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EMPIRICAL RESEARCH

The Roles of Mothers' Neighborhood Perceptions and Specific Monitoring Strategies in Youths' Problem Behavior

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Abstract The neighborhood context can interfere with parents' abilities to effectively monitor their children, but may be related to specific monitoring strategies in different ways. The present study examines the importance of mothers' perceptions of neighborhood disorganization for the specific monitoring strategies they use and how each of these strategies are related to youths' alcohol use and delinquency. The sample consists of 415 mother–child dyads recruited from urban and suburban communities in Western New York state. Youths were between 10 and 16 years of age (56% female), and were mostly Non-Hispanic White and African American (45.3 and 36.5%, respectively). Structural equation modeling shows that mothers who perceive greater neighborhood problems use more rule-setting strategies, but report lower levels of knowledge of their children's whereabouts. Knowledge of whereabouts is related to less youth alcohol use and delinquency through its association with lowered peer substance use, whereas rule-setting is unrelated to these outcomes. Thus, mothers who perceive greater problems in their neighborhoods use less effective monitoring strategies. Prevention programs could address parental monitoring needs based upon neighborhood differences, tailoring programs for different neighborhoods. Further, parents could be apprised of the limitations of rule-setting, particularly in the absence of monitoring their child's whereabouts.

Keywords Neighborhoods · Monitoring · Adolescent alcohol use · Delinquency

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Introduction

Adolescent alcohol use and delinquency are significant public health concerns (Catalano et al. 2004; Eaton et al. 2008). Alcohol use during adolescence has been linked to serious individual and social problems, such as impairment in cognitive functioning (Brown et al. 2000), injuries, and traffic accidents (Hingson et al. 2002). Likewise, engaging in delinquent behaviors, such as fights, also increases the risk of injuries or death (Eaton et al. 2008). The protective role of parents for youths' problem behaviors has been well documented (e.g., DeVore and Ginsburg 2005). In particular, substantial evidence indicates that parental monitoring, the set of behaviors that regulates and provides awareness of children's whereabouts, conduct, and companions (Barnes and Farrell 1992; Dishion and McMahon 1998), is effective in reducing youths' involvement in problem behaviors such as substance use and delinquency (Ary et al. 1999; Parker and Benson 2004).

Effective parental monitoring, however, can be influenced by features of the neighborhood context. For example, neighborhood social disorganization is an aspect of the neighborhood context that refers to the inability of residents to maintain control over social and physical conditions in their neighborhood to resolve long-term problems (Shaw and McKay 1942). In contrast to social *disorganization*, neighborhood social *organization* can support parents' implementation of effective monitoring strategies in several

ways (Sampson et al. 1999). Connections among parents of their child's friends can provide intergenerational closure, (Sampson et al. 1999) which allows parents to support their own and neighborhood children, exchange information with other parents, and helps maintain control over the behavior of neighborhood youths (Sandefur and Laumann 1998). Further, the exchange of information or support among residents can aid parents in taking care of children (Coleman 1990; Sampson et al. 1999). Informal social control is another way that neighbors can assist parents by actively imposing shared neighborhood values on residents or visitors to the neighborhood (Sampson et al. 1999). These aspects of neighborhood social organization have also been considered as mechanisms by which neighborhood structural conditions (e.g., poverty) can lead to adverse outcomes for a neighborhood, such as crime and other problems (Kubrin and Weitzer 2003).

Parents in socially disorganized neighborhoods lack an active network of other involved adults that they can depend on for information, support, and help in maintaining control over their children, thus placing most of the burden for child-rearing on the parents alone (Beyers et al. 2003). Parents in such neighborhoods may need to make up for this lack of collective control over children by increasing their own monitoring efforts (Beyers et al. 2003). Neighborhood disorganization has been shown to be related to less success in implementing effective parenting behaviors, including monitoring (Simons et al. 1997). Neighborhood disorganization thus may undermine parental efforts to set norms for healthy behavior in youths.

Parental Monitoring and Youths' Problem Behaviors

Although many parenting behaviors are important for preventing children's problem behavior, this article focuses on parental monitoring because it is an indicator of the amount of freedom children have to move about in their environment, and therefore the level of exposure to neighborhood features. Consistent with social control theory (Hirschi 1969), monitoring behaviors would be important for preventing youths' problem behaviors because youths internalize parental expectations for behavior, which promotes the development of conventional values that protect against deviant behavior and peer affiliations (Bell et al. 2000). The importance of parental monitoring in preventing youths' problem behaviors has been consistent and well established (Barnes et al. 2006; Stouthamer-Loeber et al. 2002). In a sample of 16,749 adolescents, youths' reports of increased parental monitoring (defined as adolescents' reports of parent knowledge of whereabouts and money spent) were related to lower rates of alcohol and marijuana use and misconduct (Parker and Benson 2004). Perceptions of low parental knowledge of their whereabouts are also strong predictors of the progression to heavier drinking in adolescents (Reifman et al. 1998). Youths' reports of parents' greater knowledge of whereabouts and companions are also related to their increased prosocial behavior, decreased problem behavior (i.e., delinquency, drug use, and number of arrests), and to association with friends who have positive attitudes towards school (Lahey et al. 2008; Rankin and Quane 2002). Importantly, parental monitoring remains a strong influence on adolescent problem behavior across various ethnic and socioeconomic groups (Ary et al. 1999; Forehand et al. 1997).

