

## Does Neighborhood Context Matter? Evaluating the Impact of Local Characteristics on Substance Abuse among Youth

### *Introduction*

This paper investigates the influence of neighborhood context on drug and alcohol use among youth. The majority of research on adolescent substance use – frequency of alcohol and drug use – has overlooked the role of contextual factors such as neighborhood conditions. In attempt to fill this void, this paper explores the role of neighborhood characteristics on the initiation and maintenance of adolescent substance use. Do neighborhood-level variables have a *direct* and/or *moderating* effect on adolescent substance use net of individual, family, and peer characteristics? Specifically, we seek to: 1) empirically identify neighborhood conditions related to adolescent substance use, and 2) analyze the changes or growth in substance use behaviors. Specifying the link between aggregate-level variables and individual-level variables will lead to a more comprehensive understanding of how the social environment impacts adolescent substance use.

### *Previous Literature*

Studies that prioritize neighborhood effects typically do not address substance use. Socioeconomic composition of neighborhoods is linked to negative outcomes for children and adolescents. In the area of crime and delinquency, a multitude of community factors have been identified in addition to poverty, including residential mobility (Sampson & Lauritsen, 1993; Shaw & McKay, 1942), unemployment (Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Crutchfield, 1989; Miles-Doan, 1998), structural density, (Miles-Doan, 1998; Newman, 1973) and female-headed households (Brooks-Gunn et al., 1993; Steinberg, 1987). Disadvantaged neighborhoods, of which poverty is the most compelling condition (Jargowsky, 1997; Wilson, 1997), have fewer resources, employment opportunities, formal and informal forms of social

control and monitoring and overall collective efficacy (Bursik & Webb, 1982; LaGrange, Ferraro, & Supancic, 1992; Miles-Doan, 1998; Robert, 1998; Sampson & Groves, 1989; Wilson, 1987) which may increase the likelihood of substance use among its adolescent inhabitants.

In research on adolescent health and development integrating neighborhood context is becoming more common and yields noteworthy results. Typically, researchers find that local income is the main neighborhood effect even after controlling for family income. Multiple measures of neighborhood low socioeconomic status have been associated with adolescent mental health (Aneshensel & Sucoff, 1996; Perez, Spirito, & Boergers, 2002) and childhood aggression and peer relations (Kupersmidt Griesler, DeRosier, Patterson, & David, 1995). Neighborhood poverty has also been associated with poorer quality home physical environment and less maternal warmth (Klebanov, Kato, Brooks-Gunn, & Duncan, 1994) which may indirectly impact adolescent behavior and mental health. Alternative measures of income composition focus on the relationship between the presence of affluent neighbors and teenage births and dropping out of school (Brooks-Gunn et al., 1993; Crane, 1991). Often, however, income is the only measure of neighborhood context included in the analysis. It may be the case that other contextual effects are relevant but have been omitted from analysis. In addition to neighborhood socioeconomic status, several studies have found significant neighborhood effects on pre-marital sexual activity and fertility (Hogan & Kitagawa, 1985) including the employment structure (Brewster, Billy, & Grady, 1993; Ku, Sonenstein, & Pleck, 1993).

Despite this trend, few studies to date have incorporated a neighborhood-level analysis of adolescent substance use. Substance use researchers recognize this gap and specifically identify the need for neighborhood analysis (Kupersmidt et al., 1995; Flom, Friedman, Kottiri, & Curtis, 2001), but have failed to examine these as contextual factors. Many researchers have relied on

perceptions of the neighborhood – that is at the individual-level – not objective indicators of neighborhood conditions (Crum, Lillie-Blanton, & Anthony, 1996; Dembo, Schmeidler, & Burgos, 1979, 1992; Duncan, Duncan, & Strycker, 2002). In assessing objective indicators, one study did find that two community characteristics – male joblessness and poverty measured at the zip code level – were significantly associated with the frequency of substance use among adolescents controlling for family context (Hoffman, 2002). In the interest of greater specificity, this paper assesses community context by including six theoretically important variables – measures of poverty, unemployment, residential stability, family disruption and stability, racial/ethnic composition, and crime.

#### *Data and methods*

To address the impact of neighborhood context on adolescent substance use multiple data sources are linked together. The base dataset comes from the Reconnecting Youth (RY) prevention research studies between 1998 and 2003 funded by NIDA, Department of Education, and CDC and provides a stratified (by high risk) random sample of high school aged youth in the Seattle metropolitan area. This contextual approach has not been applied to these existing RY datasets; none of the prior RY studies included measures of structural variables reflecting the local environment. The primary interest is in integrating two types of neighborhood-level conditions: social-structural and crime data. The secondary data comes from the United States Census and the Seattle Police Department. Following from existing research on neighborhood analysis, the contextual data in this project will be operationalized at the census tract level (Billy & Moore, 1992; Crane, 1991; Ku, Sonenstein, & Pleck, 1993). In preliminary data preparation, there are respondents from 225 identifiable census tracts. There should be adequate variation on the neighborhood-level variables given the large number of census tracts.

Measures of alcohol and drug use are based on self-report data; generally scale items are based on substance use or associated events in the past 30 days, plus accounts of ever used and history of use. The study will rely on the Drug Involvement Scale for Adolescents (DISA; Herting et al., 1996) and its sub-scales as the dependent variable of interest. Neighborhood variables include poverty and income measures, unemployment, residential stability, family disruption and stability, racial/ethnic composition and segregation. The approach is to estimate models that include individual effects of personal and family risk/protective factors and peer factors (e.g. deviant peer bonds), plus basic control variables (e.g age); effects of personal, family and peer factors will be allowed to vary across contexts. To be confident about neighborhood-effects, variables will be matched, when possible, between neighborhood conditions and individual, family or peer characteristics.

Multilevel techniques (hierarchical linear models-HLM) will be used to assess the impact of context on drug involvement. A hierarchical model explicitly incorporates variables at the individual-level and at the aggregate-level and accounts for the clustering of individuals in aggregate unit. HLM allows key parameters of interest at the individual level to vary across local contexts and our interest is to see if this variation is systematically associated with neighborhood factors (Raudenbush & Bryk, 2002; Snijders & Bosker, 1999). We are primarily interested in what factors explain individual variability at the group-level. We expect neighborhood factors to influence: 1) involvement in drug involvement use and 2) changes or growth in drug involvement. For the cross-sectional analyses 1958 youth are available; for the longitudinal analysis the sample size is 1185 as youth who received an intervention are removed from this analysis.