Research paper

Neighborhood characteristics and prescription drug misuse among adolescents: The importance of social disorganization and social capital

Jason A. Ford*, Sarah Ann Sacra, Alexis Yohros

Department of Sociology, University of Central Florida, Orlando, FL 32816, United States

ABSTRACT

Background: Prior research on prescription drug misuse has focused on identifying individual risk factors. While a few studies examine differences in misuse based on geographic residence, there is a lack of research that examines the relevance of neighbourhood characteristics.
Methods: The current research used data from the 2000 National Household Survey on Drug Abuse, a sample of respondents that was generalizable to the non-institutionalised population of the United States. Logistic regression models were estimated to examine the relationship between neighbourhood characteristics (e.g., social disorganisation, social capital, and social participation) and prescription drug misuse (e.g., any misuse, pain reliever misuse, sedative/tranquiliser misuse, and stimulant misuse) among adolescent respondents ages 12–17.
Results: Findings show that neighbourhood characteristics were significantly associated with any prescription drug misuse and also the misuse of prescription opioids. Adolescents in socially disorganised neighbourhoods and also those in neighbourhoods with lower levels of social capital were more likely to report prescription drug misuse. Interestingly, adolescents with greater levels of social participation were more likely to report prescription drug misuse.
Conclusion: These findings were largely consistent with prior research examining the significance of neighbourhood characteristics in relation to crime and deviance. In order to adequately address the ongoing prescription drug epidemic in the United States, policy makers must address the neighbourhood characteristics that are known to be associated with prescription drug misuse.

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Introduction

The United States is in the midst of a prescription drug epidemic. Epidemiological surveillance data shows that prescription drug misuse has the second highest prevalence rate for any illegal drug use, and this is primarily driven by the misuse of prescription opioids (Center for Behavioral Health Statistics and Quality, 2015). Data from the United States also shows a dramatic increase, 114% between 2014 and 2011, in visits to hospital emergency rooms that were related to prescription drug misuse (Center for Behavioral Health Statistics and Quality, 2013). Also, the incidence of neonatal abstinence syndrome, associated with prescription opioids, nearly tripled in the U.S. between 2000 and 2009 (Patrick et al., 2012). Drug overdose is now the leading cause of accidental death in the United States and this is largely due

to prescription drug misuse (Centers for Disease Control and Prevention, 2016). For these reasons, much research attention has focused on prescription drug misuse among adolescents and young adults.

The bulk of this research has identified primarily individual level risk factors associated with prescription drug misuse. To date, research has focused on demographic, social, psychological, and behavioural factors (Ford & Rigg, 2015; Rigg & Ford, 2014; Young, Glover, & Havens, 2012). Partly due to the lack of publicly available data with geographic identifiers and quality measures of neighbourhood characteristics, there is a noticeable lack of research that focuses on neighbourhood characteristics and prescription drug misuse. This limitation is troubling, given the fact that drug "epidemics" have exacted a devastating toll on certain types of neighbourhoods in the past (Acker, 2010; Golub & Brownstein, 2013; Reinarman & Levine, 2004).

While existing research has not specifically examined the relationship between neighbourhood characteristics and prescription drug misuse, a few studies have examined the importance of

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geographic residence, or urban, suburban, rural differences in misuse (Keyes, Cerda, Brady, Havens, & Galea, 2014). A number of studies have used data from the National Survey on Drug Use and Health, a sample of respondents aged 12 and older that is representative to the non-institutionalised population of the United States, to examine this difference. Focusing on adolescents, respondents aged 12–17, several studies found that prescription drug misuse overall (Ford, 2009; Havens, Young, & Havens, 2011), prescription opioid misuse (Ford, 2009; Monnat & Rigg, 2016; Wang, Becker, & Fiellin, 2013; Wu, Pilowsky, & Patkar, 2008), prescription sedative misuse (Ford, 2009), and prescription tranquiliser misuse (Ford & Rivera, 2008) was more likely in rural or non-metropolitan areas. Research focusing on adult respondents has shown those living in urban areas have higher rates of prescription opioid misuse than those living in rural areas (Rigg & Monnat, 2015).

A number of studies published by researchers affiliated with the Center on Drug and Alcohol Research at the University of Kentucky have used regional samples to investigate urban/rural differences in prescription drug misuse. These studies show that rural users had an earlier age of onset for prescription drug misuse, higher rates of lifetime and current prescription drug misuse, and were also more likely to snort and inject prescription drugs (Young & Havens, 2012; Young, Havens, & Leukefeld, 2010). A study of respondents who were on felony probation found that those who lived in rural area were about five times more likely to report prescription opioid misuse compared to those who lived in urban areas (Havens et al., 2007).