Even though the influence of specific monitoring strategies may differ, most studies combine knowledge of whereabouts and rule-setting into a single measure, making it difficult to disentangle associations of specific strategies with youths' outcomes (e.g., Simons-Morton and Chen 2005). Knowledge of whereabouts could be considered to reflect the availability of unsupervised time and parents' control over outside influences such as peers. In contrast, rule-setting behaviors could be considered to reflect the intergenerational transmission of values and beliefs, and how parents set clear expectations for behavior. Based on social learning models of delinquency that describe how disruptions in family management behaviors including monitoring could lead to problem behaviors (Patterson and Dishion 1985), both monitoring strategies would be expected to be important for problem behaviors. However, the few studies examining either of these monitoring behaviors individually suggest that knowledge of whereabouts is protective for youths' problem behavior (Ary et al. 1999; Barnes and Farrell 1992; Forehand et al. 1997), whereas rule-setting is not (Jackson et al. 1999; Reifman et al. 1998). A recent study (Lahey et al. 2008), however, did find that knowledge of whereabouts was related to less delinquency, but rule-setting was uniquely related to less delinquency only in high risk neighborhoods. In addition, an Australian study (Hayes et al. 2004) found that rule setting was indirectly related to problem behavior, through effects on supervision and conflict. These conflicting findings emphasize the importance of examining the unique contributions of these specific monitoring strategies for problem behavior.

Peer Influences on Youths' Problem Behavior

One outcome of parental monitoring may be to influence peer affiliations (Lahey et al. 2008; Rankin and Quane 2002). Studies show a relationship between deviant peer affiliations and youths' own problem behavior (e.g., Barnow et al. 2005; Brendgen et al. 2000; Kaufmann et al. 2007; Reifman et al. 1998). For example, Reifman et al. (1998) found that the strongest predictors of the

progression to heavier drinking were peer drinking and parental knowledge of the child's whereabouts. Similarly, other studies (e.g., Bray et al. 2003; Scheier et al. 1997; Simons-Morton et al. 2001; Wilks et al. 2006) found that perceived peer drinking is closely related to the youth's own drinking. According to social learning models of delinquency (Patterson and Dishion 1985), problems with parental monitoring put adolescents at risk for associations with deviant peers, which, in turn, increases involvement in problem behaviors. Supporting this model, studies show indirect effects of monitoring on adolescent behavior problems that are mediated through associations with deviant peers (Ary et al. 1999; Simons-Morton and Chen 2005).

Neighborhoods and Parental Monitoring

There are two major ways that neighborhoods have been conceptualized and assessed. One way conceptualizes neighborhoods as physical locations such as census tracts (Burton and Jarrett 2000), and often uses census variables to indicate neighborhood features. However, another major approach considers residents' perceptions of neighborhood boundaries and features to be more important for residents' outcomes (Burton and Jarrett 2000). This perspective is also in line with contextual theories that focus on the importance of the person's own interactions with the environment and how they interpret it (Bronfenbrenner 1992; Jessor et al. 1995). This approach is valuable because the ways residents perceive their own neighborhood is often different from how researchers view the neighborhood, and residents' views may be more closely linked to their outcomes. In particular, parents' perceptions of neighborhood problems are potentially more important than "objective" classifications of neighborhood problems, as they could impact how parents determine what protective strategies are necessary for their neighborhood. Parents may play a key role by helping their children negotiate risks and resources in the neighborhood (Leventhal and Brooks-Gunn 2000). In neighborhoods where parents perceive high levels of disorganization (e.g., drug use, unemployment), monitoring might be even more salient as parents feel a need to protect their children from dangerous environments. Some studies show that parents in risky neighborhoods exhibit higher levels of monitoring (Chuang et al. 2005), but most studies assess monitoring through a general definition that does not differentiate knowledge of whereabouts and rule-setting behaviors as separate strategies.

A relationship between increased neighborhood disorganization and less effective parenting, including parental monitoring, is reported in several studies. For example, parents report less involvement with their children and lower levels of supervision when they perceive greater neighborhood disadvantage, as indicated by neighborhood disorganization (e.g., problems with crime, dilapidated property), less family integration into the neighborhood, and less satisfaction with their neighborhood (Stern and Smith 1995). Similarly, Simons and colleagues reported that living in disorganized neighborhoods is associated with ineffective parenting, including poorer monitoring quality (i.e., knowledge of whereabouts) even after taking family-level variables into account (Simons et al. 1996, 1997). Therefore, neighborhood disorganization may make parental monitoring more difficult by increasing opportunities for youths to be exposed to people and activities that conflict with parental norms and values, consistent with social disorganization theory (Shaw and McKay 1942).

In contrast to studies showing that neighborhood disorganization can disrupt parental monitoring, other studies find *higher* levels of parental monitoring in neighborhoods with greater disorganization. For example, Chuang et al. (2005) reported greater levels of parental monitoring (i.e., knowledge of whereabouts) in low SES (a commonly used indicator of disorganization) neighborhoods. This finding is consistent with ethnographic studies reporting that parents in low SES neighborhoods provide closer monitoring of children's whereabouts, such as limiting movement throughout the neighborhood or accompanying their children when away from home (Burton and Jarrett 2000; Furstenberg et al. 1999). Parents in disorganized neighborhoods may feel that more restrictive parenting practices are necessary to limit exposure to dangerous or risky environments.

