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Drug use opportunities as opportunities for drug use prevention: Bogotá, Colombia a case in point

Yehuda Neumark[a,*], Catalina Lopez-Quintero[a], Georgiy Bobashev[b]

[a] Braun School of Public Health and Community Medicine, Hebrew University – Hadassah, Israel
[b] RTI International, Research Triangle Park, Waltham, Massachusetts, USA

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ABSTRACT

Background: As drugs become more ubiquitous and fewer resources are available for drug prevention and treatment, understanding the early stages of drug use involvement becomes increasingly important for prevention efforts. This study aims to explore the concept of drug use opportunity, and to disentangle, from a socio-ecological perspective, the factors associated with experiencing a drug use opportunity.
Methods: Data from 2279 standardized questionnaires administered in 23 schools in Bogotá was analyzed. Schools were selected in a multistage probability cluster sample. Multilevel logistic regression modeling estimated the effects of multiple level factors on the likelihood of having experienced an opportunity to use illicit drugs or inhalants.
Results: One-third of respondents (32.1%) reported having had an opportunity to use drugs. Even among those who perceived drugs to be readily available and/or expressed intentions to use drugs in the near future, most reported never having experienced an opportunity to use drugs. For most of the drugs assessed, peer drug use, cigarette smoking, alcohol drinking, problematic behavior, and degree of school safety were the strongest correlates of having had a drug use opportunity.
Conclusions: Despite living in an environment of high drug availability, most adolescents do not experience opportunities to use drugs. The likelihood of experiencing an opportunity is influenced by multiple interacting individual and macro-social factors, just as drug use is. Drug use opportunities were mainly promoted by friends, suggesting the need to consider their role within close social networks, alongside that of drug suppliers, in the design of intervention activities and drug policy development.

1. Introduction

The predominant focus of the epidemiologic investigation of drug use has traditionally been the estimation of drug use prevalence rates and the individual and interpersonal determinants that may explain differences in observed patterns of use. More recently, the precursor stage to actual use – the "drug use opportunity" (DUO) stage, in which a drug is offered or sought, has received increased attention (Benjet et al., 2007; Caris et al., 2009; Chen et al., 2004, 2005; Crum et al., 1996; Dormitzer et al., 2004; Van Etten and Anthony, 2001; Van Etten et al., 1997, 1999; Wagner and Anthony, 2002; Wells et al., 2011; Wilcox et al., 2002). This shift toward the earlier stages of the drug use continuum has occurred as the availability of drugs continues to spread globally (United Nations Office on Drugs and Crime, 2010), necessitating the elucidation of mechanisms within and across specific contexts that drive drug use rates upward, in order to formulate relevant prevention strategies and evidence-based policies.

Available evidence suggests that the effects of some factors on drug use are mediated via their influence on the likelihood of experiencing a DUO rather than on the decision to use drugs once an opportunity presents itself (Chen et al., 2005; Delva et al., 1999; Van Etten and Anthony, 2001). For instance, the well-established male-female differential in rates of drug use in the United States (US) can be attributed, almost entirely, to sex-differences in DUO (Dormitzer et al., 2004; Van Etten et al., 1999). Also to come out of the DUO research, is evidence of lack of a defined direct proportional effect between resources invested in criminal prosecution of drug offenders and DUO rates. Despite the considerable resources invested over the years in drug law enforcement in the US, one third (31%) of adolescents experienced an opportunity to use marijuana (Van Etten and Anthony, 2001). This is considerably higher than that reported among school-attending adolescents in several Central-American and Caribbean countries (4–19%) (Dormitzer et al., 2004), where prosecution of drug offenders is a lesser priority and fewer drug prevention resources are available (Hall and Pacula,

* Corresponding author at: Braun School of Public Health and Community Medicine, Hebrew University – Hadassah, P.O. Box 12272, Jerusalem 91120, Israel. Tel.: +972 2 6439103; fax: +972 2 6431086.
E-mail address: yehudan@ekmd.huji.ac.il (Y. Neumark).

