

ABSTRACT

Title of Thesis: DOES SENSE OF COMMUNITY MEDIATE
THE EFFECTS OF NEIGHBORHOOD
DISADVANTAGE ON ADOLESCENT DRUG
USE?

Hua Yan, Master of Arts, 2013

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This thesis examines the relationship between neighborhood disadvantage, sense of community, and adolescent drug use. Prior research has found that sense of community has positive effects on adolescent behavior. However, little study has examined the specific impact of sense of community on adolescent drug use. Based on social disorganization theory and the extended social disorganization models, this thesis attempts to fill this gap in the literature by testing the hypothesis that sense of community mediates the effects of neighborhood disadvantage on adolescent drug use. Using data from Add Health, correlations and regressions are applied to test the hypothesis. The results partially support the hypotheses. Sense of community is found to mediate the effects of one aspect of neighborhood disadvantage – residential instability, on adolescent drug use.

DOES SENSE OF COMMUNITY MEDIATE THE EFFECTS OF
NEIGHBORHOOD DISADVANTAGE ON ADOLESCENT DRUG USE?

By

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Chapter 1: Introduction

Drug abuse is a public health issue, as well as a major social problem. Almost daily, we are surrounded by media reports of drug-related shootings in schools, gang warfare, and overdose-related deaths. Drug abuse can lead to driving under the influence, violence, stress and child abuse, homelessness, and crime. Drug use has been the focus of research by sociologists, criminologists, psychologists, and public health professionals for several decades.

Drug use among adolescents in particular is a serious social problem. In 2011, about 22.5 million Americans aged 12 or older had used an illicit drug or abused a psychotherapeutic medication (a pain reliever, stimulant, or tranquilizer, etc.) in the past month, which is 8.7 percent of the whole population. And this is up from 8.3 percent in 2002. Most people use drugs for the first time when they are teenagers. There were over 3 million new users of illicit drugs in 2011, which is about 8,400 new users per day. Half of them were under 18. Drug use is highest among people in their late teens and twenties. In 2011, 23.8 percent of 18- to 20-year-olds reported using an illicit drug in the past month (National Survey on Drug Use and Health, 2011).

In 2011, about 21 percent of teens have used some form of illegal drug by 8th grade, with the number increasing to 48 percent by the 12th grade. According to the 2012 Monitoring the Future survey, 6.5 percent of 8th graders, 17 percent of 10th graders, and 22.9 percent of 12th graders used marijuana in the past month—an increase among 10th and 12th graders from 14.2 percent, and 18.8 percent in 2007.

Daily use has also increased; 6.5 percent of 12th graders now use marijuana every day, compared to 5.1 percent in the 2007. 6.2 percent of 8th graders and 4.1 percent of 10th used inhalants in the past-year. Past-year use of cocaine by 12th graders was 2.7% percent to 2012 (National Institute on Drug Abuse, 2012).

All these results show that drug use among adolescent is a major social problem throughout the country. The seriousness of the damage done to individuals and society by drug use is without question. Drug use is a serious public health problem that affects almost every community and family in some way. It not only weakens the immune system of individuals, but is also linked to risky behaviors like needle sharing and unsafe sex. The combination greatly increases the likelihood of acquiring HIV, hepatitis and many other infectious diseases. Each year drug abuse results in around 40 million serious illnesses or injuries among people in the United States (National Institute on Drug Abuse, 2012).

Drug abuse is also highly associated with crime. In 2002, about 25 percent of convicted property and drug offenders in local jails had committed their crimes to get money for drugs; the number for violent and public order offenders is 5 percent (Substance Dependence, Abuse, and Treatment of Jail Inmates, 2002). In 2004, 17 percent of state prisoners and 18 percent of federal inmates said they committed their current offense to obtain money for drugs. Among state prisoners in 2004, about 30 percent of property offenders and 26 percent of drug offenders committed their crimes for drug money, comparing to 10 percent of violent and 7 percent of public-order offenders. In federal prisons, property offenders (11 percent) were less than half as likely as drug offenders (25 percent) to report drug money as a motive in their

offenses (Drug Use and Dependence, State and Federal Prisoners, 2004). The Uniform Crime Reporting Program reported that in 2007, 3.9 percent of the 14,831 homicides in which circumstances were known were narcotics related. According to the National Crime Victimization Survey (NCVS, 2007), about 26 percent of the victims of violence reported that the offender was using drugs or alcohol.

The above evidence shows that drug use among adolescent is a serious problem that requires attention from both researchers and the whole society. The treatment of drug use has also been a major topic among researchers and policy makers. There are many different types of treatment for drug use, but the most effective way to address it is through prevention. To prevent drug use among adolescents, the prerequisite first step is to understand the risk factors. A great deal of research effort has been devoted to understanding the risk factors of drug use during the teenage years. The main risk factors are related to individual, peer, family, school, and community (Newcomb & Felix-Ortiz, 1992; Hawkins, Catalano, & Miller, 1992.).

In this thesis, I focus on the role of community in adolescent drug use. Community is a crucial aspect of an adolescent's daily life, and it has an important influence on their behavior, including the potential for using drugs. Within academic literature, more and more attention is being given to the community, and its role as a protective and risk factor for individual outcomes. Poverty, availability of drugs in the community, laws and attitudes toward drug use, and lack of resources in neighborhood (parks, community centers, fitness and recreation centers, etc.) are all risk factors at the community level that can contribute to adolescent drug use. Neighborhood disadvantage is also found to increase adolescent drug use (Chuang,

Ennett, Bauman, & Foshee, 2005; Elliott, Wilson, Huizinga, Sampson, Elliott, & Rankin, 1996).

According to social disorganization theory, delinquency rates are negatively correlated with the economic composition of local communities (Burski, 1988). Research shows that adolescents from disadvantaged neighborhoods are more likely to be involved in risk behavior, including using drugs (Briggs, 1997; Crum, Lillie-Blanton, & Anthony, 1996; Hoffmann, 2002; Snedker, Herting, & Walton, 2009). According to the updated systematic social disorganization models, some mediating variables can help reduce the impact of traditional social disorganization variables on crime rates and delinquency. Researchers have found that social ties, greater participation in organizations, more social interaction, more neighboring activities, and mutual trust can decrease the impact of neighborhood disadvantages on violence, disorder, and delinquency (Bellair, 1997; Markowitz et al, 2001; Sampson & Groves, 1989; Sampson, Raudenbush, & Earls, 1997; Warner & Rountree, 1997).

This thesis examines the role of sense of community as one of the community level variables that affect adolescent drug use, and evaluates whether or not it mediates the impact of neighborhood disadvantage on adolescent drug use.

McMillan and Chavis (1986, p9) define sense of community as “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together”. Adolescents who have a stronger sense of community will have a stronger feeling of belonging. This paper examines the hypothesis that this stronger sense of community in adolescents mediates the effect of neighborhood disadvantage

on drug use. This might occur through any of various mechanisms, including that they would be more likely to participate in community activities, that their psychological and social needs will be met through these activities and the intervention of other community members. It is hypothesized that, even within socially disorganized communities, a strong sense of community can similarly help meet adolescents' needs, lead them to feel safe, attached to others in the community, and mediate the negative impact of neighborhood disadvantage.

Sense of community was first introduced in psychology research on the relationship between individuals and communities. A lot of research has been done in the field of psychology and sociology to study the relationship between sense of community, neighborhoods, and adolescents.

Research has shown that sense of community has positive effects on adolescents' health and behavior (Davidson & Cotter, 1991; McGuire, 1997; Chavis & Wandersman, 1990; Pretty, Conroy, Dugay, Fowler, & Williams, 1996). However, there has been little research done specifically on the effects of sense of community on adolescent drug use. This thesis investigates the hypothesis that, similar to the existing findings that sense of community has a positive effect on other aspects of people's lives, it will also have a positive effect on drug use. In other words, this thesis investigates the hypothesis that with a strong sense of community, the chance of adolescent using drugs may be reduced. I hope that this study fills the gap in the literature, and provides a clearer sense of the relationship between adolescent drug use and possible mediating factors.

This thesis first reviews social disorganization theory and extended social disorganization models in which mediating variables were measured. Second, the thesis reviews the literature on sense of community and explores the reason why it deserves to be tested in social disorganization theory. Using Add Health data, this thesis examines whether or not sense of community mediates the effects of neighborhood disadvantage on adolescent drug use. Finally, I discuss the limitations of this study and possible directions for future research.