These conflicting findings may be explained by differences in definitions of monitoring. Although according to social disorganization theory, neighborhood disorganization would be expected to disrupt both types of monitoring (i.e., knowledge of whereabouts and rule-setting), mixed findings in these prior studies indicate that the two monitoring strategies may be separate constructs, and it would therefore be important to determine the unique relationships of each strategy with neighborhood disorganization. If the two monitoring strategies really represent two constructs, then it would be difficult to find consistent results in their relationship to parental monitoring when grouped together as one construct. Alternatively, the conflicting findings may reflect parents' trying harder to monitor their children, but being undermined by physical and social disorder.

Few studies have examined the relationships between neighborhood problems, parental monitoring, and youths' problem behaviors. The few available studies have shown that parental monitoring mediates the effects of neighborhood disorganization on adolescent substance use and other problem behavior (Chuang et al. 2005; Stern and Smith

1995), but with conflicting results. Studies on problem behaviors such as delinquency (Stern and Smith 1995) reveal that parents in disadvantaged neighborhoods report less involvement with their children, which is associated with more difficulty supervising them and thus with higher levels of adolescent delinquency. Parental monitoring also mediates the effect of neighborhood disorganization on adolescent substance use, but in the opposite manner (Chuang et al. 2005). That is, neighborhood disorganization is related to higher levels of parental knowledge of their children's whereabouts, which is then related to lower levels of cigarette and alcohol use. These conflicting findings may be explained by examining the specific monitoring strategies parents use in response to perceptions of greater neighborhood problems.

Hypotheses

The purpose of this study is to examine how mothers' perceptions of their neighborhood are related to the specific strategies they use to monitor their children and how these specific monitoring strategies are related to youths' alcohol use and delinquency. Based on neighborhood social disorganization theory (Shaw and McKay 1942) and previous studies showing that neighborhood problems can interfere with effective parental monitoring (Simons et al. 1996, 1997; Stern and Smith 1995), mothers' perceptions of greater neighborhood problems are hypothesized to be related to decreased rule-setting and knowledge of whereabouts. Based on social learning models of delinquency (Patterson and Dishion 1985) and prior studies showing that greater parental monitoring is linked to decreased affiliations with deviant peers (Lahey et al. 2008; Rankin and Quane 2002), greater knowledge of children's whereabouts and rule-setting are expected to be uniquely related to lower rates of association with substance-using peers. In turn, less association with substance-using peers is expected to be related to less alcohol use and delinquency, as has been previously documented (e.g., Barnow et al. 2005; Kaufmann et al. 2007).

Methods

Sample and Procedures

Data for these analyses were obtained as part of a larger study designed to examine the influence of mothers' alcohol use on their children's behavior. Separate in-person interviews with 415 mother–child dyads in Western New York state provided information about perceptions of their neighborhood, monitoring strategies, peer substance use, alcohol use and delinquency (Miller 2004). Specifically, the mothers were recruited from the community through newspaper advertisements and by random digit dialing households. To be eligible, women had to have at least one child between 10 and 16 who agreed to participate in the study. In the case of more than one eligible child, one was chosen randomly to participate. Both youths and their mothers completed separate face-to-face interviews at baseline and 6 months later. Baseline and follow-up data were obtained for 89.6% of the dyads ($N = 372$).

Youths were between ages 10 and 16 ($M = 13.3$; SD = 2), and about half (56%) were female. Based on self-identification, the youth sample was 36.5% African-American, 45.3% non-Hispanic white, 3.2% Native American, 2.7% Hispanic, 0.2% Asian/Pacific Islander, and 12.1% other races or multi-racial. Mothers were between the ages of 26 to 56 ($M = 39.3$; SD = 5.9). About a third (31.2%) of mothers had less than a high-school education, 3.9% completed 12 years or were high school graduates, 46.9% had 13–15 years of education, 9.8% completed 16 years or a 4-year college degree, and 8.1% had more than 16 years. Family income averaged $35,258 (SD = $29,601).

Measures

Youths' Alcohol Use

Responses to nine questions developed for the current study are used to measure youths' alcohol use during the past 6 months up until the time of the interview. Their responses to three items about their frequency of drinking beer, wine/wine coolers, and liquor in the past 6 months, with responses ranging from "never" to "every day" on an 8-point scale provide the measures of alcohol use. Responses were recoded to reflect the number of days adolescents drank during the 6 month period (e.g., "every day" was recoded as 180). Response options with ranges (e.g., "2–3 days per month") were recoded using the category midpoint. Answers for beer and wine/wine coolers were summed into a single indicator. Youths also answered three items about their usual quantity consumed for each alcoholic beverage on a drinking day, with responses ranging from "none or less than one can/bottle a day" to "over eight cans/bottles a day," on a 10-point scale. Again, the items for beer and wine/wine coolers were summed into a single measure. Quantity-frequency indicators were computed for beer/wine/wine coolers and for liquor, with both indicators log transformed due to skewness. In addition, the number of times they drank 6 or more drinks of beer, wine/wine coolers, and liquor over the past 6 months were combined across beverage types by summing the three items and log transforming. One latent variable is used to represent youths' alcohol use at each time point.

Youths' Delinquency

Items adapted from Elliott et al. (1983) are used to measure delinquency. Specifically, youth respondents reported their participation in each of 23 problem behaviors, including delinquent behaviors and status offenses. Three indices were created by counting the number of *serious non-violent* delinquent behaviors (e.g., tried to steal a car, used others' credit cards), *serious violent* delinquent behaviors (e.g., threaten someone with a knife, hit parent or teacher, take part in gang fights), and *minor* delinquent behaviors (e.g., skipping school, vandalism, disorderly conduct). There is one latent variable for each time point.