The lack of research on neighbourhood characteristics and prescription drug misuse is interesting given the importance that social scientists tend to place on neighbourhoods (Aneshensel & Sucoff, 1996; Diez Roux, 2001; Hill, Ross, & Angel, 2005; Sampson, 2012). Much of the research in this area has focused on the importance of neighbourhood disadvantage, sometimes referred to as social disorganisation. Social disorganisation focuses on the forces at work in large urban areas, primarily structural disadvantage and cultural norms to explain involvement in crime and deviance (Bursik & Grasmik, 1993; Sampson, 2012; Shaw & McKay, 1942).

A number or researchers have examined the relationship between neighbourhood disadvantage and substance use. Neighbourhood disadvantage, generally characterised by poor housing conditions, high levels of school dropout and unemployment, fewer intact families, lower socioeconomic status, and a transient population has been shown to be an important correlate of drug use (Hayes-Smith & Whaley, 2009; Hays, Hays, & Mulhall, 2003; Hill & Angel, 2005; Winstanley et al., 2008). Among adolescents, neighbourhood disadvantage may play a role in the availability of substances, as well as acceptability of use, providing a context where drug use can be initiated, established, and maintained (Jang & Johnson, 2001). Neighbourhood disadvantage also lowers social cohesion in neighbourhoods, which is associated with higher rates of adolescent drug and alcohol related arrests (Duncan, Duncan, & Stryker, 2002).

In addition to neighbourhood disadvantage several studies examine the relationship between social capital and substance use. Social capital, generally defined as having access to a network of pro-social relationship manifested by trust, reciprocity, and mutual cooperation, has become an important concept in the social sciences (Coleman, 1988; Putnam, 2001). Much of the research on social capital and drug use finds a significant association between social capital and decreased substance use among adolescents and young adults (Awgu, Magura, & Coryn, 2016; Curran, 2007; Reynoso-Vallejo, 2011; Weitzman, Byrd & Auinger, 1999; Winstanley et al., 2008). Social capital is likely associated with lower levels of drug use due to the strong social bonds that access to social capital makes possible.

The current study seeks to address an important gap in the literature on prescription drug misuse. While prescription drug misuse has been widely identified as a major public health issue, there is a glaring lack of research that focuses on identifying neighbourhood characteristics that are significantly associated with prescription drug misuse. Given that drug use has been shown to isolate itself to certain types of neighbourhoods, the crack epidemic for example, it is important to fully understand how both neighbourhood and individual levels characteristics influence prescription drug misuse. Thus, the current research examines the relationship between important neighbourhood characteristics, social disorganisation and social capital, and prescription drug misuse.

Methods

Data

The data for the current study was the 2000 National Household Survey on Drug Abuse (NHSDA), an ongoing study sponsored by the U.S. Substance Abuse and Mental Health Services Administration that dates back to the 1970s and examines the prevalence of substance use and mental illness in a sample that is generalisable to the civilian noninstitutionalised population of the United States aged 12 and older. More recent data from the same survey is available, but the questions we used to measure neighbourhood disadvantage were discontinued from the survey.

A sample of 71,764 persons aged 12 and older was generated using a state-based sampling plan, including all 50 states and Washington, D.C. Each state were geographically divided into equal sized field interviewer (FI) regions. These FI regions were then split into smaller areas composed of adjacent census blocks or segments. These segments served as the primary sampling unit. Dwelling units (e.g., housing units or group quarters) were then selected within the primary sampling unit. The sampling design required roughly the same number of respondents in three age groups: 12–17, 18–25, and 26 and older. The weighted screening response rate was 93% and the weighted interview response rate was 74%.

The NHSDA implemented many strategies to improve the validity of the survey. Given that several survey items cover sensitive or illegal behaviours, respondent privacy was enhanced by the interview procedures. Respondents were surveyed in the privacy of their own homes, and a combination of computer-assisted personal interviewing (CAPI) and audio computer-assisted self-interviewing (ACASI) were used to collect the data (Office of Applied Studies, 2001). This data collection strategy allowed survey respondents to enter responses directly into a computer, providing respondents with a highly private and confidential means of responding to questions, thereby increasing the level of honest reporting of illicit drug use and other sensitive behaviours (Aquilino, Wright, & Supple, 2000; Newman et al., 2002; Perlis, Des Jarlais, Friedman, Arasteh, & Turner, 2004).

The current research used data from the public use version of the NHSDA (N = 56,680), which was created using a subsampling step to control the risk of disclosing the identity of any respondent. The current research focuses on only adolescent respondents, ages 12–17, in the NHSDA (N = 19,430). We used listwise deletion to handle observations with missing data. With missing cases removed, about 8% of the respondents, we had a total of 17,856 respondents in our analytical models. Analysis showed that respondents with missing data, primarily on the neighbourhood characteristic measures, had a lower prevalence of prescription drug misuse than respondents with no missing data.