Chapter 2: Literature Review

Social Disorganization Theory

Social disorganization theory by Shaw and McKay (1942) is one of the fundamental theories in criminology. It has been successfully used to explain violent crime, delinquency, and disorder. Shaw and McKay discovered that neighborhoods with high rates of residential instability, low socioeconomic status, and a high level of ethnic heterogeneity tend to have higher rates of delinquency. These neighborhoods were considered “socially disorganized”. Because of this social disorganization, the common values of the members in these neighborhoods are not realized, and the common problems cannot be solved. Social institutions in these communities, such as schools, churches, and volunteer organizations, are weak and cannot provide positive effects on the behavior of adolescents (Bursik, 1988).

Shaw and McKay plotted the residences of youths who were referred to Chicago courts on geographic maps. Using these maps, they found that crime rates tended to be higher in certain areas of the city, and that the areas with these higher crime rates were relatively stable over time, even though populations within those areas tended to change. In particular, in areas with high crime rates, those rates remained high despite changes in the racial or ethnic makeup of the residents.

Interestingly, they found that when members of crime-prone racial or ethnic groups moved from high-crime areas to lower-crime areas, their rate of criminal activity also decreased. These findings suggest that the crime rate was determined more by factors related to the neighborhoods, rather than by factors related to the

residents themselves in these neighborhoods. Shaw and McKay then examined possible characteristics of neighborhoods that might cause the observed stability of crime rates. They hypothesized that the relationship between low income and high crime was not direct, but rather was due to the fact that low income areas were not desirable places to live, and that people moved out when it became feasible for them to do so. Thus, these areas would have a low rate of residential stability. These areas also tended to have a high proportion of first-generation immigrants, and thus a high level of ethnic heterogeneity. Therefore they then examined urban areas that could be classified as “zones of transition” in more detail. “Zones of transition” are the ones with rapid changes in social and economic structure and high rates of residential instability. These neighborhoods, which were socioeconomically deprived, and had high rates of residential instability and ethnic heterogeneity, were characterized as “socially disorganized”.

Shaw and McKay argued that the neighborhoods with high levels of social disorganization, tended to produce high levels of crime and delinquency in two ways: by failing to provide institutions or mechanisms to control adolescent behavior, and by fostering subcultures and traditions of crime among those adolescents. These “criminal traditions” were passed to later generations of youths, and produced attitudes in them that made them more likely to commit crimes.

Extended Social Disorganization Theory

In the 1950s and 1960s, social disorganization theory was very influential. However, in the later 1960s and 1970s, more attention was paid to processes and dynamics related to individuals, rather than groups. This coincided with increased

popularity and interest in social-psychological theories of control, deterrence, social learning, and labeling. However, during the 1980s, there was renewed interest in social disorganization theory by researchers such as Bursik (1988), Sampson and Groves (1989), and Wilson (1990; 1996). These scholars extended and elaborated on the theory. For example, new research was conducted investigating the possibility of “reciprocal effects” of social disorganization (Bursik, 1986).

Also in the 1980s, social disorganization theory has been expanded with new concepts, which have improved the theory’s usefulness. Certain variables, hypothesized to mediate between traditional social disorganization and crime rates, have been tested for. For example, a study by Simcha-Fagan and Schwartz (1986) showed that the effects of disadvantaged neighborhoods on delinquency could be mediated by the level of community social organization. Since then, several other studies have also demonstrated that this level of community social organization acts as a mediator on the effects of neighborhood disadvantage on crime, delinquency, and violence (Elliott et al., 1996; Krivo & Peterson, 1996; Sampson & Groves, 1989; Sampson, Raudenbush & Earls, 1997).

Sampson, Raudenbush and Earls (1997) found that a combined measure of cohesion, mutual trust, and willingness to intervene among neighbors reduces violent crime, and mediates the effect of neighborhood disadvantage. They labeled the “social cohesion among neighbors combined with their willingness to intervene on behalf of the common good” (Sampson, Raudenbush & Earls, 1997, p1) as “collective efficacy”. Using a 1995 survey of 8782 residents in Chicago, they found that collective efficacy mediated the effects of concentrated disadvantage and

residential instability on violence. Collective efficacy focuses on the effectiveness of informal social control by which the residents achieve common good themselves. Mutual trust and the willingness to intervene are key aspects of collective efficacy. This is very similar to sense of community, which I will discuss more in the next section.

The relationship between neighborhood disadvantage and adolescent drug use has been demonstrated by a number of studies too. Crum, Lillie-Blanton, and Anthony (1996) analyzed self-report data of 1416 middle school students in an urban area in a longitudinal study gathered in 1992 to test the relationship between neighborhood disadvantage and exposure opportunity to illicit drugs (in this study, that is, cocaine, tobacco, and alcohol). Using multiple logistic regression models, they found that compared to those in relatively advantaged neighborhoods, youths living in the most disadvantaged neighborhoods were more likely to have been offered cocaine. They also found weaker but statistically significant associations between disadvantage neighborhoods and tobacco and alcohol exposure opportunities.

Using data from 177 urban census tracts, Coulton and colleagues (1995) examined the effects of community social organization on officially reported child maltreatment rates, as well as its effects on the rates of violent crime, drug trafficking, juvenile delinquency, teen childbearing, and low-birth weight births. They found that areas with the highest maltreatment rates were those with high levels of poverty, unemployment, female-headed households, racial segregation, abandoned housing, and population loss. Various community-level conditions, including poverty, unemployment rates, the ratio of children to adults, the ratio of males to females, and

the percent of elderly, and residential instability, also predicted drug trafficking and juvenile delinquency rates.

By examining the early impact of public housing projects in Yonkers, New York, Briggs (1997) found that adolescents who remained in disadvantaged neighborhoods showed more signs of problem drinking and marijuana use than those who moved to middle-class neighborhoods.

By including mediating variables, some other studies have shown a more complicated relationship between neighborhoods and adolescent drug use. Using a national longitudinal data, Hoffmann (2002) explored the relationship between neighborhoods, family structure, and adolescent drug use. He found that living in neighborhoods with a greater proportion of unemployed men was associated with an increased risk of drug use among adolescents. Poverty had a negative impact on adolescent substance use when controlling for male joblessness.

Chuang and colleagues (2005) identified parental monitoring, parental drinking, and peer drinking as mediating factors between neighborhood socioeconomic status and alcohol use. They found that disadvantaged neighborhoods were associated with high parental monitoring, which decreased alcohol use. But low socioeconomic status neighborhoods were also associated with increased peer drinking, which was associated with an increase in alcohol use. This indicated that one neighborhood factor could be protective in regard to one aspect of adjustment but at the same time, might function as a risk factor or neutral influence for another.

There is also research reporting that neighborhood factors had either non-significant effects or negative effects on adolescent drug use. For example, a study in

Los Angeles by Musick and colleagues (2008) reported little association between neighborhood context and adolescent drug use. Using clustered data at the neighborhood level, Musick and colleagues found that neighborhood norms (adult neighbors' attitudes and behaviors with respect to the teenagers' behaviors of smoking, drinking, and drug use) had no significant impact on teenagers' substance use. After adding social structural characteristics such as high level of foreign-born residents and owner-occupied housing, race/ethnic composition, age composition, poverty level, and residential tenure, their conclusions did not change.

In their study of Baltimore neighborhoods, Fuller and colleagues (2005) found neighborhood disadvantage had no effects on age at initiation of injection drug use among adolescents. Neighborhoods of new injection drug users tended to have higher unemployment rates, higher percentages of minority residents, and lower education levels. However, none of these associations were significant with regard to age at initiation. They did find that neighborhood characteristics contributed to the racial/ethnic differences: black adolescents from neighborhoods with a large percent of minority residents and low educational levels were more likely to initiate injection than white adolescents from neighborhoods with low percentages of minority residents and high education levels.

Allison and colleagues (1999) found that while peer, family, and school had some influence on adolescent substance use, neighborhoods did not. However, it is important to note that they used two separate sets of data to assess the effects of school norms and neighborhood context. There was a low response rate and a notable gender imbalance in the neighborhood study. Also the data in the neighborhood study

were collected in a single urban site, which may cause lack of variability of neighborhood indicators and different types of neighborhoods.

Interestingly, Snedker and colleagues (2009) found that neighborhood disadvantage had a consistent negative direct effect on both alcohol and marijuana use. Adolescents living in economically disadvantaged neighborhoods had lower rates of alcohol and marijuana use. Living in higher disadvantaged neighborhoods reduced the effects of deviant peers on adolescent substance use. Therefore, even though there was some effect of neighborhood disadvantage, the findings were inconsistent with the typical neighborhood disorganization framework.