Peer Substance Use

It was not feasible to measure peer behavior directly, therefore we asked the respondents about their perceptions of substance use among their friends. Although such perceptions may be biased by the respondents' own substance use behaviors, they are, nonetheless, a reasonable indicator of the social environment and have been used extensively in previous studies (Barnow et al. 2005; Harris et al. 2009; Laird et al. 2008).

Youths were first asked the number of people they consider their friends, people that they "spend time with, hang out with, or just do things with." They were then asked how many of these friends they thought had used any ATOD in the past 30 days, and five items regarding the number of these friends who had used substances in the past 6 months (i.e., tobacco use, alcohol use, gotten drunk using alcohol, marijuana use, and other drug use). Each item was divided by the number of friends reported to create proportion scores indicating the percent of friends who had engaged in each behavior. A latent variable is used to represent peer substance use at each time point.

Mothers' Perceptions of Neighborhood Problems

Mothers' responses to items adapted from Elliott et al. (1983) are used to measure perceptions of neighborhood problems. Respondents were presented with 28 items and asked to indicate on 3-point scales the extent to which they thought each was a problem in their neighborhood (not a problem–big problem). The items address each of the following dimensions: (a) social disorganization (seven items, e.g., ethnic/cultural groups who don't get along with each other), (b) structural or system problems (six items, e.g., city officials ignoring problems), (c) physical disorganization (three items, e.g., abandoned buildings or houses), and (d) crime/victimization (12 items, e.g., burglaries and thefts in the neighborhood). Scales representing each dimension were created by summing the relevant items. The items show good internal reliability (Cronbach's $\alpha = .86$ for social disorganization, .81 for structural problems, .86 for physical disorganization, and .92 for crime). A latent variable was constructed for mothers' perceptions of neighborhood problems using each scale as an indicator.

Mothers' Rule-Setting Behaviors

Measures of mothers' rule-setting behaviors were adapted from Capaldi and Patterson (1989) and Patterson and Stouthamer-Loeber (1984). Mothers responded to three items: how often they restricted (1) where their child was allowed to go, (2) what they were allowed to do when away from home, and (3) who they were allowed to be with when away from home. Responses ranged from "none of the time" to "all/almost all of the time" on a 5-point scale. Cronbach's α was .80. A single latent variable was created from these items.

Mothers' Knowledge of Children's Whereabouts

Measures of mothers' knowledge of their children's whereabouts were also adapted from Capaldi and Patterson (1989) and Patterson and Stouthamer-Loeber (1984). Mothers answered seven items regarding their knowledge of their child's whereabouts and activities when away from home over the past 6 months. Responses ranged from "none of the time" to "all/almost all of the time" on a 5-point scale. Cronbach's α was .76. A single latent variable at each time point represents mothers' knowledge.

Background Variables

Family income. Mothers reported their total household income for the past year. Income was log-transformed for analysis.

Age. Mothers and youths each reported their own age.

Sex. Youths reported their sex (male = 1, female = 0).

Race. Youths reported their race, which was coded as White = 1, Non-white = 0 for analyses.

Educational achievement. Mothers reported the highest grade level they completed (1 = 12 years/high school graduate, 11 = more than 21 years).

Mothers' heavy drinking. Mothers' heavy drinking was assessed through the Timeline Follow-Back method (Sobell and Sobell 1996; Sobell et al. 1979; Sobell and Sobell 1992). Respondents used a calendar timeline method to increase recall accuracy in reporting their drinking over the past 6 months. Mothers wrote on a calendar the number of drinks they had each day over the time period. Heavy drinking days were defined as days in which the respondents reported drinking 4 or more drinks. Cronbach's alpha was .98 over the 6 months. The average number of heavy

drinking days per month was calculated and log-transformed for analysis.

Data Analyses

Descriptive statistics provide an overview of mothers' and youths' characteristics, alcohol use, delinquency, and peer substance use. Correlational analyses explore bivariate relationships among the variables. Missing data were imputed using EM estimation. The latent structures for the measures of youths' alcohol use, delinquency, peer substance use, mothers' perceptions of neighborhood problems, mothers' rule-setting behaviors, and mothers' knowledge of whereabouts were examined using Maximum Likelihood (ML) confirmatory factor analysis (CFA) implemented with EQS (Bentler 1985–2004). ML latent variable structural equation modeling examines the relationships between youths' alcohol use, delinquency, peer substance use, mothers' perceptions of neighborhood problems, rule setting, and knowledge of children's whereabouts, taking into account background characteristics reported by mothers and youths (e.g., family income, mothers' and youths' age). Because mothers' heavy drinking might influence youths' behaviors, this is also included in the model as a background variable. Lagrange Multiplier (LM) tests and Wald test were used to help modify the models. As recommended by Hu and Bentler (1999), the ML-based comparative fit index (CFI) and root mean squared error of approximation (RMSEA) are used to evaluate model fit. A CFI value over .90 and a RMSEA value $\leq$ .06 were considered indicators of good model fit. Because the data are non-normally distributed, robust estimates of the standard errors are used.

Results

Descriptive Analyses

Means and standard deviations are shown in Table 1.

Youths' Alcohol Use and Delinquency

About one-fifth (21.1%) of youths reported using alcohol in the last 6 months at Time 1, with 5.1% reporting heavy alcohol use. At Time 2, 25% reported using alcohol and 8.1% reported heavy use. Surprisingly, delinquency decreased over the 6 month follow-up period. At Time 1, 38.3% of youths reported minor delinquency, 13% reported serious violent delinquency, and 8.7% reported serious non-violent delinquency. At Time 2, 29.8% reported minor delinquency, 9.1% reported serious violent delinquency, and 6.6% reported serious non-violent delinquency.

