1(never) to 4 (more than a few times)</td>
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<td>.45</td>
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<td>3</td>
<td>4</td>
<td>5</td>
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<td>-----</td>
<td>-----</td>
<td>-----</td>
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<td>-----</td>
</tr>
<tr>
<td>1. Disadvantage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Urbanicity</td>
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<td>.03</td>
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<td></td>
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</tr>
<tr>
<td>3. Parental monitoring</td>
<td>-.08**</td>
<td></td>
<td>.01</td>
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<td></td>
</tr>
<tr>
<td>4. Parental warmth</td>
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<td>.00</td>
<td>.25***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Parental knowledge</td>
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<td>-.04</td>
<td>.27***</td>
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<td>-.04</td>
<td>.08**</td>
<td>.20***</td>
<td>.42***</td>
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<td>7. Substance Use Time 2</td>
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<td>-.02</td>
<td>.10**</td>
<td>.17***</td>
<td>.38***</td>
</tr>
<tr>
<td>8. Delinquency Time 1</td>
<td>.00</td>
<td>-.04</td>
<td>.07*</td>
<td>.25***</td>
<td>.38***</td>
</tr>
<tr>
<td>9. Delinquency Time 2</td>
<td>-.03</td>
<td>-.01</td>
<td>.09**</td>
<td>.12***</td>
<td>.26***</td>
</tr>
</tbody>
</table>

*Note. N=1213

*p < .05  **p < .01  ***p < .001
shown in Table 4 (p.54), community disadvantage and urbanicity did not have significant total effects on adolescent perceptions of parental knowledge. When these total effects were decomposed into direct and indirect effects, both the direct and indirect effects were not significant. In contrast, parental monitoring and warmth had notable effects on parental knowledge, such that adolescent reports of more monitoring and more warmth were associated with reports of more parental knowledge. Because parental monitoring and warmth had direct effects only on parental knowledge, the direct effect for each of these variables was identical to their total effects.

*Predicting Time 1 Substance Use*

Together, community and parenting variables accounted for a total of 18% of the variance in Time One substance use. As shown in Table 5 (p.55), community disadvantage and urbanicity had no significant effects on substance use at Time One, while parental warmth and parental knowledge had notable total effects on Time One substance use. When broken down into direct and indirect effects, an indirect effect was found for parental monitoring on Time One substance use through parental knowledge, such that perceptions of more monitoring were related to reports of less substance use. Most of the effect of parental warmth on Time One substance use was indirect through parental knowledge. Adolescents who reported more warmth in their parental relationships reported lower substance use levels at Time One than adolescents who reported less warmth in their parental relationships. Knowledge had a notable direct effect on Time One substance use, indicating that reports of more parental knowledge predicted less substance use.
Predicting Time 2 Substance Use

Community variables, parenting variables, and Time One substance use accounted for 51% of the variance in Time Two substance use reports. As shown in Table 6 (p.56), community disadvantage, urbanicity, and parental monitoring had no significant effects on substance use at Time Two. Parental warmth, however, had a significant total effect on Time Two substance use, which was mostly indirect through parental knowledge. When participants reported warm relationships with their parents, they were less likely to report use of substances at Time Two. Parental knowledge had a notable effect, and most of the effect of knowledge on Time Two substance use was indirect through Time One substance use. More knowledge predicted less substance use at Time Two. Furthermore, there was a direct effect of Time One substance use on Time Two substance use, with more substance use at Time One predicting more substance use at Time Two. The model shown in Figure 4 illustrates the effects.

Predicting Time 1 Delinquency

In total, the predictor variables accounted for 16% of the variance in Time One delinquency. While community disadvantage and urbanicity had no significant effects on adolescent reports of delinquency at Time One, the parenting variables did have significant effects (see Table 7, p.59). Total effects were notable for warmth and knowledge on Time One delinquency. Adolescent perceptions of more warmth and knowledge were associated with less delinquency at Time One. Decomposing the total effects into direct and indirect effects, parental warmth had significant direct and indirect effects, while the effect of knowledge was direct.
Table 3

*Prediction of Parental Monitoring and Warmth*

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Criterion Variables</th>
<th>Total Effect</th>
<th>Direct Effect</th>
<th>Indirect Effect</th>
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</thead>
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<tr>
<td>Community Disadvantage</td>
<td>Parental Monitoring</td>
<td>-.08*</td>
<td>-.08*</td>
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</tr>
<tr>
<td></td>
<td>Parental Warmth</td>
<td>.02</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>Urbanicity</td>
<td>Parental Monitoring</td>
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<td>.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parental Warmth</td>
<td>.00</td>
<td>.00</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Standardized total, direct, and indirect effects are shown. Direct and indirect effects may not sum to total effects due to rounding. Significance tests were based on results from bias-corrected estimates produced by AMOS 5.0 derived from 1000 bootstrap samples. *p* < .05 **p** < .01
Table 4

*Prediction of Parental Knowledge*

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Total Effect</th>
<th>Direct Effect</th>
<th>Indirect Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Disadvantage</td>
<td>.03</td>
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<td>-.01</td>
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<tr>
<td>Urbanicity</td>
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<td>-.04</td>
<td>.00</td>
</tr>
<tr>
<td>Parental monitoring</td>
<td>.19**</td>
<td>.19**</td>
<td></td>
</tr>
<tr>
<td>Parental warmth</td>
<td>.32**</td>
<td>.32**</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Standardized total, direct, and indirect effects are shown. Direct and indirect effects may not sum to total effects due to rounding. Significance tests were based on results from bias-corrected estimates produced by AMOS 5.0 derived from 1000 bootstrap samples. *p < .05  **p < .01*
Table 5

Prediction of Time One Substance Use

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Total Effect</th>
<th>Direct Effect</th>
<th>Indirect Effect</th>
</tr>
</thead>
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<tr>
<td>Community Disadvantage</td>
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<td>.01</td>
<td>.02</td>
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<tr>
<td>Urbanicity</td>
<td>-.04</td>
<td>-.02</td>
<td>-.02</td>
</tr>
<tr>
<td>Parental monitoring</td>
<td>.04</td>
<td>-.04</td>
<td>.08**</td>
</tr>
<tr>
<td>Parental warmth</td>
<td>.18**</td>
<td>.05</td>
<td>.13**</td>
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<tr>
<td>Parental knowledge</td>
<td>.41**</td>
<td>.41**</td>
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</tbody>
</table>

Note. Standardized total, direct, and indirect effects are shown. Direct and indirect effects may not sum to total effects due to rounding. Significance tests were based on results from bias-corrected estimates produced by AMOS 5.0 derived from 1000 bootstrap samples. *p < .05 **p < .01
Table 6

*Prediction of Time Two Substance Use*

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Total Effect</th>
<th>Direct Effect</th>
<th>Indirect Effect</th>
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</thead>
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<td>-.03</td>
</tr>
<tr>
<td>Parental monitoring</td>
<td>.06</td>
<td>.02</td>
<td>.04</td>
</tr>
<tr>
<td>Parental warmth</td>
<td>.16**</td>
<td>.01</td>
<td>.15**</td>
</tr>
<tr>
<td>Parental knowledge</td>
<td>.36**</td>
<td>.09**</td>
<td>.28**</td>
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<td>Substance Use Time 1</td>
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<td>.67**</td>
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*Note.* Standardized total, direct, and indirect effects are shown. Direct and indirect effects may not sum to total effects due to rounding. Significance tests were based on results from bias-corrected estimates produced by AMOS 5.0 derived from 1000 bootstrap samples. *p < .05 **p < .01
Figure 4. Model predicting youth substance use from parenting variables and community variables. Significant standardized regression weights are provided for the direct effects. *p < .05  **p < .01  ***p < .001
Monitoring had a small indirect effect on Time One delinquency through knowledge, such that adolescent reports of more monitoring were related to less delinquency. However, the direct effect of monitoring on delinquency at Time One revealed that more monitoring was related to more delinquency.