The literature review shows that the relationship between neighborhood disadvantage and adolescent drug use seems to be mixed. Most of the studies show a positive relationship between them, some show a negative relationship, and a few show no significant relationship. Further studies are required to show a clearer picture, especially with regards to the effects of mediating variables. Based on social disorganization theory and most prior research findings, this article hypothesizes that neighborhood disadvantage — high level of residential instability, low socioeconomic status, and high level of ethnic heterogeneity, will be positively associated with adolescent drug use. Following previous research on the variables used to measure neighborhood disadvantage, this study hopes to move us closer to understanding the relationship between neighborhood context and drug use among adolescents.

Sense of Community

As mentioned above, sense of community is defined as “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together” (McMillan & Chavis, 1986, p9). The concept of sense of community tries to capture a member’s sense of belonging to a group, their sense of identity with a group, and their interaction with other members in the group. McMillan and Chavis (1986) also developed four distinct aspects of sense of community: membership, influence, integration and fulfillment of needs, and a shared emotional connection. This indicates that, to have a sense of community, residents must identify with the community, feel emotional safe, feel that they matter to the community and the community matters to them, feel rewarded for their participation in the community, have emotional attachments with other residents of the community, and feel that the community shares their values and can meet their needs.

Previous research has studied a number of community level mediating variables in the structure of social disorganization theory, such as cohesion, social control, and social ties. However, little research has studied the effect of the feeling of belonging to a community. The phrase “sense of community” is often used by politicians, sociologists, and public health professionals to describe the relationship between individuals and the social structure. But the function of sense of community has received relatively little theoretical or empirical attention until recently. I believe that the concept of sense of community provides a good measure for the complex and subtle social processes by which supportive communities affect positive outcomes

among their members. If so, then this concept deserves more study than it has received so far. Similar to collective efficacy, sense of community is a kind of informal mechanism through which residents achieve common good by themselves. The complex and subtle social processes in the community stimulates opportunities for membership, for members' mutual needs to be met, and for having shared emotional ties and support. A strong sense of community implies more potential social control and more influence the members will feel they have on the community. It helps connect residents to each other. Strong sense of community also indicates stronger emotional attachment. This justifies that there is research value to include sense of community in the structure of social disorganization theory. If residents feel that they belong to the community, identify themselves with the community, and interact with other members in the community, they are expected to have mutual trust and are willing to intervene for the common good. As stated earlier, mutual trust and willingness to intervene are the key aspects of collective efficacy. As Sampson and colleagues found, collective efficacy mediates a substantial portion of the association of residential stability and neighborhood disadvantage with violence. Thus, it is reasonable to expect that sense of community, too, works as a mediating variable between neighborhood disadvantage and the negative individual outcomes. Residents with strong sense of community will be less likely to be involved in risk behaviors than those who do not have sense of community or have a weak sense of community.

However, collective efficacy is measured at the neighborhood level, while sense of community is measured at the individual level. Using Add Health data, this study expects to find out whether sense of community, like collective efficacy, works

as a mediator between neighborhood disadvantage and negative individual outcomes. There has been a strong body of research demonstrating the positive effects of sense of community on individual's psychological well-being and social behavior. For example, using three random samples in South Carolina and Alabama, Davidson and Cotter (1991) found that sense of community was significantly related to subjective well-being. The effects were especially noticeable for the happiness aspect of subjective well-being.

Kasarda and Janowitz (1974) used a 1967 survey research data from Great Britain to examine two models of community attachment in mass society – the linear development mode, which considered increasing population size and density as the key variable influencing local community attachment; and the systemic model, which viewed length of residence as the key independent variable. They tested the effects of population size, density, length of residence, social class and life-cycle on a person's sense of community, as well as on his interest in what goes on in the community, and on whether he would be sorry to leave his community. The finding indicated that length of residence, rather than increasing population size and density, had significant influence on community attachment, which supported the systematic model. They concluded that length of residence was one of the determining factors of whether a member felt sense of community or not. In accordance with social disorganization theory, sense of community was found to have effects on how well the residents work together on common public problems. For instance, Chavis and Wandersman (1990) found that sense of community affected local actions (such as participation in a local association) by affecting the perception of the environment and social relations. With

regards to adolescents, sense of community was found to significantly reduce adolescent loneliness and had more influence than levels of social support in this respect (Pretty, Conroy, Dugay, Fowler, & Williams, 1996). Using sense of community as a mediating variable in social disorganization theory, researchers have found that sense of community was a valid construct and in that it could provide a target for policies and programs designed to improve disadvantaged neighborhoods (Buckner, 1988; Chavis et al., 1986; Glynn, 1981). By studying a sample of 103 tenth-graders, one parent, and one neighbor of each tenth-grader, Cantillon and colleagues (2003) found that sense of community mediates the effect of neighborhood disadvantage on both positive and negative youth outcomes.

The literature review on sense of community shows that sense of community has positive effects on one's well-being and social behavior. However, it requires further study to gain a better understanding of the role of sense of community in the structure of neighborhood and individual. Particularly, more study is needed to examine the relationship between sense of community and neighborhood disadvantage. Thus, the main research goal of the current study is to test sense of community as a mediator in social disorganization theory. Specifically, it is hypothesized that sense of community will reduce the negative effects neighborhood disadvantage has on adolescent drug use. Hopefully, the findings will help us better understand the function of sense of community and help design future community based programs that improve neighborhood disadvantage and adolescent risk behavior.

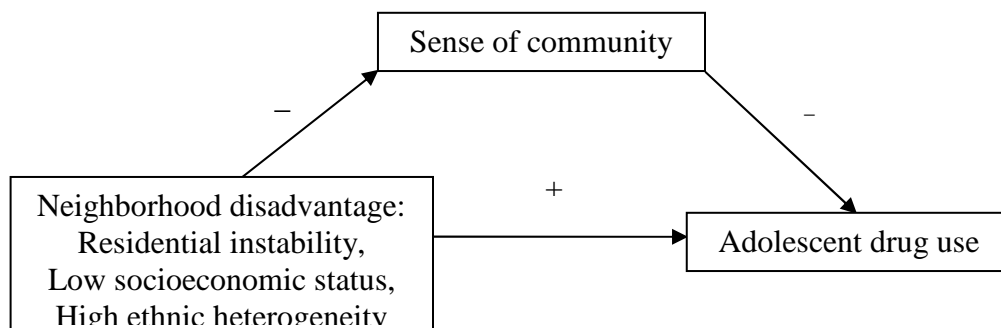
As of now, there is no widely agreed-upon consensus on how to measure sense of community. This is mainly because the components of sense of community have not been confirmed. In this thesis, I follow McMillan and Chavis' definition of sense of community and prior research, and try to measure the core concept of sense of community: a feeling of belonging to, emotional connections, and attachment.

Hypotheses

As stated earlier, this thesis examines the relationship between sense of community, neighborhood disadvantage, and adolescent drug use. It evaluates whether or not sense of community mediates the impact of neighborhood disadvantage on adolescent drug use, which has not been specifically examined before. Based on the extended social disorganization theory and prior literature review, I hypothesize that

1. Neighborhood disadvantage is positively associated with adolescent drug use;
2. Sense of community is negatively associated with adolescent drug use;
3. Sense of community mediates the effects of neighborhood disadvantage on adolescent drug use. (Figure 1)

Figure 1. Hypothesized model



Chapter 3: Methods

Sample

The data I will use for this study is from The National Longitudinal Study of Adolescent Health (Add Health). Add Health is a school-based longitudinal study with a nationally representative sample of adolescents in grades 7-12 in the United States during the 1994-95 school year. Four waves of data have been collected from adolescence to young adulthood, including four instruments in Wave I (collected from September 1994 through December 1995), two surveys in Wave II (collected from April 1996 through August 1996), several sources in Wave III (collected from August 2001 through April 2002), and one in-home interview in Wave IV (collected from January 2008 through February 2009) (Harris, Udry, & Bearman, 2003). Data are available from multiple sources, including adolescents, parents, partners, schools, and communities. Existing data with information about respondents' neighborhoods and communities are merged with Add Health data, including variables on income and poverty, unemployment, crime, and social programs and policies.