Peer Substance Use

On average, youths reported that 19.0% (SD = 30.78) of their friends had used alcohol, tobacco, or other drugs in the past 30 days. Regarding the past 6 months, youths reported that 19.4% (SD = 31.04) of their friends had used tobacco, 17.9% (SD = 29.6) had used alcohol, 12.9% (SD = 25.85) had been drunk, 15.7% (SD = 29.16) had used marijuana, and 4.1% (SD = 15.23) had used other drugs.

Mothers' Perceptions of Neighborhood Problems

The neighborhood feature that mothers consider the most problematic in their neighborhoods is "unsupervised children", with over half (57.7%) reporting that this is somewhat or a big problem. In contrast, "organized crime" is the least problematic feature, with 9.8% reporting that it is somewhat or a big problem in their neighborhood.

Measurement Model

We examined the measures using CFA to determine if the latent structures of the measures conform to expectations. Table 2 presents the standardized and unstandardized factor loadings. The LM tests indicated that the model fit could be improved by allowing covariances between the errors for beer/wine/wine coolers at Time 1 and Time 2 (r = .44), violent delinquency at Time 1 and Time 2 (r = .33), peer tobacco use and peer AOD use (r = .44), and peer alcohol use and peer intoxication (r = .53). These covariances were added to the measurement model. The final measurement model fit the data well [CFI = .91; RMSEA = .036 (90% CI = .031–.041)], and was used as the basis for the latent variable structural model.

Bivariate Correlations Among Latent Variables

Youths' alcohol use at Time 2 is significantly and positively correlated with alcohol use at Time 1, with delinquency at both time points, and with peer substance use (Table 3). It is negatively correlated with mothers' knowledge of their children's whereabouts. Youths' delinquency at Time 2 is significantly and positively related to delinquency and alcohol use at Time 1 and with peer substance use, but negatively correlated with mother's knowledge of whereabouts. Peer substance use is positively correlated with all youth outcomes and negatively correlated with mother's knowledge of whereabouts. In addition, rule-setting behaviors are significantly and positively correlated with knowledge of whereabouts and with perceptions of neighborhood problems, while knowledge of whereabouts is negatively correlated with all youth

Table 1 Means and standard deviations of variables

	Min	Max	*M*	SD
Alcohol use				
Mean of mothers' heavy drinking days over past 6 months	0	30.00	2.55	5.51
Time 1—Number days beer, wine, or wine coolers in last 6 months	0	63.00	1.44	5.52
Time 1—On drinking days, usual no. drinks beer, wine, or wine coolers—last 6 months	0	9.00	0.23	0.97
Time 1—Number days liquor in last 6 months	0	108.00	0.90	6.37
Time 1—On drinking days, usual # drinks liquor in last 6 months	0	9.00	0.14	0.77
Time 1—How many times 6+ drinks in last 6 months	0	60.00	0.42	3.45
Time 2—Number days beer, wine, or wine coolers in last 6 months	0	111.00	2.14	8.49
Time 2—On drinking days, usual no. drinks beer, wine, or wine coolers—last 6 months	0	9.00	0.35	1.23
Time 2—Number days liquor in last 6 months	0	60.00	1.39	6.28
Time 2—On drinking days, usual no. drinks liquor in last 6 months	0	9.00	0.35	1.24
Time 2—how many times 6+ drinks in last 6 months	0	80.00	0.70	5.12
Delinquency				
Time 1—serious non-violent delinquency index	0	2.00	0.11	0.37
Time 1—serious violent delinquency index	0	5.00	0.18	0.56
Time 1—minor delinquency index	0	6.00	0.59	0.92
Time 2—serious non-violent delinquency index	0	4.00	0.12	0.51
Time 2—serious violent delinquency index	0	4.00	0.14	0.49
Time 2—minor delinquency index	0	6.00	0.51	1.00
Mothers' perceptions of neighborhood physical disorganization				
Vandalism	1	3.00	1.58	0.73
Abandoned houses	1	3.00	1.43	0.70
Run down yards	1	3.00	1.49	0.72
Mothers' perceptions of neighborhood social disorganization				
Different races do not get along	1	3.00	1.25	0.50
Little respect for rules	1	3.00	1.69	0.76
People who are drunk or high	1	3.00	1.60	0.78
Prostitution	1	3.00	1.23	0.57
People living on the street	1	3.00	1.28	0.57
Unsupervised children	1	3.00	1.79	0.77
Groups of teens hanging out making a nuisance	1	3.00	1.69	0.76
Mothers' perceptions of neighborhood structural/system problems				
High unemployment	1	3.00	1.70	0.81
City leaders ignore problems	1	3.00	1.66	0.80
Transportation not available	1	3.00	1.22	0.49
Police do not care about problems	1	3.00	1.47	0.70
Poor schools	1	3.00	1.48	0.72
Police not available	1	3.00	1.33	0.62
Mothers' perceptions of neighborhood crime/victimization				
Sexual assaults	1	3.00	1.18	0.43
Burglaries or thefts	1	3.00	1.56	0.65
Illegal gambling	1	3.00	1.25	0.57
Organized crime	1	3.00	1.13	0.42
Assaults or muggings	1	3.00	1.32	0.58
Delinquent gangs	1	3.00	1.39	0.66
Drug use/dealing in the open	1	3.00	1.63	0.81
Selling of stolen goods	1	3.00	1.42	0.68