**Predicting Time 2 Delinquency**

The predictor variables accounted for 26% of the variability in Time Two delinquency levels. Effects were non-significant for community disadvantage, urbanicity, and parental monitoring on Time Two delinquency levels (see Table 8, p.60). Total effects were notable for warmth and knowledge on Time Two delinquency, such that more reported warmth and knowledge predicted less reported delinquency. The indirect effect of warmth, however, was more than the total effect, indicating the possibility of suppression. Adolescent perceptions of knowledge, on the other hand, had both direct and indirect effects on their reports of Time Two delinquency. The substantial direct effect of Time One delinquency on Time Two denoted that more delinquent behaviour at Time One predicted more delinquent behaviour at Time Two. Refer to Figure 5 for an illustration of significant effects.

**Discussion**

*Community Disadvantage and Urbanicity*

The present study tested a model linking community disadvantage and urbanicity factors to parenting variables and youth risk behaviour at two time points, 18 months apart. The model built upon the work of Fletcher et al. (2004) by including several extensions. The model tested included a more comprehensive measure of SES than was
<table>
<thead>
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<th>Predictors</th>
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<th>Direct Effect</th>
<th>Indirect Effect</th>
</tr>
</thead>
<tbody>
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<td>-.02</td>
<td>.02</td>
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<tr>
<td>Urbanicity</td>
<td>-.04</td>
<td>-.02</td>
<td>-.01</td>
</tr>
<tr>
<td>Parental monitoring</td>
<td>.01</td>
<td>-.06*</td>
<td>.07**</td>
</tr>
<tr>
<td>Parental warmth</td>
<td>.25**</td>
<td>.14**</td>
<td>.11**</td>
</tr>
<tr>
<td>Parental knowledge</td>
<td>.35**</td>
<td>.35**</td>
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</tbody>
</table>

*Note. Standardized total, direct, and indirect effects are shown. Direct and indirect effects may not sum to total effects due to rounding. Significance tests were based on results from bias-corrected estimates produced by AMOS 5.0 derived from 1000 bootstrap samples. *p < .05  **p < .01*
Table 8

Prediction of Time Two Delinquency

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Total Effect</th>
<th>Direct Effect</th>
<th>Indirect Effect</th>
</tr>
</thead>
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<td>-.03</td>
<td>.00</td>
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<td>Urbanicity</td>
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<td>-.02</td>
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<td>Parental monitoring</td>
<td>.06</td>
<td>.04</td>
<td>.02</td>
</tr>
<tr>
<td>Parental warmth</td>
<td>.11**</td>
<td>-.04</td>
<td>.14**</td>
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<td>Parental knowledge</td>
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<td>.08**</td>
<td>.16**</td>
</tr>
<tr>
<td>Delinquency Time 1</td>
<td>.47**</td>
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Note. Standardized total, direct, and indirect effects are shown. Direct and indirect effects may not sum to total effects due to rounding. Significance tests were based on results from bias-corrected estimates produced by AMOS 5.0 derived from 1000 bootstrap samples. *p<.05  **p < .01
Figure 5. Model predicting youth delinquency from parenting variables and community variables.

Significant standardized regression weights are provided for the direct effects.

* $p < .05$  ** $p < .01$  *** $p < .001$
used in Fletcher et al. (2004). Furthermore, it was measured at the community level rather than the family level. This community disadvantage variable was tested for both direct and indirect links to youth risk behaviour through all of the parenting variables, not just through parental knowledge as with Fletcher et al. (2004). Urbanicity was added to the model, and was tested for both direct and indirect effects on risk behaviours and parenting variables. Because of limited research and/or equivocal findings, the relations of community disadvantage and urbanicity to parenting and risk behaviour were exploratory.

Although there is some evidence for the effects of urbanicity and community disadvantage on parenting variables in the literature (Armistead, Forehand, Brody & Maguen, 2002; Beyers et al., 2003; Briggs, 1997; Duncan, 1994; Furstenberg, 1993; Jones, Forehand, Brody & Armistead, 2003), little effect was found in the current study. Community disadvantage had a significant effect on parental monitoring only, while urbanicity was not associated with any of the parenting variables. Moreover, no significant effects were found for urbanicity and community disadvantage on risk behaviours, either directly or indirectly. This finding lends support to the number of studies that have found that urbanicity and disadvantage have no direct effect on the risk behaviour of adolescents (Allison et al., 1999; Elgar, Arlett, & Groves, 2003; Levine & Coupey, 2003; Spencer et al., 1997), although others have found indirect effects on risk behaviour (Allison et al., 1999; Simons et al., 1996; Spencer et al., 1997).

That urbanicity and community disadvantage had virtually no effect on the model variables could be due to the construction of these variables and the particular characteristics of the region under study. Although there was variability in the population
density across the region (see Table 1, p.49), greater variability might have led to more noticeable differences between areas. Population densities found in this study ranged from 20 to 2608 people per square kilometer, and included mid-sized cities, towns, villages, and agricultural land inhabitants. Major urban centers, such as Metropolitan Toronto, however, have ranges of population density from 87 to 71550 people per square kilometer (Brock University Map Library, 2003). A greater range of densities may have revealed effects of urbanicity on parenting that were not found in the area under study because of its limited range.

A related limitation of the urbanicity variable is its use of FSAs (Forward Sortation Areas, i.e. the first three component symbols of the Canadian postal code). As noted by Smart, Adlaf, and Walsh (1994), FSAs do not necessarily correspond with self-defined neighbourhoods of residence, as they are meant for use by Canada Post to aid in the delivery and sortation of mail (See Appendix A). Effects of urbanicity on the study variables may have been attenuated because several towns were within the same FSA but had very different population densities. For instance, one large FSA (614.9 km²) contained 11 identified towns as well as the agricultural lands surrounding them. Within this FSA, two sample towns had population densities of 103.5 and 28.8 people per square kilometer, whereas the FSA had a total population density of 76.7. That is, the population density of the entire FSA was far higher than that of one of the towns within its boundaries, while being far lower than the density of another town within the same FSA. Consistency of population density was not necessarily found within each geographical boundary. The use of FSAs, therefore, may not have provided the best picture of
urbanicity. However this was the only available data pertaining to community characteristics that were available for this study.

The difficulties encountered with using FSAs might have affected the community disadvantage measure as well. Because FSAs group small towns and agricultural residents together, the community disadvantage measures may not have accurately described the characteristics of the communities. It is commonplace in Ontario to commute from small towns and rural areas to the city for employment. In fact, approximately 32% of Ontarians work outside of their city, town, or village of residence (Profile for Canada, Provinces, Territories and Forward Sortation Areas, 2001 Census). In light of this possibility, measures of income and education levels within FSAs could be inflated, as these commuters could be more educated and affluent than members of the community that do not commute. As well, residents of some areas of this region work in industries, such as the automotive industry, where education, income, and job levels are not necessarily highly correlated. In this study, however, these variables were highly correlated within each FSA, with the highest correlation occurring between having a higher education level and having a managerial or professional occupation, so the latter concern may not be an issue.