The Add Health project is considered the largest and most comprehensive survey of adolescents ever undertaken. It includes a broad, nationally representative sample of U.S. schools with respect to region of country, urbanicity, school size, school type, and ethnicity, which is helpful to get the most representative and valid results (Harris et al. 2003). Compared to local samples, national and multisite studies had a better probability of finding significant effects for the neighborhood context due

to larger sample sizes and greater sampling variability, especially because these studies were designed to include neighborhoods on opposite extremes in terms of structural conditions, such as poverty, ethnic heterogeneity, and residential stability (Levanthal, & Brooks-Gunn, 2000). Local samples, at the other hand, in general have higher interrelations among neighborhood dimensions, thus limiting variation. In addition, the longitudinal sample of Add Health is helpful in establishing temporal ordering and gives information that other data sets may miss. The data are good for this study also because they include both individual-level information on community and community-level information in which individuals are located. This allows me to link individuals with a measure of community disadvantage.

The school sample was a stratified, random sample of all high schools in the US. A high school with an 11th grade and had a minimum enrollment of 30 students was eligible for the sample. A school that sent graduates to the high school and that included a 7th grade was considered as a feeder school and was also recruited from the community.

At the first stage of Wave I in 1994 and 1995, 26,666 high schools across the country was sorted on enrollment size, school type, region, location, and percent white and then divided into groups for sampling. 80 high schools were then randomly selected, among which 52 were eligible and agreed to participate. The remaining 28 schools were replaced by high schools that were similar in school size, school type, census region, level of urbanization, etc.. A single feeder school was selected for each high school. A few high schools were their own feeder schools. In total, 132 schools were included in the core sample. Then, more than 90,000 students in grades 7

through 12 took the In-School Questionnaire. Each participating school provided a student roster. Students were asked to identify their friends on the rosters as they filled out the questionnaire.

At the second stage of Wave I, all students who completed the In-School Questionnaire at the first stage and those who did not complete a questionnaire but were listed on a school roster were eligible for the core In-Home Interview sample. 12 strata were formed by cross-classifying students in each school by grade and sex. About 17 students were randomly chosen from each stratum. A total of 200 adolescents were selected from each of the 80 pairs of schools (a high school and a feeder school). A total core sample of 12,105 adolescents was administered the Wave I In-Home Interview in 1995. All respondents received the same interview at home. Other than the core sample, Wave I also has a genetic sample composed of siblings and twins, a sample of unrelated adolescents who reside in the same household, an oversample of black adolescents with college educated parents, an oversample of Cuban and Puerto Rican adolescents, an oversample of Chinese adolescents, and an oversample of physically disabled adolescents.

The Wave II sample was primarily drawn from the participants in Wave I. The majority of 12th-grade respondents were removed from the Wave II sample, as they exceeded the grade eligibility requirement. Respondents who were only in the Wave I disabled sample were not interviewed. And an additional 65 adolescents who were members of the genetic sample and who had not been interviewed at Wave I were recruited at Wave II. About 15,000 students in total were interviewed at Wave II in August 1996.

Add Health data are available in two forms: public-use data and restricted-use contractual data. The purpose of this is to protect the confidentiality of respondents. Data used in this thesis are public-use data from Wave I and Wave II core sample collected in 1994-1996, which have most of the information I need to measure the variables in this study.

The public-use data were randomly chosen, and consists of one-half of the core sample and one-half of the oversample of black adolescents with college educated parents. The total number of Wave I respondents in this dataset is 6,504. After removing the majority of 12th-grade respondents as they exceeded the grade eligibility requirement, 4,834 respondents from the pool of Wave I were included in Wave II public-use data.

In addition, I use the contextual data at Wave I for information of the neighborhoods in which the adolescent respondents reside. The contextual data were gathered from a variety of sources, such as the US Census, the Centers for Disease Control and Prevention, the National Center for Health Statistics, etc.. The inclusion of both of these sources of data — individual data and independent measures of community-level characteristics — is an important strength of the Add Health for this study.

As stated above, the total number of Wave I respondents in the public-use data is 6,504. As a result of sample design, the majority of 12th-grade respondents were removed as they exceeded the grade eligibility requirement, so the sample size at Wave II is 4,843. After dropping cases with missing data, the final sample size is 4,339. To help control for temporal order in the analysis, this study uses the

independent variables and control variables measured at Wave I, the dependent variables and mediating variable measured at Wave II.

Variables

Independent Variables

Based on social disorganization theory and prior research (Bellair, 1997; Markowitz et al, 2001; Sampson & Groves, 1989; Sampson, Raudenbush, & Earls, 1997; Warner & Rountree, 1997), I use the following variables to measure neighborhood disadvantage: residential instability, socioeconomic status, and ethnic heterogeneity. These items are drawn from Add Health Wave I Contextual data. Add Health researchers collected information at the county, tract, and block group level of analysis using data from the 1990 Census. This study uses block groups as proxies for neighborhoods. Census tracts, which typically have between 1,500 and 8,000 people, with an average size of about 4,000 people, are often used by researchers to represent neighborhoods. However, block groups are the lowest level of geography for which the Census Bureau publishes sample data, thus capturing the most localized available contextual characteristics. A block group in Add Health data contains approximately 452 housing units and 1,100 people.

To measure residential instability, I use modal migration status (whether lived at the same place for the past five years) and the proportion of occupied housing units moved into between 1985 and March 1990. In the Add Health data, the modal migration status is available as categorical variables. It is coded 0 if the family lived at the same place for the past five years, 1 if not. In Add Health, the proportion occupied housing units moved into between 1985 and March 1990 is coded 1=low, 2=medium,

3=high. According to Add Health, low, medium, and high distinctions were determined by taking one standard deviation below and above the mean of this distribution. Block groups where less than 30.4 percent of the occupied housing units were moved into between 1985 and March 1990 were coded “low”; block groups where this proportion was between 30.4 and 65.0 percent were coded “medium”; and block groups where this proportion was greater than 65.0 percent were coded as “high”. Factor analysis on these two items revealed that they loaded strongly on a single factor. (Factor loading > .65, Cronbach's alpha = .7.)

Based on the scale constructed by Sampson, Raudenbush, and Earls (1997) and the information available in Add Health, I measure socioeconomic status by using a composite of the following standardized items: proportion of households below poverty, proportion of female-headed households, total unemployment rate, and median household income. Proportion of households below poverty is measured as 1=low, 2=medium, 3=high. In Add Health, the three categories were based on the distribution of proportion of persons below poverty level in 1989. Block groups where the proportion of the population with income below poverty level was less than 11.6 percent, the median proportion, were coded “low”; block groups where this proportion was between 11.6 and 23.9 percent were coded “medium”; and block groups where this proportion was greater than 23.9 percent were coded “high”. Proportion of female-headed households is coded the same: 1=low, 2=medium, 3=high. According to Add Health data, low, medium, and high cut off points are determined by taking one standard deviation below and above the mean of this distribution, which are 44.3 percent, 68.5 percent respectively. Similarly, total

unemployment rate is 1=low, 2=medium, 3=high. Block groups with an unemployment rate less than 6.5 percent, the median rate, were coded “low”; those with rates between 6.5 and 10.9 percent were coded “medium” ; and those with rates greater than 10.9 percent, comprised of those block groups among the top 25 percent in unemployment, were coded “high”. Median household income (in 1989) in Add Health data ranges from \$4,999 to \$100,001. According to the Census Bureau, the poverty line for a four-person family in 1989 was \$ 12,674; median household income for the States was \$39,213. In this study, median household income is reverse-coded. It is coded 3 if median household income is below \$15,000; 2 if it is below \$30,000; 1 if it is above \$30,000. After testing Cronbach's alpha and running factor analysis, the results show that α for the four items is .81, factor loading values are .9, .9, .7, .8 accordingly. This indicates that the four variables are appropriately measure one single item - socioeconomic status.

Ethnic heterogeneity is measured via dispersion in race composition. In Add Health data, the measurement for dispersion in race composition ranges from 0 to 0.998, with 0 indicating a racially homogenous neighborhood, and the value increasing as the neighborhood's race composition becomes more heterogeneous. Following Add Health, I recoded ethnic heterogeneity on a 3 points scale, where 1 means low in ethnic heterogeneity and 3 means high in ethnic heterogeneity. The cut off points are 15.6 percent and 58.5 percent. Table 1 shows all the independent variables and their measurement.

Mediating variable

Sense of community is measured at the individual level. In Wave II In-Home Interview, participants were asked the following questions about their neighborhoods: 1. “You know most of the people in your neighborhood”; 2. “In the past month, you have stopped on the street to talk with someone who lives in your neighborhood”; 3. “People in the neighborhood look out for each other”; 4. “Do you use a physical fitness or recreation center in your neighborhood”; 5. “Do you usually feel safe in your neighborhood”; 6. “On the whole, how happy are you with living in your neighborhood”; 7. “If, for any reason, you had to move from here to some other neighborhood, how happy or unhappy would you be”. In this thesis, I use the last two questions to measure participants’ sense of community — “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together” (McMillan and Chavis, 1986, p9). According to Add Health, the purpose of these questions is to measure “the extent to which the respondent perceives himself as being a part of his neighborhood”. This is, in other words, the essential meaning of sense of community. If the respondent strongly feels that he/she is a part of his/her neighborhood, he/she is expected to have a stronger sense of community.

