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Predictors of Substance Use Among Vulnerable Adolescents in Five Cities: Findings From the Well-Being of Adolescents in Vulnerable Environments Study

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A B S T R A C T

Purpose: Adolescent substance use has numerous consequences. Our goals in this article are to compare the prevalence and correlates of substance use among ethnically diverse adolescents.
Methods: Data were from 2,332 adolescents aged 15–19 years recruited via respondent-driven sampling from disadvantaged settings in five cities. Multivariate logistic regression was used to identify correlates of current substance use.
Results: About half of the respondents were male. Most adolescents (73.4%) were currently enrolled in school and identified a father (86.2%) and mother (98.6%) figure and strong peer support. Sixty-two percent reported lifetime use of at least one substance. Overall, the most common substances ever used were alcohol (44.6%), cigarettes (26.2%), and marijuana (17.9%). Mean age at first use of alcohol was 14.2 ± 3.1 years. Current alcohol use was highest in Johannesburg (47.4%) and lowest in Delhi (2.1%). The mean age at first use of cigarettes was 14.4 ± 2.8 years. Current cigarette smoking was highest in Johannesburg (32.5%) and lowest in Delhi (3.7%). Male gender predicted current alcohol use in all sites, older age (17-19 years) was also a predictor in Baltimore. Male gender (Johannesburg and Shanghai), older age (Baltimore and Shanghai), and being out of school (Baltimore, Johannesburg, and Shanghai) predicted current cigarette smoking. Absence of a caring father figure was predictive for current alcohol use in Baltimore and Shanghai. Stronger peer support predicted alcohol (Johannesburg and Shanghai) and cigarette use (Johannesburg).
Conclusions: Substance use is still a major issue among adolescents around the world, underscoring the need for continued research and interventions.

IMPLICATIONS AND CONTRIBUTION

This study highlights disparities in prevalence and predictors of substance use among adolescents. While current rates of alcohol and cigarette use were low in some sites, lifetime use of alcohol, cigarettes and marijuana was high. It is important to prevent psychoactive substance use among adolescents and its subsequent detrimental effects.

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Substance use among adolescents is an important public health problem [1,2]. Data on global patterns of licit and illicit substance use among adolescents vary due in part to inadequacy of data in Africa and Asia [2]. Previous research has described substances commonly used by adolescents to include alcohol, tobacco, inhalants, marijuana, and narcotics [3,4]. Available data among adolescents in low- and middle-income countries reveal that adolescents often use socially acceptable and affordable substances such as alcohol and cigarettes and legal substances such as inhalants and cough syrup [5–7]. Although global substance use has decreased, current rates are still high [2] and young people remain a high-risk group for substance use initiation and dependence [2,4].

Use of psychoactive substances by adolescents is associated with consequences such as mental health problems, drunk driving, violence, engagement in risky sexual behaviors, and subsequent unanticipated pregnancy and sexually transmitted infections [2–4,8–10]. In China, for instance, a rise in injection drug use among youths correlates with increased rates of HIV among them [11]. Several factors influence the vulnerability of adolescents to substance use. These can be intrapersonal, such as adolescents' gender; interpersonal, such as conflict with family members and others in the community; and/or contextual including community structures and extant laws [12].

Adolescents residing in disadvantaged urban communities are at significant risk of substance use. First, they have high rates of impulsivity because of their age, and therefore a proclivity to engaging in risky behaviors [13]. Furthermore, poverty and instability in disadvantaged communities lead to significant amounts of stress that, when compounded by limited access to health information, could result in an increased tendency to use substances [14,15].

Factors that mitigate the effects of disadvantaged urban environments on adolescents' risky behaviors include social support, social group cohesion, stable emotional relationships with relatives, and access to education [14,15]. Paucity of data on substance use among adolescents in disadvantaged communities, however, limits development and implementation of appropriate interventions. It is thus important to investigate factors at the inter- and intrapersonal levels that predict substance use among adolescents in disadvantaged environments to inform prevention policies and programs for these populations. Therefore, the purpose of this study was to examine the predictors and correlates of substance use among in and out-of school adolescents residing in low income sections of five major cities. Specifically, to (1) compare the prevalence and types of substances used by these adolescents and (2) describe common individual and interpersonal factors associated with substance use among them.

Methods

Procedures and sampling

The Well-Being of Adolescents in Vulnerable Environments (WAVE) study was conducted among adolescents aged 15–19 years residing in disadvantaged communities in five cities: Baltimore, Maryland, USA; Delhi, India; Ibadan, Nigeria; Johannesburg, South Africa; and Shanghai, China. This cross-sectional study used a two-phase mixed-methods approach. Phase I used a qualitative approach [16]. Information obtained from the qualitative phase was used to develop the study instruments used in the quantitative phase (phase II). Data for this article are based on the quantitative phase conducted among 2,332 adolescents across the five sites.

Participants were recruited for the WAVE phase II study using respondent-driven sampling (RDS) [17]. This methodology uses a chain-referral sampling strategy designed to reach hard-to-reach populations and/or marginalized groups [17]. Details of the RDS methodology as used in this study are described in the article by Decker et al. in this supplement [18]. The five cities included in the study were located in the home countries of the investigators who had existing research collaborations. The study sites selected represented vulnerable neighborhoods within a major city in each of the countries. The survey instrument was developed with input from the study investigators and was translated, back-translated, and piloted at each study site [18]. In all study sites, information was obtained using Audio Computer Assisted Self Interviewing. Written informed consent was obtained from adolescents aged 18 years and older and parents of those aged 15–17 years. In addition, adolescents aged 15–17 years gave written assent. Ethical approval was obtained from the Committee on Human Research at the Johns Hopkins University and the respective ethics committees of the collaborating local organizations.

Measures

Outcomes. We obtained information on lifetime use of any substance. Respondents were asked if they had ever used alcohol, tobacco (cigarettes or chewed tobacco), marijuana, cocaine, stimulants, inhalants, sedatives, hallucinogens, opiates, prescription drugs, injection drugs, and other substances with a dichotomous "yes" or "no" response.

Two main outcome variables—current use of alcohol and current use of cigarettes—with responses "yes" or "no" were used for additional analyses. These substances were selected because they are commonly used in many countries [2] and they are common (licit) gateway substances [19]. We focused on current use of these substances (i.e., use "in the past 30 days") to reduce reporting errors from recall bias. Additional information obtained included: age respondent first finished a glass/serving of alcohol, frequency of drinking and history of binge drinking in the past 30 days, age when respondent smoked first cigarette, frequency of cigarette smoking, and average number of cigarettes smoked in the past 30 days.

Predictors. The choice of predictors was guided by findings from previous literature [3,4,7,13]. Adolescent-related demographic factors included gender, age; dichotomized as younger = 15–16 years and older = 17–19 years groups (representing middle and late adolescent stages respectively [20]), current enrollment in school and currently working for income. Social support factors included availability of a mother/father-figure assessed as "yes" or "no" responses, relationship of the mother/father figure (biological, step/adoptive, grandparent, sibling, other relative, other nonrelative), availability of a supportive mother and father figure, each assessed by the question: "How much do you feel the woman/man who raised you cares about you?" Responses were measured on a Likert scale, and ranged from 0 – "not at all," 1 – "very little," 2 – "somewhat," 3 – "quite a bit," 4 – "very much," to 7 – "do not know." Lower scores indicated less caring/supportive parent figures. "Do not know" responses were excluded from the analysis. Peer-related support was assessed via a scale of items where respondents stated if they had a friend who: (1) I can trust;