Because of these potential drawbacks, the model was re-analyzed with a restricted sample consisting of the participants in the eight FSAs within one urban center (N=322). The land areas for these FSAs ($M=12.23 \text{ km}^2$, $SD=3.76 \text{ km}^2$) were much less variable than the land areas for the all 21 FSAs in the region ($M=195.75 \text{ km}^2$, $SD=414.42 \text{ km}^2$), which could have alleviated the difficulty of inconsistent population density within particular FSAs. In this restricted analysis, however, urbanicity and community
disadvantage still had no significant effect on the parenting and risk behaviour measures. The only notable difference found was that the relation between disadvantage and urbanicity went from non-significant in the whole sample \( (r = .02, p > .05) \) to significant in the restricted sample \( (r = .64, p < .001) \) (see Appendix B). Therefore, within the restricted sample, communities that were more densely populated had greater disadvantage as measured by education level, occupation type, and income level. This correlation demonstrates the possibility that using FSAs to designate communities is problematic.

Because there is notable variability in land areas and in population densities within some FSAs, the relation between urbanicity and community disadvantage may have been hidden. It may be that using community-wide variables such as urbanicity and community disadvantage are too broad. Using family-based measures, such as parental education, may be more predictive of individual risk behaviour.

The finding of virtually no effects of urbanicity and community disadvantage on risk behaviours, on the other hand, may not be problematic at all. Although it is commonly believed that youth living in urban and impoverished communities are “at-risk” (i.e. more likely to become involved in risk behaviour), the results of the present study support the idea that these youth are not at greater risk. As reported by Conger (1997), the nature of rural life is changing. Where agriculturally based communities used to be geographically protected from influences outside of the community, population growth and its accompanying urban sprawl have encroached upon the traditional agricultural way of life. Changes in farming, manufacturing, and production have affected the economic and social well-being of communities; for example, the close-knit communities characteristic of family farms are being replaced by large-scale “factory
farms" that break down social ties within the community by taking over small-scale farms (Jackson-Smith & Gillespie, 2005), and urban dwellers are moving to non-agricultural rural areas adjacent to urban centers for affordable land and the idyllic rural setting (Bollman, 2000; Gillis, 2004). The economic stress resulting from these changes may increase the risk for substance use among adults and adolescents (Conger, 1997). Evolving transportation systems also have eased the movement between cities and more rural areas, and out-migration has become commonplace as job opportunities are more plentiful in urban centers (Bollman, 2000). As characteristics of urban and rural areas converge, there is evidence that differences between them are disappearing (Conger, 1997).

Parenting Variables

As hypothesized, similar results to Fletcher et al. (2004) were found for relations of parenting variables and risk behaviour. Adolescent perceptions of higher levels of warmth and monitoring were associated with higher knowledge levels, with warmth having a stronger effect than monitoring on knowledge. Higher levels of knowledge also were associated with lower levels of substance use and delinquency, similar to the work reported by Stattin and Kerr (2000; Kerr & Stattin, 2000).

The finding that virtually all of the effects of adolescent-reported monitoring and warmth on risk behaviours were indirect through parental knowledge, as well as that more substance use and delinquency at Time One were predictive of more substance and delinquency, respectively, at Time Two, also concurs with the findings of Fletcher et al. (2004). Adolescents who reported more parental solicitation of their own activities and friends, more help from their parents with their problems, more encouragement and
praise from their parents, and more time spent just talking with their parents were more likely to report that their parents knew more about their general activities and friends. Parental knowledge, in turn, was linked to lower levels of substance use and delinquent activities. While soliciting information from and having a warm relationship with adolescents did not directly relate to substance use in adolescents, the parental knowledge gained about the lives of youth through these processes did have a strong relation to risk behaviour. The reporting of a warm parental relationship, however, had a direct effect on delinquency at Time One. In Fletcher et al.'s study, which used an identical measure of parental warmth as the present study, any effects of warmth on risk behavior were mediated entirely through parental knowledge. Although warmth indirectly predicted risk behavior through parental knowledge (Fletcher et al., 2004), the present study found that warmth also directly predicted delinquency.

Parker and Benson (2004) found that more parental support (analogous to parental warmth in this study, i.e. praise and encouragement, talking with child, helping with problems) was associated with less delinquency. They postulated that parental support encouraged adolescents to have positive self-perceptions, which promoted successful environmental experiences. Successful environmental experiences may have resulted in positive self-esteem, which in turn deterred the adolescents from delinquent activities. However, the connection between self-esteem and lower rates of delinquency has not been strongly supported in the literature (Jang & Thornberry, 1998). In fact, Kaplan (1978) presented a self-enhancement hypothesis, whereby adolescents with low self-esteem turn to delinquent behaviour and peers and increase their self-esteem in environments and with peers that value these roles.
Other explanations for the association of parental warmth and delinquency may be possible. A warm relationship could deter the child from involvement in activities the parents disapprove of because the adolescent would not want to disappoint a parent who disapproves of involvement in delinquency. Perhaps the higher levels of communication within a warm relationship would provide more opportunity for parents to communicate their beliefs and opinions about delinquent activities and possible consequences, and act as a deterrent to involvement. The mechanisms behind this relation are not yet clear.

Other results contrasted with those of Fletcher et al. (2004) as well. While their study found that reports of more monitoring predicted more substance use, the present study found more parental monitoring indirectly predicted lower levels of substance use and delinquency at Time One (by way of parental knowledge), and directly predicted higher levels of delinquency at Time One. Theoretically, it is possible that youth who were more involved in risk behaviour spurred more parental monitoring in reaction to the risk behaviour participation (Kerr & Stattin, 2003). It is also possible that more parental monitoring is predictive of less risk behaviour because the parents were aware of the activities and whereabouts of their adolescent and could intervene and prohibit risk behaviour involvement. Considering that neither Fletcher et al.’s (2004) study nor the current study found any direct effects of monitoring on Time Two risk behaviour, it is possible that any effect of parental monitoring is mediated by parental knowledge. However, the results of the present study may also suggest a possible suppression effect; therefore, mediation could not be established (see Shrout & Bolger, 2002). Instead, results suggest a more complex relation between parental monitoring and Time One and Two substance use.
Another possible explanation for the differences in the effects of monitoring between Fletcher et al.'s (2004) and the current study is the monitoring measure itself. While Fletcher et al. asked adolescents how much their parents “TRY to know” about specific aspects their lives, the current study asked adolescents how often their parents “ASK” about their lives. Although “trying to know” may include asking the adolescent directly, it may also include asking other parents, checking with teachers at school, monitoring phone conversations or e-mails, or a myriad of other ways parents could attempt to gain knowledge about their adolescents’ lives. Using an identical measure of monitoring would have allowed for more meaningful comparison of results.

That risk behaviour at Time One was highly predictive of risk behaviour at Time Two was not surprising, and consistent with the work of Fletcher et al. (2004). It makes sense that adolescents involved in substance use and minor delinquency at the first measurement point would be more likely to sustain their involvement in these activities over time. In fact, research has demonstrated that the majority of adolescents are engaged in substance use, and that levels of substance use escalate over the course of adolescence (e.g. Zapert, Snow, & Tebes, 2002).