Based on the literature and prior research, question 6 and 7 are the closest to the theoretical definition of sense of community, and have strong face validity to measure the concept of sense of community . If the participant is happy living in the community, or feels unhappy if he/she has to move, it is very likely that the participant identifies himself/herself with the community, feel that they matter to the

community and the community matters to them, and feel that the community shares their values and can meet their needs. For question 6, five answers were given: 1. “not at all”, 2. “very little”, 3. “somewhat”, 4. “quite a bit”, and 5. “very much”. Question 7 was given five answers also: 1 “very unhappy”, 2. “a little unhappy”, 3. “wouldn’t make any difference”, 4. “a little happy”, and 5. “very happy”.. Question 6 is coded 1 if the respondent answered “somewhat”, “quite a bit”, or “very much”, coded 0 if they answered “not at all” or “very little”. Question 7 is coded 1 if the respondent answered “very unhappy” or “a little unhappy”, coded 0 if they answered “wouldn’t make any difference”, “a little happy” or “very happy”. I conduct factor analysis and internal consistency on these two items. The results show that factor loadings are both 0.8, which is considered significant (Kim & Mueller, 1978). Table 2 shows both items that are used to measure sense of community.

Dependent Variables

Drugs considered in this study include marijuana, cocaine, inhalants, and other types of illegal drugs. To measure drug use, the following questions were asked at Wave II: Since the first In-Home Interview, “have you tried or used marijuana?” “Have you tried or used any kind of cocaine—including powder, freebase, or crack cocaine?” “Have you tried or used inhalants, such as glue or solvents?” “Have you tried or used any other type of illegal drug, such as LSD, PCP, ecstasy, mushrooms, speed, ice, heroin, or pills, without a doctor’s prescription?”

This study will only examine whether or not the participants used drugs at all, rather than the frequency of drug use. The frequency distribution of drug use at Wave II (Graph 1-4) shows that the majority of the reports are in the lower range, which

makes a cumulative count reasonable. I use a dichotomous indicator variable to denote the illegal drug use. The variable is coded 1 if the respondents used any of the drugs in the past year, and 0 if they did not use any drug. If the respondent answered yes to one question, even if he/she did not answer some other questions, he/she is still kept in the data. If any value is missing, and all the other values are "no", then I drop the observation. Since in this situation, I don't know whether the respondents used drugs or not.

Control Variables

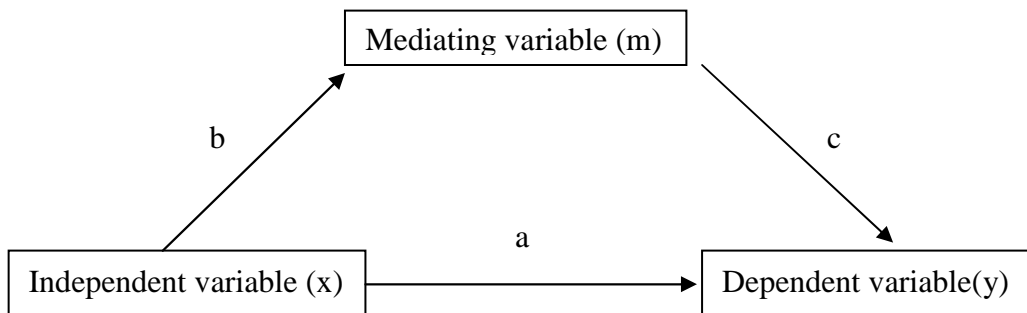
For statistical control, main demographic variables such as age, gender, race, place of residence, and the use of illicit drugs at Wave I are also included in this study. Research has shown that minority adolescents exhibit lower rates of drug use compared to white peers (Bolland et al., 2007). Race is coded as White (0) and Other (1). Age, gender, and race are also to be likely associated with adolescent drug use (Snedker et al., 2009). Following prior research, I will include them in this study. Age is calculated with the birth year and the year of the Wave I interview. Gender is coded as 0 for female and 1 for male. I include a binary variable coded 1 if the respondent lives in an urban neighborhood, 0 if otherwise. Use of illicit drugs at Wave I is coded 1 if the participant used drug at Wave I, 0 if not.

Table 3 presents descriptive information about the demographic characteristics and illicit drug use of the study sample.

Analysis

Baron and Kenny (1986) proposed a four step approach to test mediating variable, in which four regression analyses are conducted and significance of the coefficients is examined at each step (Figure 2).

Figure 2. Mediating model



For the first regression analysis, the independent variable must significantly predict the dependent variable (path a). $y = \beta_0 + \beta_1 x + \epsilon$

For the second regression analysis, the independent variable must significantly predict the mediating variable (path b). $m = \beta_0 + \beta_1 x + \epsilon$

For the third regression analysis, the mediating variable must significantly predict the dependent variable (path c). $y = \beta_0 + \beta_1 m + \epsilon$

Finally, a multiple regression analysis with both independent variable and mediating variable predicting dependent variable should be conducted.

$$y = \beta_0 + \beta_1 x + \beta_2 m + \epsilon$$

If path a, b or c are not significant, I can conclude that mediation is not likely. If path a, b and c are all significant, I will proceed to the last regression analysis. If the effect of the mediating variable remains significant after controlling for the independent variable, I can conclude that there is some form of mediation. When the mediating variable is controlled, I can conclude that there is full mediation if the independent variable is no longer significant; and there is partial mediation if the independent variable is still significant.

One common concern of Barron and Kenny approach is that it tends to miss some true mediation effects (Type II errors) (MacKinnon, Fairchild, & Fritz, 2007). Another problem is that the significance of the indirect pathway — how the independent variable affects the dependent variable through the compound pathway of b and c are usually not really tested by researchers. Therefore some researchers calculate the indirect effect and test it for significance. Methods used in this study follows that used in prior research (Cantillon, Davidson, & Schweitzer, 2003; MacKinnon & Dwyer, 1993), and I will run both correlations and regressions to test the mediating effect.

One option I have is to use hierarchical linear models to run the analysis. The tests of specific effects for single dependent variables are more powerful in HLM analysis. Standard errors will be smaller. When using hierarchical linear models, conclusions can be drawn about the extent to which the correlations between dependent variables depend on the individual and on the group level (Snijders & Bosker, 2011). However, as this is the first time testing the mediating role of sense of community between neighborhood disadvantage and adolescent drug use, this study

will use a logistic regression to analyze the data. Hierarchical linear models will be one method to consider in future research. In this study, first, correlations are run between the independent variables and the mediating variable to gain a better understanding of their relationships and to determine whether or not it is necessary to proceed to regression analyses. Then I run logistic regression on adolescent drug use and neighborhood disadvantage. Third, sense of community is added to the logistic regression. Finally, I add in the control variables to see whether or not sense of community mediates the effects of neighborhood disadvantage on drug use.

Chapter 4: Results

Descriptive statistics

Table 4 shows the descriptive statistics of the variables in this study (mean, standard deviations, and ranges). For all the respondents included in this study, the ages range from 11 to 21, with a mean of 15.12. 68.50 percent of the respondents are white. 47.51 percent of them are female, 52.49 percent are male. 33.89 percent live in an urban area. Among the respondents, 27.62 percent used drugs in Wave I, 26.92 percent used drugs in Wave II. When it comes to the neighborhood, 86.16 percent residents lived in the same house in the past five years. The proportion of occupied housing units moved into between 1985 and March 1990 has a mean of .14. The mean of median household income is 1.68. The mean of proportion of households below poverty and proportion of female-headed household is 1.65 and 2.0, respectively.

Relationship between neighborhood disadvantage and sense of community

From the correlation table (Table 5) we can see that the independent variables are statistically significantly correlated in the expected direction with the mediating variable, that is, residential instability ($r = -.09$), socioeconomic status ($r = -.11$), and ethnic heterogeneity ($r = -.08$) are all statistically significantly correlated with sense of community ($p < .05$). This indicates that the first step in testing a mediating model is met: the independent variables significantly predict the mediating variables. Then it is necessary to move to the next step.