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2003; International Narcotics Control Board, 2009). The study of DUO has also helped elucidate the effects of environmental and social determinants on the likelihood of progression from legal to illegal drug use, as proposed by the "Gateway Theory" (Kandel et al., 1992). Previous research indicates that tobacco and alcohol users are more likely than nonusers to experience an opportunity to try marijuana, and are more likely to actually use marijuana given the opportunity. In turn, marijuana users are more likely to experience a cocaine use opportunity (Wagner and Anthony, 2002; Wilcox et al., 2002).

Several DUO risk factors have been identified including male gender, older adolescence, low level of religious practice, truancy, tobacco and alcohol use, family history of drug-use problems, and living in a disadvantaged neighborhood (Benjet et al., 2007; Caris et al., 2009; Chen et al., 2004, 2005; Crum et al., 1996; Dormitzer et al., 2004; Van Etten and Anthony, 2001; Van Etten et al., 1997; Wagner and Anthony, 2002; Wilcox et al., 2002). However, no study to date has explored DUO conceptually and analytically from a socio-ecological perspective using multilevel analytical techniques to simultaneously identify predictors at different levels of influence.

Colombia is the only country where industrial quantities of marijuana, coca-cocaine, and opiates are grown (Thoumi, 2002), producing 90% of the cocaine and 60% of the heroin imported to the US (United Nations Office on Drugs and Crime, 2007). The drug-trafficking industry has severely affected Colombian society by intensifying crime and violence, and promoting widespread corruption, individualism, and mistrust (Thoumi, 2002). Recent stepped-up activities against the large drug cartels and a clamp-down on cocaine exports, forced micro-cartels to shift their marketing focus to local markets (Bedoya, 2009). Combined with rapid urbanization and economic instability, this has led to a gradual but steady increase in the rates of illegal drug use (Degenhardt et al., 2008; Inter-American Drug Abuse Control Commission, 2004; Ministerio del Interior y de Justicia et al., 2009).

For over 20 years, legal penalties were not imposed for possession of personal doses of illegal drugs, although any attempt to sell or distribute drugs to minors or induce minors to use drugs was, and remains punishable by law (Congreso de Colombia, 1986, 2002; Gaviria, 1994). Colombian law also stipulates that preventive and treatment services should be made available to drug-using minors. While the law helped reduce the burden to the already overcrowded prison system (Thoumi, 2002), lack of financial and human resources for law enforcement facilitated drug dealing (Thoumi, 2002) and impeded implementation of effective evidence-based preventive and therapeutic interventions.

Aware of the lack of studies on DUO in a high drug availability context, and bearing in mind the socio-cultural and political forces driving the drug use phenomenon in Colombia, the present study aimed to explore the complexity of the DUO concept, determine the prevalence of DUO among a representative sample of school-attending adolescents in Bogotá, and investigate through a comprehensive socio-ecological approach, the individual and school-contextual determinants of having experienced a DUO. Furthermore, the present study advances the exploration of DUO by delineating between passive opportunities (those in which the individual was approached with an offer to use or purchase drugs) and active opportunities (whereby the individual actively sought out drugs for use).

2. Methods

2.1. Subjects

Data from a multi-stage cluster sample of students in 66 classes (8th–10th grade) of 14 public schools and 9 private schools in Bogotá, Colombia was analyzed. Schools were selected to reflect the socio-economic spectrum of adolescents registered in Bogotá's school-system (Secretaria de Educación de Bogotá, 2003).

Letters were sent to the students' homes explaining the study's purpose and content and requesting parental consent. Parents who did not wish to have their child participate in the study were instructed to return a signed statement to that effect. Despite parental approval, students were free to opt out of the study. Twelve parents refused their child's participation and 132 students declined to participate or were absent on the survey day. Of those who participated ($N = 2361$), 82 returned incomplete questionnaires, provided incoherent or haphazard responses, or endorsed the opportunity to use a bogus drug ("Cadrina," included as a quality control measure), and were excluded from the analyses. In sum, data from 2279 students was analyzed.