Implications for Further Research

Although parental knowledge had large direct effects on Time One substance use and delinquency, the parenting and community variables accounted for only 18% of the variance in substance use and 16% of the variance in delinquency at Time One, leaving much of the variance unexplained by the variables included in the model. These findings reveal that there are other variables in the lives of youth that influence their participation in risk behaviour. While this study examined the predictive effects of community and
parenting variables on youth risk behaviour, there are many other pathways that could have been included in the model. For instance, the social, physical and psychological development of youth, peer relationships, academic success, relationships with authority, and parental involvement in risk behaviour, to name a few, have been identified by others as significant predictors of youth risk behaviour (see Hawkins et al., 1992; Petraitis et al., 1995, 1998 for a review). It may be that community disadvantage and urbanicity work through these predictors, which were not accounted for in the current study. An examination of the effect of community variables within the context of this more comprehensive set of predictors is necessary and would benefit the literature. Child disclosure, in particular, is a variable that should be included in future studies. The work of Stattin and Kerr (2000; Kerr & Stattin, 2000) emphasized the sizeable effects of voluntary child disclosure on parental knowledge. They concluded that child disclosure was the most important predictor of levels of parental knowledge, far beyond the effects of monitoring, warmth, and control. Although Fletcher et al. (2004) discuss how the effects of parental warmth on knowledge probably flow through voluntary disclosure by the adolescent, disclosure was not measured directly. Including child disclosure within a model of parenting effects on youth risk behaviour may account for more of the variance in parental knowledge and risk behaviour participation.

Knowledge could also be gained about the lives of youth through other measures, such as soliciting information from the child’s friends, friends’ parents, activity leaders, and neighbours, and participating in activities with the adolescent (Waizenhofer, Buchanan, & Jackson-Newson, 2004). Future research would benefit from the inclusion of more sources of parental knowledge.
The bi-directional effects of the variables included in the present study also should be tested. Kerr and Stattin (2003) began to explore this possibility and found that less parental control and less warm relationships may be reactions to youth delinquency, rather than causes of it. Although studies typically assume that youth delinquency and substance use are outcomes of parental monitoring, warmth, control, and knowledge, the possibility of bi-directional influences could be critical to our understanding of the link between risk behaviour in adolescents and parenting behaviour. In fact, parenting may make less difference to the behaviour of youth than is currently thought. Stattin and Kerr (2000; Kerr & Stattin, 2000) concluded that studies of parenting and youth risk behaviour rarely account for the influence of youth behaviour on parenting behaviour. Future research should include the influence of youth behaviour on parenting behaviour over time, rather than just looking at the influence of parenting behaviour on youth behaviour. By examining the effects of both parenting behaviour on youth behaviour and youth behaviour on parenting behaviour, researchers would gain valuable insight into the possibility of bi-directional influences.

Laird et al. (2003), for example, found reciprocal influences. More knowledge at one time point predicted less delinquency at later time points, while more delinquency at one time point predicted less knowledge at later time points. The authors offer several explanations for these findings. In the first case, adolescents may decrease their involvement in risk behaviour in light of parenting behaviours, may have fewer opportunities to become involved in risk behaviour, or may have warmer, involved relationships with their parents that protect from further risk involvement (Crouter, Helms-Erickson, Updegraff, & McHale, 1999; Dishion & McMahon, 1998; Patterson &
Stouthamer-Loeber, 1984). In the second case, as adolescents become more involved in risk behaviour, they may be less likely to disclose to their parents. Parental knowledge decreases, then, because disclosure is the main contributor to knowledge (Stattin & Kerr, 2001; Kerr & Stattin, 2001). While this postulation focuses on child effects, parent and child interaction effects are also offered in explanation. A child’s involvement in delinquent behaviour might increase negative interactions between parent and child, and lead to decreased monitoring efforts in order to avoid confrontation. Knowledge may also decrease in response to delinquent behaviour because parents may develop negative feelings toward their children and avoid contact, thereby decreasing warmth in the relationship. However, some adolescents may hide information from their parents and report less warmth with their parents as they try to establish some independence and/or become more peer-oriented. Knowing how adolescents and parents affect each others’ behaviour would enhance our understanding of the dynamic relationship between parents and children and how this affects youth risk behaviour.

Strengths and Limitations

Overall, the strengths of the current study include the large sample of youth, longitudinal design, range of parenting variables, comprehensive measure of community disadvantage, and ability to include a measure of urbanicity. The measure of urbanicity allowed for the evaluation of subtle differences in community size instead of dichotomizing the sample into urban and rural. The risks associated with having inaccurate community information were avoided because of the use of census data instead of youth-reported community information. The current study is not without limitations, however.
As noted by Fletcher et al. (2004), using adolescent self-reports can create difficulties in interpretation because of common source and method variance. The survey design, however, incorporates several of the procedural controls for common method biases suggested by Podsakoff, MacKenzie, Lee, and Podsakoff (2003). Measurement of predictors and criterion were separated temporally and psychologically, as the questions pertaining to variables included in this study were interspersed throughout the larger survey. Because the total survey was far more comprehensive than the portions used for the current study, participants would not have been able to easily make the connection between the predictors and criterion. This design feature allowed for the control of biases in response due to the availability and saliency of previous responses, thus reducing consistency motifs (i.e. the tendency of participants to try to maintain consistency in their responses). The 18-month time lag between the first and second measurements of risk behaviour also controlled for consistency biases in reporting of risk behaviour.

Social desirability biases were controlled for as well. Participants were assured that their responses would remain confidential, that they were to answer honestly, and that there were no right or wrong answers. The purpose of the study was explained to the participants and served to encourage honesty in responses. By explaining to the participants that the data they provided would be used in the development of services that cater to their needs and lifestyles, participants were assured that their voices would be heard and that honesty would benefit everyone involved in the project.

Per Podsakoff et al. (2003), scale items were carefully designed to control for method bias. Ambiguous and unfamiliar terms were clarified within the text of the survey, and research assistants were available to answer any questions participants had
during survey administration. Questions were specific and concise, and complicated syntax was avoided. Scales were labeled with text, not numerically, which functioned to limit acquiescence bias (i.e. the tendency of respondents to agree or disagree with survey items independent of their content). By varying the scale labels, participants were led to pay closer attention to the content of the items in order to choose one of the available responses.

Another common criticism of research involving only adolescent reports is whether adolescents are able to accurately reflect on their parent’s behaviour. Fletcher et al. (2004) argue, however, that parental behaviours are meaningful largely through the perceptions of youth, because the subjective experience of warmth, for example, is more important that objective observations of warmth. In fact, Cottrell et al. (2003) found that adolescent perceptions of parental knowledge were more predictive of involvement in risk behaviour than parents’ perceptions of their own knowledge levels. Adolescent reports have also been shown to have good validity when youth are assured of confidentiality (e.g., Murray & Perry, 1987; White, 1991). Although self-report measures can be accurate, further studies that test data from several sources would be beneficial.

The potential bi-directionality of the variables also was not assessed in this thesis. However, the main purpose of this thesis was to look at the impact of community disadvantage and urbanicity on parenting variables and adolescent risk behaviours, and adolescents cannot control these community factors. In addition, the present study did not include youth not attending school. Because all of the participants attended school, the results cannot be generalized to the general adolescent population, but are limited to adolescents attending school in the region surveyed.
Implications for Prevention and Intervention

Overall, this study found that, using the measures available, urbanicity and community disadvantage did not predict levels of parental monitoring, knowledge, or warmth, and did not significantly predict youth risk behaviour participation. Although urban youth are typically perceived as being more at risk for substance use and delinquency, no evidence was found for a distinction between urban and rural youth within this sample. Targeting risk behaviour prevention/reduction programs toward only urban youth, therefore, is not supported by these findings.

On the other hand, adolescent reports of parenting behaviours were associated with youth risk behaviour participation. Parental knowledge, which mediated the effects of monitoring and warmth, had the greatest relation with the risk behaviours under study. Although there is a possibility of parent and child interaction effects, parents only have control over what they can contribute to the relationship—they cannot control their child’s reactions to their actions. Seeking information about adolescents’ activities and friends and trying to develop warm relationships with adolescents, will hopefully increase parental knowledge of these activities and friends and decrease the likelihood of adolescents becoming involved or continuing involvement in substance use and delinquency. As was found in this study, however, asking youth about what they are doing, where they are going, and who they are spending time with is only part of the potential influence parents may have on adolescents; the solicitation must result in increases in knowledge of the questioned activities.