Relationship between neighborhood disadvantage, sense of community and adolescent drug use

As seen from Table 6, sense of community is negatively correlated with adolescent drug use ($r = -.07$). The correlation is statistically significant ($p < .05$). Among neighborhood disadvantage variables, only residential instability is statistically significantly correlated with drug use and is in the expected direction ($r = .03$, $P < .1$). Neither socioeconomic status nor ethnic heterogeneity is correlated with drug use in the expected direction, and neither correlation is significant.

The results indicate where the possible mediating relationship might exist. Thus, our next step is to test whether sense of community mediates the effect of residential instability on adolescent drug use by using regression models. All path coefficients that includes the coefficients of socio-demographic variables and illicit drug use at Wave I is reported in Appendix A.

The mediating role of sense of community

As stated earlier, I use logistic regressions to analyze the data. Table 7 shows that sense of community mediates the effects of residential instability on adolescent drug use. In the first regression model, residential instability is statistically significantly associated with drug use ($\beta = 0.27$, $p < 0.1$, $OR = 1.31$). That is, with each increase on the residential instability scale, adolescent drug use increases 27%. In Model 2, after adding sense of community, residential instability drops to an insignificant level ($\beta = 0.22$), while sense of community is statistically significantly associated with drug use ($\beta = -0.55$, $p < 0.05$, $OR = 0.58$). That is, with each increase on the sense of community scale, adolescent drug use decreases 55%. In Model 3,

after including the mediating variable and all the control variables, residential instability is not significant ($\beta = 0.11$). Sense of community remains statistically significant ($\beta = -0.30$, $p < 0.05$, OR = 0.74). This confirms that sense of community mediates the effect of residential instability on adolescent drug use. It is worthy noticing that drug use at Wave I shows strong significance ($\beta = 2.64$, $p < 0.001$).

At Wave I, the most frequently used substance is marijuana (70.74%, Table 8).. Therefore, I also ran all of the analyses using marijuana instead of all drug as the dependent variable. The results of the three models, shown in Table 9, are quite similar. In Model 1, residential instability is statistically significantly associated with marijuana use ($\beta = 0.35$, $p < 0.05$, OR = 1.42). In model 2, sense of community is significantly associated with marijuana use ($\beta = -0.55$, $p < 0.05$, OR = 0.58) while residential instability remains significant ($\beta = 0.30$, $p < 0.05$, OR = 1.36). In model 3, after including all the control variables, sense of community remains significant ($\beta = -0.27$, $P < 0.05$, OR = 0.76), but residential instability drops to a nonsignificant level ($\beta = 0.18$, OR = 1.20). This indicates that sense of community mediates the effect of residential instability on adolescent marijuana use, which is consistent with the results on all drug use.

Chapter 5: Discussion

The three hypotheses put forward in this thesis are in line with social disorganization theory and the extended systematic social disorganization model. The variables used to test these hypotheses are neighborhood disadvantage (i.e. residential instability, socioeconomic status, ethnic heterogeneity) and sense of community. The central question in this thesis is: Does sense of community mediate the effects of neighborhood disadvantage on adolescent drug use?

The first hypothesis expects neighborhood disadvantage to be positively associated with adolescent drug use. The results show that only residential instability is positively correlated with adolescent drug use. And the correlation is significant. Therefore, hypothesis 1 is only supported by one component of the measure of neighborhood disadvantage – residential instability. In a neighborhood with higher level of residential instability, the youth have higher rates of drug use.

The second hypothesis expects sense of community to be negatively correlated with adolescent drug use. The results support the hypothesis: sense of community is negatively correlated with adolescent drug use, and the correlation is significant. Adolescents with stronger sense of community seem to be less likely to use drugs.

The third hypothesis predicts that sense of community will mediate the effect of neighborhood disadvantage on adolescent drug use. The results show that sense of community indeed mediates the effect of one measure of neighborhood disadvantage – residential instability, on adolescent drug use. This indicates that, with a strong

sense of community, the chance of adolescents from neighborhood with high level residential instability using drugs may be reduced.

This study shows that youth from neighborhoods characterized by high level residential instability have lower level sense of community and are more likely to use drugs. This result is consistent with social disorganization theory and prior research. As Kasarda and Janowitz concluded in their research, the systemic model is more appropriate than the liner model, that is, the length of residence, rather than increasing population size and density, had significant influence on community attachment, as well as on a member's sense of community (Kasarda and Janowitz, 1974). Consistent with Kasarda and Janowitz's work, this thesis finds residential instability has significant influence on a resident's sense of community, as well as adolescent drug use. When the population of a neighborhood is constantly changing, the residents have fewer opportunities to develop strong social ties to each other and to participate in community organizations (Bursik, 1988). With high turnover in the membership of a neighborhood, social relationships weaken and delinquency rates increase.

Consistent with prior research, this study finds that sense of community does have a positive effect on adolescent behavior. It also finds that sense of community mediates the effect of residential instability on adolescent drug use. With a strong sense of community, the chance of the youth using drugs may reduce. If the youth are happy living in their community, they are less likely to use drugs, even if they are from a neighborhood with high level residential instability. This finding confirms that as a kind of informal mechanism through which residents achieve common good by themselves, sense of community has very similar function as collective efficacy. If

the residents feel more belonging to the community, that is, have stronger sense of community, they will have stronger mutual trust and are more willing to intervene for common good, which implies more potential social control. At the neighborhood level, Sampson and colleagues' research showed that collective efficacy mediates the negative influence of neighborhood disadvantage has on members' individual outcomes (Sampson, Raudenbush and Earls, 1997). The results in this thesis indicate that at the individual level, sense of community plays a similar role. It mediates the effect of residential instability on adolescent drug use. This requires that future policies and community programs pay more attention to adolescents' sense of community. To improve the level of their sense of community may reduce adolescent risk behavior and mediates the effect of neighborhood disadvantage on them.

Socioeconomic status and ethnic heterogeneity are found to be negatively related to drug use. The correlations are not significant. Prior research has show that less serious forms of adolescent risky behaviors may not show a consistent risk of neighborhood disadvantage. The youth outcomes in this study are self-report drug use by adolescents, which, relatively speaking, is on the minor side of the delinquency components. One may argue that these two items have little influence on this issue comparing to its role in more severe delinquency. With respect to ethnic heterogeneity, the majority of the sample in this study lived in neighborhoods that were low in race composition dispersion. This may have reduced the power to detect significant relationships that may occur in more heterogeneity neighborhoods. More research is required for a better understanding of their relationships.

Another significant finding is the effects of drug use at Wave I. The results show that adolescents who used drugs at Wave I are highly likely to continue using drugs at Wave II. This indicates that to prevent future drug use among adolescents, it is very important to prevent them from initiating drug use at the first place. Once the youth starts to use drugs, neighborhood context seems to have little influence on whether or not they continue to use drugs. As the most significant finding in the study, it deserves attention in future research.

Limitations

There are some limitations in this thesis that may affect the results and warrant attention.

The sample used in this study is a school-based sample. Youth who have dropped out of school are not included in the sample. One could argue that youth not in the sample may be those with higher levels of drug involvement, which may alter the relationship between neighborhood context and adolescent drug use. However, school-based samples are most commonly used in research.

The sample is also overwhelmingly white. This might limit the generalizability of the findings.

As some researchers argue, extreme neighborhood disadvantage, instead of any level of neighborhood disadvantage, might be the real reason for the findings in the prior neighborhood context studies. Using Add Health data, the neighborhoods in the current study are more likely to be representative of the majority cities throughout the country. The data in this study do not contain extreme advantaged or

disadvantaged neighborhoods typical found in cities where most neighborhood effects research was conducted.

Similarly, as mentioned above, the majority of the sample in this study lived in neighborhoods that were low in race composition dispersion. This limitation may have reduced the power to detect significant relationships that may occur in more heterogeneity neighborhoods.

The measure of sense of community can be improved in future study. As mentioned earlier, as of now, there is no widely agreed-upon consensus on how to measure sense of community. McMillan and Chavis (1986) proposed four theoretical dimensions to measure sense of community: membership, influence, sharing of values with an integration and fulfillment of needs, and a shared emotional connection. Some other researchers have either tested the four dimensions or proposed their own scale with different components, such as community participation and safety dimensions. However, there is no agreement on how sense of community should be measured. Cantillon and colleagues (2003) argued that a sense of physical safety, emotional connections and attachment were reliable and valid components of sense of community, and provided a comprehensive method to measure the mediating variables in social disorganization theory. Add Health has one section specifically asking questions to measure “the extent to which the respondent perceives himself as being a part of his neighborhood”. These questions cover some components of the measure of sense of community proposed by Cantillon and colleagues, but more comprehensive, detailed questions should be designed to specifically measure sense of community in future research.