Table 1 continued

	Min	Max	*M*	SD
Unsafe out alone at night	1	3.00	1.65	0.75
Unsafe on the streets during the day	1	3.00	1.20	0.48
Drug houses/crack houses	1	3.00	1.53	0.78
Drive-by shootings	1	3.00	1.25	0.57
Rule-setting behaviors				
Restrict where child can go	1	5.00	3.91	1.34
Restrict what child can do away from home	1	5.00	3.80	1.34
Restrict who child allowed to be with away from home	1	5.00	2.89	1.49
Knowledge of children's whereabouts				
Know where child was after school or away from home	1	5.00	4.63	0.64
Know how child got there	1	5.00	4.82	0.53
Know route child takes	1	5.00	4.46	0.86
Know child's plans for day	1	5.00	4.51	0.78
Know what child does when away from home	1	5.00	4.44	0.78
Know who child is with when away from home	1	5.00	4.44	0.79
Trust information child gives you	1	5.00	4.30	0.82
Peer substance use				
% of peers using ATOD past 30 days	0	100.00	19.04	30.78
% of peers using tobacco past 6 months	0	100.00	19.37	31.04
% of peers using alcohol past 6 months	0	100.00	17.85	29.63
% of peers getting drunk past 6 months	0	100.00	12.94	25.85
% of peers using Marijuana past 6 months	0	100.00	15.69	29.16
% of peers using other drugs past 6 months	0	100.00	4.11	15.23

outcomes, peer substance use, and perceptions of neighborhood problems.

Structural Equation Modeling

An initial structural model was specified consistent with the conceptual model wherein youths' alcohol use and delinquency at Time 2 are associated with peer substance use through youths' alcohol use and delinquency at Time 1. The model is also consistent with a mediational model in which peer substance use is predicted by mothers' knowledge of whereabouts, while mothers' knowledge of whereabouts and rule-setting behaviors are predicted by mothers' perceptions of neighborhood problems, controlling for background variables. All background variables and mothers' perceptions of neighborhood problems are allowed to covary with each other, and disturbance terms for the two monitoring strategies (rule setting and knowledge of whereabouts), youths' alcohol use and delinquency at Time 1, and youths' alcohol use and delinquency at Time 2, are allowed to covary. Non-significant paths were dropped from the model. Based on LM tests, the following conceptually relevant paths were added to the model: relationships between mothers' education and rule-setting, youths' sex and knowledge of whereabouts, youths' age and knowledge of whereabouts, and youths' age and peer substance use. Figure 1 depicts the final structural model. The model fit the data well [CFI = .91; RMSEA = .035 (90% CI = .031–.040)]. Results indicate that increased use of rule-setting strategies are significantly associated with lower levels of mothers' education and higher levels of mothers' perceptions of neighborhood problems. Mothers' increased knowledge of her child's whereabouts is predicted by having a daughter, younger age of youths, and perceptions of fewer neighborhood problems, with age being the strongest predictor of knowledge. Increased peer substance use is predicted by older age of youths and lower levels of knowledge of whereabouts, although age is again the strongest predictor. Youths' alcohol use and delinquency at Time 1 are both significantly predicted by greater peer substance use. These behaviors at Time 2 are strongly predicted by their respective Time 1 behaviors. As shown in Table 4, indirect effects were significant. Specifically, peer substance use is related to youths' alcohol use and delinquency at Time 2 through youths' alcohol use and delinquency at Time 1, respectively. Knowledge of whereabouts is related to youths' alcohol use and delinquency at Time 2 through peer substance use, alcohol use, and delinquency at Time 1. Mothers' perceptions of neighborhood problems are related to youths' alcohol use

Table 2 Measurement model

Indicator	Unstandardized factor loading	Robust SE	Standardized factor loading	Robust *t*
Youths' alcohol use—Time 1				
Beer/wine/wine coolers†	1.00		.60	
Liquor	1.01	.30	.74	3.41
Heavy alcohol use	.69	.22	.80	3.16
Youths' alcohol use—Time 2				
Beer/wine/wine coolers†	1.00		.84	
Liquor	.88	.12	.82	7.40
Heavy alcohol use	.45	.07	.85	6.63
Youths' delinquency—Time 1				
Non-violent delinquency†	1.00		.59	
Violent delinquency	1.42	.33	.54	4.32
Minor delinquency	3.52	.66	.83	5.35
Youths' delinquency—Time 2				
Non-violent delinquency†	1.00		.71	
Violent delinquency	.76	.16	.55	4.66
Minor delinquency	2.41	.45	.86	5.37
Mothers' perceptions of neighborhood problems				
Physical disorganization†	1.00		.84	
Social disorganization	2.02	.09	.92	22.68
Structural/system problems	1.62	.08	.87	21.19
Crime/victimization	3.15	.15	.92	20.98
Mothers' rule-setting behaviors				
Restrict where allowed to go†	1.00		.86	
Restrict what allowed to do away from home	1.03	.07	.88	13.90
Restrict who allowed to be with away from home	.74	.06	.58	12.71
Mothers' knowledge of children's whereabouts				
Know where child is when away from home†	1.00		.70	
Know how child got there	.87	.13	.74	6.61
Know route child used	1.12	.17	.59	6.73
Know child's plans for the day	1.02	.14	.59	7.09
Know what child is doing away from home	1.30	.16	.75	7.92
Know who child is with away from home	1.36	.15	.77	9.24
Trust information child gave you	.86	.18	.47	4.86
Peer substance use				
Peer AOD use in the past 30 days†	1.00		.85	
Peer tobacco use—past 6 months	.89	.05	.75	16.87
Peer alcohol use—past 6 months	.92	.06	.80	15.82
Peer drunkenness—past 6 months	.81	.06	.83	14.12
Peer marijuana use—past 6 months	.93	.05	.84	19.75
Peer other drug use—past 6 months	.32	.07	.55	4.77