Parents who have warm, open relationships with their children and spend time with their children are more likely to be aware of and involved in their children’s lives.
Moreover, they have more opportunity to intervene if necessary, as they are more likely to have occasion to discuss risk behaviour involvement with their children and prevent their children from attending events or affiliating with peers that may encourage involvement in substance use and delinquency. In light of this, beneficial intervention programs would focus on assisting parents and adolescents with building open communication and warm relationships while avoiding negative confrontation and decreased contact. It must also be noted again that the bidirectionality of these effects were not addressed in this study, but are important to take into account in intervention programs.

Overall, urbanicity and community disadvantage are important constructs to study when examining factors that may influence youth risk behaviours. Government funding for the prevention of substance use and delinquent behaviour is directed at communities shown to be most in need of services, traditionally urban centers (CASA, 2000). Knowing what communities are most at risk, and what factors put them at risk, will be beneficial for the direction of funding and for programs that address youth risk behaviours. Further, understanding pathways through which youth behaviour is affected is critical to creating effective prevention and treatment programs. This thesis was an attempt to explore this issue.
References


*Profile for Canada, Provinces, Territories and Forward Sortation Areas, 2001 Census [Data file].* Available from the Statistics Canada website, Cat. No. 95F0495XCB2001003 (restricted access), http://www.statcan.ca


Appendix B: Supplementary Analyses with Restricted Sample

Table B1

Descriptive Statistics and Intercorrelations Among Model Variables

<table>
<thead>
<tr>
<th>Variable</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<td></td>
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<td></td>
<td></td>
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<td>2. Urbanicity</td>
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<td>.06</td>
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<td>.32***</td>
<td>.27***</td>
<td>.36***</td>
<td>.57***</td>
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Note. N=322

*p < .05 **p < .01 ***p < .001
Table B2

*Prediction of Parental Monitoring and Warmth*

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<th>Predictor</th>
<th>Criterion Variable</th>
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*Note.* Standardized total, direct, and indirect effects are shown. Direct and indirect effects may not sum to total effects due to rounding. Significance tests were based on results from bias-corrected estimates produced by AMOS 5.0 derived from 1000 bootstrap samples. *p<.05  **p < .01*
Table B3

*Prediction of Parental Knowledge*

<table>
<thead>
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<th>Total Effect</th>
<th>Direct Effect</th>
<th>Indirect Effect</th>
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</thead>
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</tr>
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<td>.36**</td>
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*Note.* Standardized total, direct, and indirect effects are shown. Direct and indirect effects may not sum to total effects due to rounding. Significance tests were based on results from bias-corrected estimates produced by AMOS 5.0 derived from 1000 bootstrap samples. *p<.05 **p < .01
Table B4

**Prediction of Time One Substance Use**

<table>
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<th>Direct Effect</th>
<th>Indirect Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disadvantage</td>
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<td>-.04</td>
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*Note. Standardized total, direct, and indirect effects are shown. Direct and indirect effects may not sum to total effects due to rounding. Significance tests were based on results from bias-corrected estimates produced by AMOS 5.0 derived from 1000 bootstrap samples. *p<.05 **p < .01*
Table B5

Prediction of Time Two Substance Use

<table>
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<td>.00</td>
<td>.17**</td>
</tr>
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<td>Parental Knowledge</td>
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*Note.* Standardized total, direct, and indirect effects are shown. Direct and indirect effects may not sum to total effects due to rounding. Significance tests were based on results from bias-corrected estimates produced by AMOS 5.0 derived from 1000 bootstrap samples. *p<.05  **p < .01*
Table B6

*Prediction of Time One Delinquency*

<table>
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<th>Total Effect</th>
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*Note.* Standardized total, direct, and indirect effects are shown. Direct and indirect effects may not sum to total effects due to rounding. Significance tests were based on results from bias-corrected estimates produced by AMOS 5.0 derived from 1000 bootstrap samples. *p < .05  **p < .01
Table B7

*Prediction of Time Two Delinquency*

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<td>Parental Warmth</td>
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<td>Parental Knowledge</td>
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*Note.* Standardized total, direct, and indirect effects are shown. Direct and indirect effects may not sum to total effects due to rounding. Significance tests were based on results from bias-corrected estimates produced by AMOS 5.0 derived from 1000 bootstrap samples. *p<.05  **p < .01*
Appendix C: Measures

Parenting Constructs

Questions Included in Study:

Parental Warmth

*Think about your father/stepfather (or male guardian) who you live with the MOST and answer these questions.* (Response categories are “usually true” and “usually false”)

1. I can count on him to help me out, if I have some kind of problem
2. He keeps pushing me to do my best in whatever I do
3. He keeps pushing me to think on my own
4. He helps me with my school work if there is something I don’t understand
5. When he wants me to do something, he explains why

*Think about your mother/stepmother (or female guardian) who you live with the MOST and answer these questions.* (Response categories are “usually true” and “usually false”)

6. I can count on her to help me out, if I have some kind of problem
7. She keeps pushing me to do my best in whatever I do
8. She keeps pushing me to think on my own
9. She helps me with my school work if there is something I don’t understand
10. When she wants me to do something, she explains why

11. If you get a POOR grade in school, how often do your parents/guardians encourage you to try harder? (Response categories are “never,” “sometimes,” “usually,” and “I always get good grades”)

12. If you get a GOOD grade in school, how often do your parents/guardians praise you? (Response categories are “never,” “sometimes,” “usually,” and “I always get poor grades”)

13. How often do these things happen in your family: (Response categories are “almost every day,” “a few times a week,” “a few times a month,” and “almost never”)
- my parents/guardians spend time just talking with me
Parental Monitoring

Do your parents/guardians ASK you...
(Response categories are “they often ask,” “they sometimes ask,” “they never ask,” and “I tell them without their asking”)

1. where you go at night?
2. what you do with your free time?
3. who your friends are?
4. where you are most afternoons after school?

Parental Knowledge

How much do your parents/guardians REALLY know...
(Response categories are “they always know,” “they usually know,” “they sometimes know,” and “they never know”)

1. where you go at night?
2. what you do with your free time?
3. who your friends are?
4. where you are most afternoons after school?

Original Publication or Source:


Description:
The index of parenting style was developed to approximate the responsiveness and demandingness dimensions suggested by Baumrind (1971) and Maccoby and Martin (1983). The questionnaire contains many items on parenting practices that were taken or adapted from existing measures. The acceptance/involvement scale measures the extent to which the adolescent perceives his or her parents as loving, responsive, and involved.

Target Population:
In the original study this questionnaire was administered to 10000 students ranging from the ninth to twelfth grade.
Reliability:
Statistical analyses of the acceptance/involvement scale produced an alpha coefficient of .72 on 10 items.