This study uses logistic regression. Future research should consider hierarchical linear models as it provides advantage and benefits for this kind of data analysis. Future research should also include more items to test ethnic heterogeneity since this study only includes one.

Conclusion

Despite the limitations, this study has made some contributions to the literature. First, it examines the relationship between sense of community and neighborhood disadvantage, as well as the relationship between sense of community and adolescent drug use, two topics that are both understudied. Since drug use is a highly significant problem among youth, it is very important to fully understand what factors are associated with drug use among adolescents. This thesis confirms the negative relationship between sense of community and adolescent drug use. This requires us to pay more attention to the role of sense of community in both neighborhood context and individual level outcomes. It also finds that one item of neighborhood disadvantage – residential instability, is positively associated with adolescent drug use. Adolescents from neighborhood with rapid changing population are more likely to use drugs. Third, this study confirms the mediating role of sense of community in the relationship between neighborhood disadvantage and adolescent drug use. Future study should explore this topic more to gain a clearer picture.

This study also demonstrates that the history of drug use is the most important determinant of ongoing drug use in adolescents. As previously noted, adolescents who used drugs at Wave I are highly likely to continue using drugs at Wave II. This

highlights the importance of the initiation of drug use among adolescents and helps the design of future policy and prevention programs in the communities.

I hope that in the future, more work should address the mechanisms that may mediate the relationship between neighborhood context and adolescent behavior.

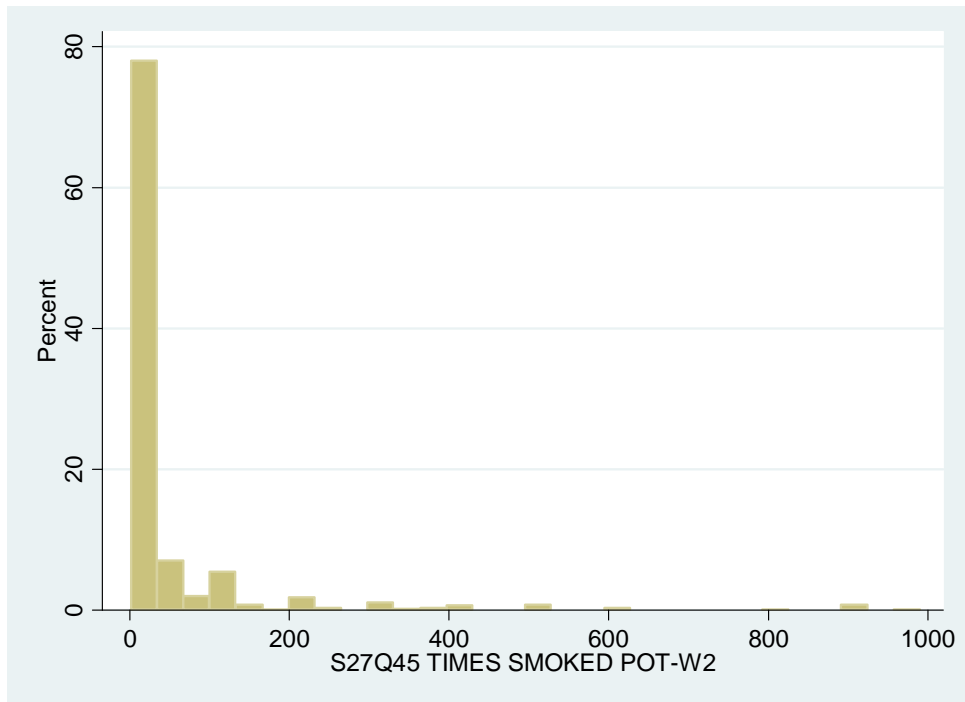
Table 1. Components of neighborhood disadvantage construct

Variables	Measurement	
Lived in same house in 1985		3,890(86.16%)
Lived in different house in 1985/same county		269(5.96%)
Lived in different house in 1985/different county		356 (7.88%)
Proportion moved into during 1985-90	Low	696(15.72%)
	Medium	3,197(72.20%)
	High	535(12.08%)
Proportion of households below poverty	Low	2,538(56.21%)
	Medium	1,019(22.57%)
	High	958(21.22%)
Proportion of female headed households	Low	747(16.90%)
	Medium	2,974(67.27%)
	High	700(15.83%)
Total unemployment rate	Low	2,426(53.73%)
	Medium	1,091(24.16%)
	High	998(22.10%)
Median household income	Low	526(11.65%)
	Medium	1,969(43.61%)
	High	2,020(44.74%)
Dispersion in race composition	Low	2,741(61.90%)
	Medium	924(20.87%)
	High	763(17.23%)

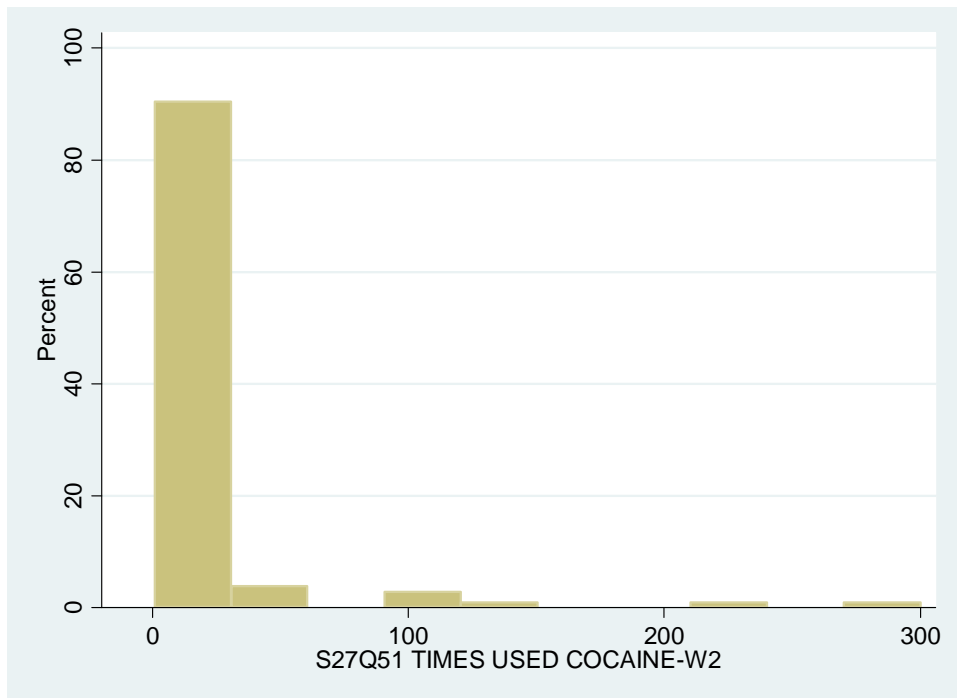
Table 2. Components of sense of community construct

Variables		Measurements
How happy living in your neighborhood	Not at all	126(2.90%)
	Very little	232(5.42%)
	Somewhat	873(20.12%)
	Quite a bit	1,548(35.68%)
	Very much	1,557(35.88%)
Happy/unhappy if you have to move to another neighborhood	Very unhappy	1,168(26.92%)
	A little happy	1,211(27.91%)
	Wouldn't make any difference	1,188(27.38%)
	A little happy	424(9.77%)
	Very happy	348(8.02%)

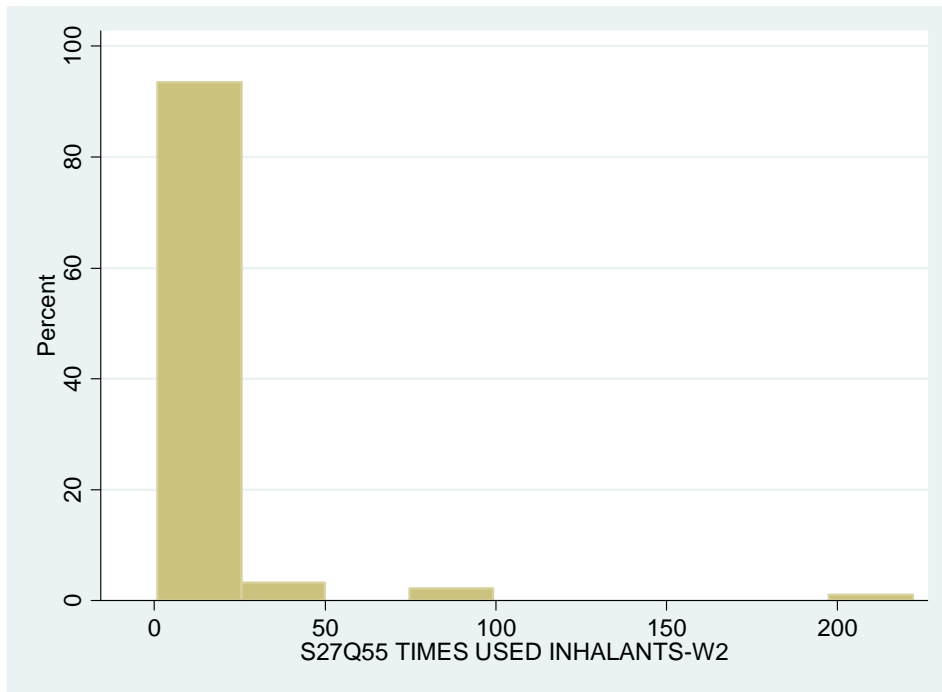
Graph 1. Frequency of distribution of marijuana use at Wave II