2.2. Instruments and procedures

Data was collected in 2006 via a standardized confidential questionnaire. The sample was followed-up one year later, therefore, to maintain confidentiality, yet allow for linking Wave 1 (W1) and Wave 2 (W2) questionnaires, each student generated a personal alphanumeric code based on a limited number of characters (e.g., initial letter of first name, day of birth, last letter of family name). Most constructs were assessed with questions derived from existing interview schedules such as the Drug Use Screening Inventory (DUSI) (Tarter, 1990), the Youth Risk Behavior Survey (YRBS; Centers for Disease Control and Prevention, 2003), and principally the multinational PACARDO research project questionnaire (Dormitzer et al., 2004). A pilot study including focus group sessions was conducted to appraise the suitability of the questionnaire. During completion of the questionnaire in class, a research assistant read each question aloud which helped mitigate reading and literacy barriers, maintain order, and enhance confidentiality.

Experiencing a DUO was operationally defined by asking students "How old were you when you first had the opportunity to try (drug)?" Passive and active drug-use opportunities were assessed by asking the students "Who provided you with the opportunity to use (drug) for the first time?" with options that included: (1) I never had the opportunity, (2) I sought it myself, (3) a parent, (4) a sibling, (5) other family member, (6) a friend, (7) another person. Students who answered "I sought it myself" for any drug were classified as having experienced an active DUO. The drugs assessed herein include marijuana, inhalants (e.g., gasoline, ether or glue used with the purpose of getting high), cocaine, bazuco (a semi-processed coca-paste), and ecstasy.

Guided by the "Ecological Model of Health Behavior" (McLeroy et al., 1988), data was collected on socio-demographic (gender and age), intrapersonal (perceived drug availability, intention to use drugs, attitude toward illegal drugs, past-year monthly smoking, ever been drunk, level of problem behavior), interpersonal (degree of parental supervision, past-year illegal drug use among first-degree relatives, and number of drug-using friends [none, one, several]), and school-contextual factors. Perceived drug availability was assessed by asking students "How easy is to get/purchase (drug)?" with possible answers of very easy, easy, hard, very hard and don't know, recoded as high (very easy and easy) and low (hard and very hard categories). Intentions to use drugs within the next year was assessed by the question "How likely is it that you will use (drug) in the next year?"; possible answers included not likely, likely and very likely, recoded into positive intentions (likely or very likely) and negative intentions (not likely). Attitudes toward illegal drugs was assessed with 5 questions (e.g., "Does it bother you to see people using drugs?"; Cronbach-alpha coefficient for internal reliability = 0.63); respondents who answered any of the questions negatively were categorized as having a favorable attitude. Students who smoked at least once a month in the past 12 months were classified as past-year monthly smokers. The problem behavior scale was composed of 9 items (e.g., "During the last 12 months have you hit someone in a fight?"; Cronbach-alpha coefficient = 0.69), and recoded into tertiles. Degree of parental supervision was determined on a cumulative scale comprising 6 items (e.g., "Are your parents or guardians usually aware of where you are and what you are doing?"; Cronbach-alpha coefficient = 0.53) and recoded in quartiles. School-contextual variables included: school socio-economic status (SES) recoded as low (strata 1 and 2), medium (strata 3), and high (strata 4–6), level of school safety – estimated for each school by determining the percentage of children who reported feeling safe at school, recoded into tertiles, and exposure to school-based drug prevention programs – coded as positive if at least 75% of the students in the school reported having received drug preventive education.

The research protocol was approved by university-based research committees in Colombia and Israel.

2.3. Data analysis

First-order statistics were calculated (SPSS, version 17.0; SPSS Inc., Chicago, IL) to characterize the sample, and ascertain the prevalence of any, passive, and active opportunity to use marijuana, inhalants, cocaine, bazuco or ecstasy. Random intercept multilevel logistic regression models (Goldstein, 2003) were implemented (MLwiN, version 1.10.0007; Centre for Multilevel Modeling, Institute of Education, London, UK) to estimate the effect of intrapersonal and interpersonal characteristics at level-1, and school-contextual characteristics at level-2, on the odds of having experienced a DUO. Variables significantly associated with DUO at the univariate level were included in the multivariate models. Associations are expressed