Original Version:

Parental Warmth/Involvement

What do you think is usually true or usually false about your father [stepfather, male guardian]? (Response categories are “usually true” and “usually false”)

1. I can count on him to help me out, if I have some kind of problem
2. He keeps pushing me to do my best in whatever I do
3. He keeps pushing me to think independently
4. He helps me with my school work if there is something I don’t understand
5. When he wants me to do something, he explains why

What do you think is usually true or usually false about your mother [stepmother, female guardian]? (Response categories are “usually true” and “usually false”)

6. I can count on her to help me out, if I have some kind of problem
7. She keeps pushing me to do my best in whatever I do
8. She keeps pushing me to think independently
9. She helps me with my school work if there is something I don’t understand
10. When she wants me to do something, she explains why
11. When you get a poor grade in school, how often do your parents or guardians encourage you to try harder?
   -never
   -sometimes
   -usually

12. If you get a good grade in school, how often do your parents or guardians praise you?
   -never
   -sometimes
   -usually

13. How much do your parents really know who your friends are?
   -don’t know
   -know a little
   -know a lot

14. How often do these things happen in your family?
   (Response categories are “almost every day,” “a few times a week,” “a few times a month,” and “almost never”)
   -my parents spend time just talking with me
   -my family does something fun together
18. How much do your parents TRY to know...
(Responses categories are “don’t try”, “try a little”, and “try a lot”)  
-where you go at night?  
-what you do with your free time?  
-where you are most afternoons after school?

19. How much do your parents REALLY know...
(Responses categories are “don’t know,” “know a little”, and “know a lot”)  
-where you go at night?  
-what you do with your free time?  
-where you are most afternoons after school?

**Modifications – Parental Warmth/Involvement**

3. – changed wording to “He keeps pushing me to think on my own”
8. – changed wording to “She keeps pushing me to think on my own”
11. – added a response category “I always get good grades”
12. – added a response category “I always get poor grades”
13. – changed wording to “How much do your parents/guardians really know”... Changed response categories to “they always know”, “they usually know”, “they sometimes know”, “they never know”  
18. – changed wording to “Do your parents/guardians ASK you...” Changed response categories to “they often ask”, “they sometimes ask”, “they never ask”, “I tell them without their asking”. Added item “who your friends are”

19. – changed wording to “...parents/guardians...” Changed response categories to “they always know”, “they usually know”, “they sometimes know”, “they never know”. Added item “who your friends are”

**Substance Use**

Questions Included in Study:

1. In the past 12 MONTHS, how often did you use the following substances? (remember, your answers are confidential)  
(response categories “never,” “once,” “a few times a year,” “a few times a month,” “a few times a week,” and “every day”
Hash, marijuana (weed, joint)

2. How often do you go drinking or have a drink?  
(response categories "never," "less than once a month," "1-3 times a month," "once a week," "2 times a week," "3-4 times a week," "5-6 times a week," and "every day")

3. On average, when you are drinking alcohol, about how many drinks do you have?  
(response categories "less than 1 drink," "1 drink," "2-3 drinks," "4-6 drinks," "7-10 drinks," and "over 10 drinks")

4. How many cigarettes do you usually smoke EACH DAY?  
(response categories "I no longer smoke," "I don’t smoke everyday," "one," "less than 5," "6-10," "11-16," "about a pack," and "more than a pack")

Original Publication or Source:


Also, separate questions pertaining to alcohol, marijuana, and cigarette use were adapted from the 1999 Youth Risk Behavior Survey.

Description:

This section includes a chart listing 14 different types of drugs and medicines. Students are asked to indicate the frequency at which they take any of these substances. Students choose yearly, monthly, weekly, or daily response. Some of the categories listed include, prescription medication (i.e., painkillers, Prozac), body builders (anabolic steroids), coffee and other caffeine products, marijuana, cocaine/crack, ecstasy, LSD or mushrooms, Ritalin, as well as other stimulants, depressants and inhalants. Modified scale to reflect drug use in today's population (e.g., ecstasy).

Target Population:

Late elementary school and secondary school students

Reliability:

N/A

Original Version:

N/A

Modifications:

N/A
Delinquency

Questions Included in Study:

In the LAST 12 MONTHS, how often have you done the following? 
(response categories “never,” “once,” “a few times,” and “more than 5 times”)

1. Shoplifted
2. Sneaked out at night while your parents thought you were asleep
3. Joined a gang
4. Destroyed other peoples’ property
5. Carried a gun as a weapon
6. Carried a knife as a weapon

How often have YOU DONE these things during the LAST SCHOOL YEAR? 
(response categories “never,” “a few times a year,” “a few times a month,” “a few times a week,” and “every day”)

1. Pushed and shoved someone
2. Kicked and hit someone

Description:

This section measures direct forms of physical and psychological aggression, including bodily harm, verbal, social, and emotional assault. Questions also examine indirect forms of bullying. These include situations where a person dares another person to pick a fight with someone, or deliberately spreads rumors about another person. The questions measure how often the participant has been the perpetrator of bullying behavior.

1. Original Publication or Source:

Scale created by Zopito Marini.


Target Population:
Pre-adolescence to late adolescence.

Reliability:
Alpha reliability co-efficients range from .80 to .86

Original Version:
School Life Questionnaire:

Descriptor: Never Rarely Sometimes Often Very Often
Frequency of behavior: (0 times) (1-2 times) (3-4 times) (5-6 times) (7 or more)
Number to be circled: 0 1 3 5 7

How often have you performed (done) these acts during the last school year?

1) Pushing and shoving
2) Name calling and swearing
3) A group of students picking on someone
4) Excluding someone from joining an activity
5) Demanding and taking things from others
6) Teasing and ridiculing
7) One student daring another to hurt someone
8) Spreading rumors and untrue stories
9) Kicking and hitting
10) Threatening and intimidating
11) A gang of students picking fights
12) Writing hurtful and unsigned notes
13) Other

Please circle one number
0 1 3 5 7

Modifications

The YRQ deleted the first set of questions and changed the wording of the questions to read:

How often have YOU DONE these things during the LAST SCHOOL YEAR?
Pushed and shoved someone
Swore at someone and called them names
Wrote hurtful and unsigned notes
Excluded someone from joining an activity
Demanded and took things from others
Teased and ridiculed someone
Threatened and intimidated someone
Spread rumours and untrue stories
Kicked and hit someone
Dared another student to hurt someone
Been part of a gang of students picking fights
Been part of a group of students picking on someone

The YRQ changed the categories to never, a few times a year, a few times a month, a few times a week, every day.

Scoring and Interpretation:
Each question may yield a score from 1-5, where higher numbers indicate greater frequency of bullying activities.

2. Original Publication or Source:
Questions were adapted from the modified Risk Involvement and Perception Scale (RIPS) by


**Description:**
A chart comprised of various risk behaviors ranging from not studying for an exam, playing contact sports, skipping class, going to raves, vandalism, and taking drugs, measures the degree to which a student thinks about engaging in such risk behaviors. This section is important for gaining a better understanding of the progression leading up to involvement in risk behaviors, and over time the onset of the desire to participate in activities that are risky.

**Target Population:**
Early adolescence (gr.5) to late adolescence and early adulthood.

**Reliability:**
Test-retest reliability for the involvement subscale of the RIPS is (.86).

**Original Version:**
The modified Risk Involvement and Perception Scale (RIPS) is a self-report scale that consists of three subscales, including frequency of involvement in 26 behaviours over the past year, and perceived benefits and risks of these behaviours. In the original version, each subscale is assessed with a 9-point Likert scale. The original version of the involvement subscale is outlined below.