† Unstandardized factor loading was fixed at 1.0. All factor loadings are statistically significant ($p < .05$)

and delinquency at Time 2 through knowledge of whereabouts, peer substance use, and youths' alcohol use and delinquency at Time 1. Background variables of youths' gender and age are also significantly indirectly related to Time 2 outcomes. Youths' gender is related to youths' alcohol use at Time 2 through knowledge of whereabouts, peer substance use, and youths' alcohol use at Time 1. Youths' age is related to youths' alcohol use and delinquency at Time 2 through peer substance use and youths' alcohol use and delinquency at Time 1, respectively.

Table 3 Bivariate correlations among key constructs

	1	2	3	4	5	6	7	8
1. Youths' alcohol use—Time 1								
2. Delinquency—Time 1	.44*							
3. Youths' alcohol use—Time 2	.79***	.57**						
4. Delinquency—Time 2	.46**	.84**	.72**					
5. Peer substance use	.69***	.63***	.59***	.51***				
6. Mothers' perceptions of neighborhood probs.	−.01	.03	−.01	.10	−.03			
7. Rule setting	−.03	−.02	−.01	.03	−.07	.24***		
8. Knowledge of whereabouts	−.33*	−.28***	−.23***	−.23***	−.39***	−.20**	.14**	

Probs. problems

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

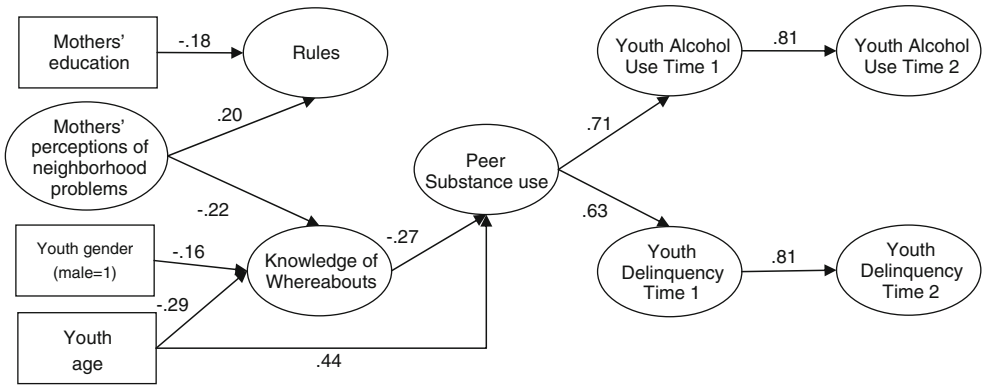

Fig. 1 Final model of neighborhood perceptions, monitoring strategies, peer substance use, and youths' problem behaviors. *Note*: Standardized coefficients are shown. Not shown are covariances between variables on the far left side and between disturbance terms for variables at the same level of analysis (e.g., between rules and knowledge). All paths are significant at $p < .001$, except the path between youth gender and knowledge, which is significant at $p < .01$

Table 4 Significant predictors of youths' alcohol use and delinquency

Predictors	Youths' alcohol use—Time 2		Delinquency—Time 2	
	Direct effects	Indirect effects	Direct effects	Indirect effects
Youths' alcohol use—Time 1	.81***			
Delinquency—Time 1			.81***	
Peer substance use		.57***		.51***
Mothers' perceptions of neighborhood probs.		.04*		.03*
Rule-setting				
Knowledge		−.16***		−.14**
Mothers' education				
Youths' gender		.03*		
Youths' age		.30***		.27***

Cell entries are standardized coefficients

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

Discussion

Neighborhood disorganization can disrupt effective parental monitoring (Simons et al. 1996, 1997; Stern and Smith 1995), but previous research has not addressed how disorganization might be related differently to specific monitoring strategies. The present study examines whether mothers' use of specific monitoring strategies is related to

their perceptions of neighborhood disorganization, and how each of these strategies are related to youths' alcohol use and delinquency. Results show that maternal perceptions of neighborhood problems are related to their monitoring behaviors. Specifically, mothers who perceive more neighborhood problems report using greater levels of rule setting. However, maternal perceptions of greater neighborhood problems are related to lower levels of their knowledge of their children's whereabouts and companions. Our findings indicate that these two different aspects of maternal monitoring work differently in predicting youths' alcohol use and delinquency. Maternal knowledge of whereabouts and companions is indirectly and negatively related to youths' alcohol use and delinquency through peer substance use. That is, the results from the structural equation model are consistent with the hypothesis that mothers' monitoring of their child's friends and activities affects youths' involvement in problem behaviors, in part, because it influences associations with substance-using peers. In contrast, maternal rule setting is not uniquely related to youths' alcohol use, delinquency, or peer substance use. Thus, the maternal perceptions of greater neighborhood problems are related to lowered use of the most effective parental strategies for reducing youths' use of alcohol and delinquency.