Graph 2. Frequency of distribution of cocaine use at Wave II



Graph 3. Frequency of distribution of inhalants use at Wave II



Graph 4. Frequency of distribution of other illegal drug use at Wave II

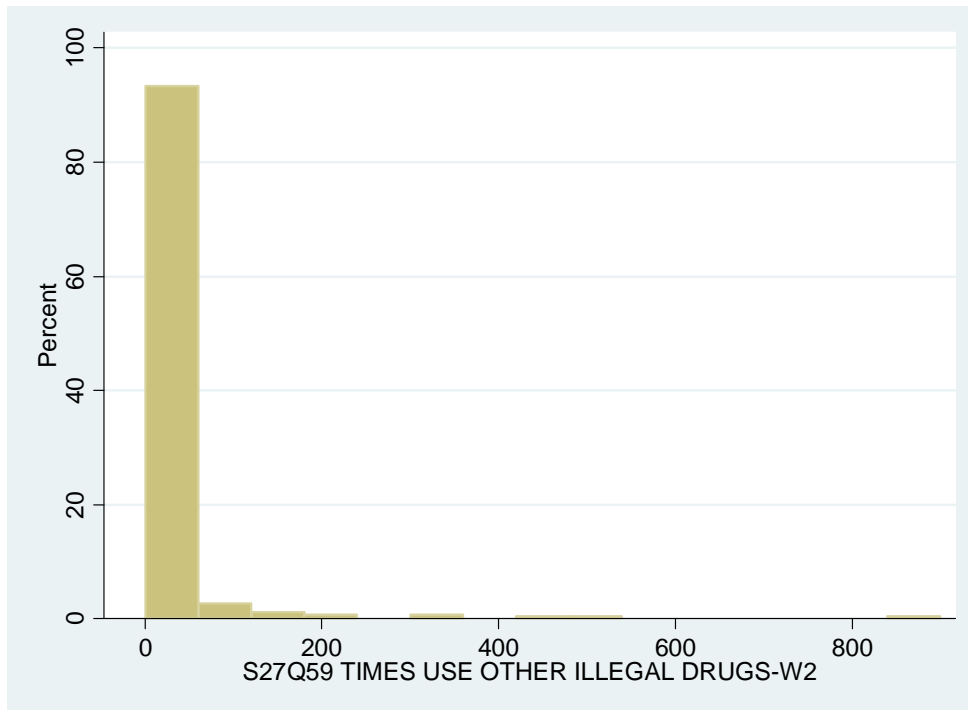


Table 3. Characteristics of the Sample (N=4,339)

Variables	Categories	Number (% of sample)
Race	White	2,983 (68.75%)
	Other	1,356 (31.25%)
Sex	Male	2,064 (47.57%)
	Female	2,275 (52.43%)
Age	11	3 (0.07%)
	12	152 (3.50%)
	13	667 (15.37%)
	14	819 (18.88%)
	15	850 (19.59%)
	16	883 (20.35%)
	17	703 (16.20%)
	18	224 (5.16%)
	19	33 (0.76%)
	20	4 (0.09%)
Place of residence	21	1 (0.02%)
	Urban	1,468 (33.83%)
	Non-urban	2,871 (66.17%)
Drug use in Wave I	Yes	1,186 (27.33%)
	No	3,153 (72.67%)

Table 4. Descriptive statistics for all variables (N=4,339)

Variables	Mean	SD	Min.	Max.
Sex	.47	.50	0	1
Race	.31	.46	0	1
Age	15.12	1.61	11	21
Reside in urban area	.34	.47	0	1
Drug use at Wave I	.27	.45	0	1
Drug use at Wave II	.27	.44	0	1
How happy living in your neighborhood	3.92	1.03	1	5
Happy/unhappy if you have to move to another neighborhood	2.49	1.19	1	5
Lived in the same house since 1985	.14	.35	0	1
Proportion households moved into during 1985 and 1990	.48	.26	0	1
Residential instability	.31	.27	0	1
Median income	1.68	.67	1	3
Proportion below poverty	1.65	.81	1	3
Proportion female-headed households	2.0	.57	1	3
Unemployment rate	1.68	.81	1	3
Ethnic heterogeneity	1.55	.77	1	3

Table 5. Correlation matrix of independent variables and mediating variables

Mediating Variables	Independent Variables		
	Residential Instability	Socioeconomic status	Ethnic heterogeneity
Sense of community	-0.09**	-0.11**	-0.08**

* $p < 0.1$, ** $p < 0.05$

Table 6. Correlation matrix of independent variables and mediating variables with dependent variables

Dependent Variable	Independent Variables			Mediating Variable
	Residential Instability	Socioeconomic status	Ethnic heterogeneity	Sense of community
Drug use W2	0.03*	-0.02	-0.02	-0.07**

* $p < 0.1$, ** $p < 0.05$

Table 7. Regression of adolescent drug use on sense of community and neighborhood disadvantage

	Model 1		Model 2		Model 3	
	Drug use W2		Drug use W2		Drug use W2	
	Beta	OR	Beta	OR	Beta	OR
Residential instability	0.27*	1.31	0.22	1.24	0.11	1.12
Socioeconomic status	-0.08	0.92	-0.11	0.89	-0.11	0.89
Ethnic heterogeneity	-0.06	0.94	-0.07	0.93	-0.05	0.96
sense of community_67			-0.55*	0.58	-0.30*	0.74
Sex					-0.08	0.92
Urban residence					0.05	1.06
Race					-0.02	0.98
Age					0.03	1.02
Using drugs at Wave I					2.53**	12.53

* $p < 0.05$, ** $p < 0.001$

Table 8. Drug use at Wave II

Marijuana	70.74%
Cocaine	6.92%
Inhalants	5.69%
Other illegal drugs	16.65%

Table 9. Regression of adolescent marijuana use on sense of community and neighborhood disadvantage

	Model 1		Model 2		Model 3	
	Marijuana W2		Marijuana W2		Marijuana W2	
	Beta	OR	Beta	OR	Beta	OR
Residential instability	0.35*	1.42	0.30*	1.36	0.18	1.20
Socioeconomic status	-0.05	0.95	-0.08	0.92	-0.07	0.93
Ethnic heterogeneity	-0.07	0.94	-0.08	0.93	-0.04	0.96
Sense of community			-0.55*	0.58	-0.27*	0.76
Sex					-0.08	0.92
Urban residence					0.04	1.04
Race					-0.07	0.93
Age					0.02	1.02
Using marijuana at Wave I					2.64**	14.05

* $p < 0.05$, ** $p < 0.001$,

Appendix A. Correlation matrix of independent variables and mediating variables with dependent variables and control variables

	Drugs w2 Race	Sense of community Age	Residential instability Drugs w1	Socioeconomic status	Ethnic heterogeneity	Sex	Urban
Drugs w2	1						
Sense of community	-0.08*	1					
Residential instability	0.03	-0.09*	1				
Socioeconomic status	-0.02	-0.11*	0.06*	1			
Ethnic heterogeneity	-0.02	-0.08*	0.14*	0.30*	1		
Sex	0.01	-0.03	-0.02	-0.03*	1	1	
Urban	0.01	-0.06*	0.04*	0.13*	-0.01	1	1
Race	-0.03	-0.12*	0.29*	0.40*	-0.02	0.22*	1
Age	0.11*	-0.08*	0.04*	0.01	0.06*	0.03*	1
Drugs w1	0.53*	-0.09*	0.03*	-0.02	0.05*	-0.05*	0.18*

* $p < 0.05$

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