**Involvement Items:**
1. Driving a car
2. Driving 15mph over the speed limit
3. Having sex
4. Drinking
5. Having sex w/out a condom
6. Sunbathing
7. Cutting class
8. Getting drunk
9. Walking alone at night
10. Contact sports
11. Riding without seatbelts
12. Driving after drinking
13. Not studying for an exam
14. Riding with a drunk driver
15. Smoking cigarettes
16. Crash dieting/diet pills
17. Cheating on exam
18. Binge eating
19. Misusing prescription drugs
20. Smoking marijuana
21. Taking speed
22. Having sex with more than one partner
23. Riding a motorcycle
24. Taking cocaine/crack
25. Shoplifting
26. Accepting ride from stranger

Modifications:

4. (Item AA9) – changed wording to “drank alcohol”
7. (Item AA5) – changed wording to “cut/skipped class”
10. (Item Z7) – added “played...”
11. (Item Z12) – changed wording to “rode in a car...”
17. (Item Z13) – changed wording to “cheated on a test”
18. (Item Z14) – changed wording to “binge ate/underate”

YLC-CURA has revised the Risk Involvement and Perception Scale (RIPS), utilizing many of the listed risk behaviors, while changing the nature of the scale from perceived benefits and risks of participating in the risk behaviors listed, to the frequency that the participant has engaged in each behaviour in the past 12 months. Wording of some questions was changed to formulate grammatically correct questions in the past tense.

Several new items were also created by YLC-CURA members, including:
-went skiing
-went rollerblading
-went mountain biking
-raced on a motor bike or boat
-broke your parents’ rules just to see if you can get away with it
-sneaked out at night while your parents thought you were asleep
-went joy-riding in a car
-got a permanent tattoo/body piercing
-hitchhiked
-went to a school dance
-went snowboarding
-did martial arts
-joined a gang
-wrecked other people’s property
-went to an underage (youth) dance club
-went to raves
-carried a gun as a weapon
-carried a knife as a weapon
-“played chicken” (with cars or trains)
Administration:
Secondary school participants respond to a total of 27 items on a four point Likert scale ranging from very often to never. Elementary school participants responded to 11 items on a four point Likert scale ranging from very often to never.
FROM: David Butz, Chair
Senate Research Ethics Board (REB)

TO: Teena Willoughby, Child and Youth Studies

FILE: 00-116, WILLOUGHBY

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

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

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

* Accepted as clarified

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

Parent/Guardian:

Since January 2000, the has been an active member of the Youth Lifestyle Choices – Community University Research Alliance (YLC-CURA), which consists of 31 community agencies and 15 faculty at Brock University. Our goal is to better understand youth lifestyle choices, both those involving risk and those that are positive. In order to do this, we are following youth in as they continue through adolescence. We believe that if we can gain an understanding of these choices and of the protective factors that youth will need in life, we can begin to develop more effective ways to enhance their coping skills and enable youth to make positive lifestyle choices.

In 2003, YLC-CURA surveyed over 7,000 youth in the Region, and may have included your child in the study. The information gathered has been published in many reports, and used by multiple community agencies in, to improve their programming and to apply for more government funding. This information is also being used to enhance curriculum with relevant statistics that reflect youth lifestyles. With continued research, we will be in a unique position to explore the pathways students take as they progress through adolescence. We are writing to ask your permission for your child to participate in completing the survey again. The survey will take no more than 45 minutes to complete. Completing the survey again is critical in order to examine how youth change in their perceptions as they go through adolescence. Your child will be asked to answer a number of questions about lifestyle choices and experiences (e.g., questions involving computer use, aggression, victimization, school culture, substance use, daily hassles, family lifestyle, depression, anxiety, friendship quality, etc.). A copy of the questionnaire is available in the school office. This information will allow us to understand how youth make decisions about lifestyle choices and how transition periods, such as entry to the secondary school system, affect those decisions. We also may contact you again in 2006 for permission to ask your child to complete the survey again as part of this long-term study.

This project has received ethics clearance from the Brock University Committee on Research with Human Participants, and the school Board, and is funded by the Social Sciences and Humanities Research Council of Canada. The project will be implemented during the Teacher Advisory Group (TAG). The content of the questions addresses issues found in provincial curriculum. The questionnaire acts as an educational and discussion tool for teachers, students, and parents.

All of the information that we record will be kept completely confidential. Only group data will be reported. This group data may eventually be housed in an archive, again with no identifying information. You and your child will be free to withdraw your participation at any time without penalty. More specifically, non-participation will not affect your child’s grades in any way. Students who do not wish to complete the survey will complete an alternative educational task.

We hope that you and your child will be willing to participate in our project and we look forward to sharing our findings with you at the end of this project. We have attached a consent form for you to let us know if you wish your child to participate in this project. ONLY return the form if you do NOT wish your child to participate. If you do NOT want your child to participate please sign and return the attached form to the Student Services Department in your child’s school by Friday, December 3, 2004. We also will ask your child to provide assent to participating in the study.

If you have any questions or concerns about your participation in the study, you may contact Michael Busseri at 905-688-5550, Ext. 4798 (or by email at cura@www.brocku.ca), or the Research Ethics Officer at 905-688-5550, Ext. 3035. For more information, you can access our website www.ylc-cura.ca. Thank you for considering our project.
Youth Lifestyle Choices: Community University Research Alliance

BROCK UNIVERSITY - YOUTH RESILIENCE QUESTIONNAIRE

I understand that this research study in which I have agreed to allow my child to participate is designed to better understand factors that foster healthy lifestyle choices in adolescence. I understand that this study also will identify where gaps may exist in services available to youth in the Region, and as such, will be of benefit to my child. This study is being conducted by the YLC-CURA (Co-Directors Professor Willoughby, email address twilloug@brocku.ca, 905-688-5550, ext. 4281, and Professor Chalmers, email address hchalmers@brocku.ca; 905-688-5550, ext. 3191).

- I understand that my child will be asked to answer a number of questions about lifestyle choices and experiences (e.g., questions involving computer use, aggression, victimization, school culture, substance use, daily hassles, family lifestyle, anxiety, friendship quality, etc.).
- I understand that a copy of the questionnaire is available for inspection in the school office. The questionnaire will take 45 minutes to complete. Students who do not have parental permission or who choose not to complete the questionnaire will have 45 minutes to complete an alternative educational activity.
- I understand that my child's questionnaire may be matched to previous year's questionnaires as part of this long-term study. We also may contact you again in 2006 for permission to ask your child to complete the survey again as part of this long-term study.
- I understand that my child's participation in this study is voluntary and that my child or I may withdraw from the study at any time and for any reason without penalty.
- I understand that there is no obligation for my child to answer any question in the questionnaire that they consider invasive or inappropriate.
- I understand that there are very minimal potential risks to my child to participate in this study. Based on the YLC-CURA's experience with youth filling in similar surveys in 2001 and 2003, I understand that my child is not anticipated to experience any negative feelings about the survey. In case he or she has questions or concerns, however, I understand that the YLC-CURA research staff will be available in the classroom to answer questions and will provide all students with a bookmark that includes phone numbers of youth-serving agencies in . I understand that all data will be kept completely confidential, except in the rare instance where a child indicates that they may be in danger of being abused.
- I understand that only group data will be reported and no information about individual responses will ever be given to schools, teachers, or anyone else. I understand that I will not have access to my child's responses. The data, with identifying information removed, will be retained indefinitely and will be securely stored in a locked office in the research laboratory. Group data only may be published, presented at conferences, used to evaluate programs, or used for secondary data analyses by other researchers. Feedback and information about the results of this study will be posted on the YLC-CURA website (www.ylc-cura.ca) in August 2005.
- This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics Board. (File #00-116)

Please return this form to the Student Services Department of your child's school by Friday, December 3, 2004, ONLY if you do NOT want your child to participate.