These findings are important because they show that mothers may be impacted by their perceptions of neighborhood risks; however the findings also show that their responses to these neighborhood risks are not effective ones. Parents in risky neighborhoods may have more trouble gaining knowledge of whereabouts because obtaining this knowledge may take more time and resources. For example, parents in risky neighborhoods may not know or trust their neighbors well enough to ask them for help in checking on their children when they are not able to provide supervision themselves. Alternatively, these parents may have to work longer hours and not have time to check whether their children are where they say they are. Further, in other work, we find that parents commonly use technology, such as cell phones, to monitor the whereabouts of teens, but that type of resource may be less available to parents in high-risk neighborhoods (Miller et al. 2010). As a result, parents in more risky environments may feel that increasing rule-setting behaviors is the only option available to them to direct their children's behavior. They may also perceive that a rule-oriented approach is effective and will work as a parenting strategy to keep their children safe. This study has shown a link between mothers' perceptions of neighborhood problems and their monitoring strategies, but future qualitative studies may be able to shed light on the decision-making process involved in making these monitoring decisions.

These findings are consistent with prior studies that show knowledge of children's whereabouts to be effective in reducing problem behaviors (Ary et al. 1999; Barnes and Farrell 1992; Forehand et al. 1997), and with studies showing that rule-setting by itself is generally ineffective (Jackson et al. 1999; Reifman et al. 1998). However, previous findings are mixed in that Hayes et al. (2004) found rule-setting to be indirectly related to problem behavior through supervision and conflict. The lack of associations between rule setting and problem behaviors is in contrast to models of monitoring and delinquency based on social learning models (Patterson and Dishion 1985). Future studies could examine whether rule-setting behaviors are only effective in reducing problem behaviors when each rule is accompanied by strong monitoring of youths' whereabouts and companions to enforce rules, rather than by itself. Further, certain rules may be more effective than others, as rules specifically pertaining to peer affiliations or substance use may be more effective than general rules restricting youths' activities. Similarly, future studies that assess rules specific to neighborhood disorganization (e.g., restricting travel to certain parts of the neighborhood) would be able to determine if these rules would be more effective than general rules in high-risk neighborhoods.

Our findings also may help to clarify discrepancies among prior studies regarding the interrelationships among neighborhood problems, parental monitoring, and youths' alcohol use and delinquency. These prior studies typically define monitoring either so generally that monitoring cannot be distinguished from other parenting behaviors (e.g., Simons et al. 1996, 1997), or so narrowly that they focus only on strategies to gain knowledge of their children's whereabouts, ignoring rule-setting strategies (Chuang et al. 2005). Our findings demonstrate that these two strategies are separate constructs and should be distinguished, as they have different associations with youths' alcohol use, delinquency, and peer substance use, and are not associated with perceptions of neighborhood problems in the same manner.

Background demographic variables included in the model are associated with specific monitoring strategies and peer substance use. Consistent with prior research (Smetana and Daddis 2002; Webb et al. 2002), parents of boys and older youths report lower levels of knowledge of their child's whereabouts, as youths become adolescents and gain more independence. Mothers with less education are more likely to use rule-setting strategies. This may reflect a lack of resources available to these parents that would allow them to implement behaviors to increase knowledge of their children's whereabouts. Not surprisingly, older youth age is also related to higher rates of peer substance use, as adolescent rates of substance use tend to increase as adolescents age (e.g., SAMHSA 2005), so it is more likely that peers will be substance-using. Even with these background variables in the model, mothers'

perceptions of neighborhood problems were still related to youths' problem behaviors, indirectly through relationships with knowledge of their child's whereabouts and peer substance use.

A limitation of the study is that firm conclusions about causal direction among the Time 1 variables cannot be made. Future research using more comprehensive longitudinal designs consisting of more time points will be needed. However, our model is conceptually consistent with current theories regarding parental monitoring as protective against problem behavior. Another limitation is that only mothers were included in the study. However, as most monitoring literature refers to monitoring behaviors of *parents* (Dishion and McMahon 1998), there is no reason to believe that findings would differ for mothers and fathers. Further, despite cultural changes, mothers still tend to be responsible for a majority of child-rearing in most families (Pleck and Masciadrelli 2004). Therefore, this study's inclusion of mothers only provides an important contribution to the examination of factors related to parental monitoring strategies as it reflects current family situations. However, future studies may include both parents to determine if differences exist.

Our findings have important implications for prevention. There is added importance to family-based prevention programs that emphasize specific monitoring strategies, such as increasing parents' knowledge of their child's activities. Prevention programs for parents living in neighborhoods with more disorganization could not only increase awareness of the importance of monitoring whereabouts in addition to rule setting, but also assist them in building the skills and tools necessary to carry out that monitoring. Effective programs could help parents in disadvantaged neighborhoods identify and address the special difficulties they might face in implementing monitoring, as well as helping them develop effective and feasible strategies to increase knowledge of their youths' whereabouts. Parents who have predominantly used rule-based approaches for raising their families would benefit by learning skills conducive to managing youths, especially through the teen years. Effective strategies could also help parents recognize the importance of monitoring in relationship to their associations with friends, and help parents to recognize and encourage associations with friends who share the values of their family.

By highlighting the importance of the neighborhood for parents' utilization of specific monitoring strategies, and their differential effects on youths' outcomes, this study makes it clear that the neighborhood context needs to be embedded in existing and new family-based programs. Without an understanding of the environmental context of the family home, it is difficult to provide an effective strategy for parental monitoring of youths' whereabouts. Further, inclusion of information about the environmental context would provide improved strategies for recognizing the risks facing youths and provide a more focused way of building resilience in youth around these risks.

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