Child's name (first and last) _______________________________________________________

Child's Birthdate ________________________________________________________________

Parent/Guardian Signature ___________________________________________ Date ____________

If you have any questions or concerns about your participation in the study, you may contact Michael Busseri at 905-688-5550, ext. 4798 (or by email at cura@www.brocku.ca), or the Research Ethics Officer at 905-688-5550, Ext. 3035. We also have a website, www.ylc-cura.ca that you can access for more information. Please keep a copy of this form for your records.
Appendix G: Participant Assent Form

Youth Lifestyle Choices - Community University Research Alliance (YLC-CURA)
Brock University - Youth Resilience Questionnaire

I understand that I am agreeing to participate in this study which will involve answering a series of questions concerning lifestyle choices and experiences. I understand that this study also will identify where gaps may exist in services available to youth in the Region, and as such, will be of benefit to me. This study is being conducted by the YLC-CURA (Co-Directors Professor Willoughby, email address twilloug@brocku.ca, 905 688-5550, ext. 4281, and Professor Chalmers, email address hchalmers@brocku.ca; 905-688-5550, ext. 3191).

- I understand that I will be asked to answer a number of questions about lifestyle choices and experiences (e.g., questions involving computer use, aggression, victimization, school culture, substance use, daily hassles, family lifestyle, anxiety, friendship quality, etc.).
- I understand that my participation in this study is voluntary and that I may withdraw from the study at any time and for any reason without penalty. I understand that the questionnaire will take 45 minutes to complete. Students who choose not to complete the questionnaire will have 45 minutes to complete an alternative educational activity.
- I understand that my responses to the questionnaire may be matched to previous year’s questionnaires as part of this long-term study.
- I understand that there is no obligation to answer any question in the questionnaire that I consider invasive or inappropriate.
- I understand that my parents or guardians have been informed about the study and have consented to my participation, although this does not mean that I must participate.
- I understand that only the YLC-CURA researchers will have access to the data. I understand that all data will be kept confidential except in the case where I provide information that indicates that I am in danger of being abused.
- I understand that there are very minimal potential risks to my participation in this study. Based on the YLC-CURA’s experience with youth filling in similar surveys in 2001 and 2003, I understand that I am not expected to experience any negative feelings about the survey. In case I have questions or concerns, however, I understand that the YLC-CURA research staff will be available in the classroom to answer questions and will provide all students with a bookmark that includes phone numbers of youth-serving agencies in the Region.
- I understand that only group data will be reported and no information about individual responses will ever be given to schools, teachers, or anyone else. The data, with identifying information removed, will be retained indefinitely and will be securely stored in a locked office in the research laboratory. Group data only may be published, presented at conferences, used to evaluate programs, or used for secondary data analyses by other researchers. Feedback and information about the results of this study will be posted on the YLC-CURA website (www.ylc-cura.ca) in August 2005.

Participant Signature ______________________ Date ____________________

This study has been reviewed and approved by the Brock Research Ethics Board (File # 00-116). If you have any questions or concerns about your participation in this study, you may contact Michael Busseri at 905-688-5550, ext. 4798 (or by email at cura@www.brocku.ca), or the Research Ethics Officer at 905-688-5550, Ext. 3035. We also have a website, www.ylc-cura.ca that you can access for more information. Please keep a copy of this form for your records.

Teena Willoughby, Ph.D. Heather Chalmers, Ph.D.
Professor Assistant Professor
905-688-5550, ext. 4281 905-688-5550, ext. 3191
Script for Teachers when Administering Questionnaire

To be read to students:

Today, you will have the opportunity to participate in a survey that may have a big impact on the programs that are available in your school and/or community. The YLC-CURA, which stands for Youth Lifestyle Choices: Community Research Alliance, is asking you to let them know what it is like to be a youth in the Region. You may have had the opportunity to participate in a YLC CURA survey in the past. Here again, you have a voice in telling the Region what’s needed for youth.

As well as influencing program direction, a small number of Brock University faculty members will be tabulating and interpreting the overall and confidential results of this survey to better understand what factors affect youth in the Region. Most importantly, the overall report that follows this survey will be available to schools and community organizations serving youth. That means that the YLC-CURA views you as the expert, not them. There are no wrong answers, only the honest truth about your life.

Your individual responses to this survey are confidential and no information will ever be released to the school, parents, teachers or anyone else about any individual student’s responses. The personal information sheet that you fill out will not be attached to your survey results, so your responses are confidential.

Please do not be concerned if you feel that you are being asked the same question more than once, perhaps in a slightly different way. There is a science to creating a meaningful survey that accounts for this apparent repetition.

If at any time during the survey, you feel uncomfortable answering a question, you do not need to respond to it. Participating in this survey is voluntary. You may decide not to continue at any time. There will be no consequences for not participating. How you respond to the survey will not affect your grades in any way.

If during or after the survey, you have any concerns that you would like addressed, feel free to ask me (the teacher) to put you in contact with a YLC-CURA staff member.

Remember that you are talking about your life experiences. There are no wrong or right answers but your opinion really does matter. The more honest you are, the more meaningful this survey will be to the future of youth living in This survey will take approximately 45 minutes to complete.

Teachers: Please read the participant consent form orally and ask students if there are any questions. Once the questions have been addressed, have the students sign the consent form and pass the form up to the front of the class. The consent forms should be placed in an envelope provided by the YLC-CURA. Students should then be instructed to fill out the face sheet attached to the survey. Once they have filled it out, they should remove the sheet from the survey and pass that form as well up to the front of the class. The face sheets should be placed in a separate envelope from the consent forms. Students may then complete the survey. The YLC-CURA staff will pick up the surveys and the two envelopes containing the face sheets and consent forms from your class.

Thank you!
Script for Teachers when Administering Questionnaire

To be read to students:

Today, you will have the opportunity to participate in a survey that may have a big impact on the programs that are available in your school and/or community. The YLC-CURA, which stands for Youth Lifestyle Choices; Community Research Alliance, is asking you to let them know what it is like to be a youth in the Region. You may have had the opportunity to participate in a YLC CURA survey in the past. Here again, you have a voice in telling the Region what’s needed for youth.

As well as influencing program direction, a small number of Brock University faculty members will be tabulating and interpreting the overall and confidential results of this survey to better understand what factors affect youth in the Region. Most importantly, the overall report that follows this survey will be available to schools and community organizations serving youth. That means that the YLC-CURA views you as the expert, not them. There are no wrong answers, only the honest truth about your life.

Your individual responses to this survey are confidential and no information will ever be released to the school, parents, teachers or anyone else about any individual student’s responses. The personal information sheet that you fill out will not be attached to your survey results, so your responses are confidential.

Please do not be concerned if you feel that you are being asked the same question more than once, perhaps in a slightly different way. There is a science to creating a meaningful survey that accounts for this apparent repetition.

If at any time during the survey, you feel uncomfortable answering a question, you do not need to respond to it. Participating in this survey is voluntary. You may decide not to continue at any time. There will be no consequences for not participating. How you respond to the survey will not affect your grades in any way.

If during or after the survey, you have any concerns that you would like addressed, feel free to ask me (the teacher) to put you in contact with a YLC-CURA staff member.

Remember that you are talking about your life experiences. There are no wrong or right answers but your opinion really does matter. The more honest you are, the more meaningful this survey will be to the future of youth living in This survey will take approximately 45 minutes to complete.

Teachers: Please read the participant consent form orally and ask students if there are any questions. Once the questions have been addressed, have the students sign the consent form and pass the form up to the front of the class. The consent forms should be placed in an envelope provided by the YLC-CURA. Students should then be instructed to fill out the face sheet attached to the survey. Once they have filled it out, they should remove the sheet from the survey and pass that form as well up to the front of the class. The face sheets should be placed in a separate envelope from the consent forms. Students may then complete the survey. The YLC-CURA staff will pick up the surveys and the two envelopes containing the face sheets and consent forms from your class.

Thank you!