Inhalant use and risky injection behavior among injection drug users

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Introduction

In general population studies of adolescents, inhalant use has been linked to delinquent behavior, and later binge drinking, poly-substance use, and injection drug use (Dinwiddie, Reich & Cloninger, 1991; Mackesy-Amiti & Fendrich, 1999; Schutz, Chilcoat & Anthony, 1994). This secondary analysis of data from the Collaborative Injection Drug Users Study II (CIDUS II) explored the prevalence of inhalant use, and characteristics of inhalant users among injection drug users in Chicago. Risky injection behaviors (i.e. sharing syringes or other injection equipment) were compared between inhalant using and non-inhalant using injectors.

Methods

CIDUS II was a multi-site longitudinal study of young injection drug users (IDU) conducted from 1997 to 1999 to study risk behaviors for HIV and HCV infection. At baseline, 717 IDU age 16 to 30 were interviewed in Chicago. We defined an inhalant user as a person who reported that they had “used inhalants, like sniffing glue, poppers, nitrous oxide (NO2),” and had initiated use prior to age 18. Recent use refers to use within the past six months.

The definition of inhalant use was restricted to initiation prior to age 18 in order to exclude nitrite-only users, as the questionnaire did not differentiate between nitrites and other inhalants. Nitrites (poppers) and volatile solvents each have their own distinct epidemiological patterns. Volatile solvents are nearly always initiated in the early to mid teenage years, while nitrites are typically initiated at a later age. Restricting our definition of inhalant use in this manner is likely to exclude those people who did not use volatile solvents. This definition excluded 13% of all inhalant users (33 lifetime users, and 11 recent users).

Risk behaviors were assessed as frequencies in the past six months, measured on 5-point ordinal scales labeled from ‘Never’ to ‘Always’. These measures were dichotomized (ever/never) for the present analyses. Risk behaviors included injecting with a needle that had been used by someone else, and sharing injection equipment such as cookers, cotton filters, and rinse water.

In logistic regression analyses, two dummy variables were created to contrast past inhalant users and recent inhalant users with respondents who never used inhalants, as defined above. Age, gender, and race were included as covariates in all regression analyses.

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<thead>
<tr>
<th>Table 1. Inhalant Use &amp; Demographic Characteristics</th>
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<tr>
<td>Overall</td>
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<td>Other</td>
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<td>Chicago Residents</td>
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<td>Non-Chicago Residents</td>
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Significant differences (p<.05) shown in blue italics

Results

Thirty-one percent of the IDU reported ever using inhalants, and 10% reported use within the past six months. Inhalant users were more likely than nonusers to be male (lifetime only), White, of younger age, and live outside of the city (Table 1). Most non-Chicago residents lived in near suburbs.

In logistic regression analyses, adjusting for gender, age, and race, inhalant users were more likely to have spent time in a
mental health facility or mental hospital. Recent inhalant use was also associated with having been in juvenile detention. Inhalant users were not more likely to have been in jail or prison, however.

Both past and recent inhalant users were more likely to report having begun drinking weekly before age 14. Recent inhalant users reported more frequent drinking in the past six months compared to non-users, and were more likely to consume large amounts of alcohol. Recent inhalant users were more than 4 times as likely as non-users to report drinking 7 or more drinks per day; past inhalant users were slightly more likely than non-users to report this level of drinking.

Figure 1 shows the adjusted proportions of inhalant users and non-users reporting sharing of needles and other injection equipment in the past six months. In logistic regression analyses controlling for age, gender, and race, IDU who also used inhalants within the past six months were twice as likely as those who never used inhalants to share needles (OR=2.02, 95% CI 1.14 - 3.56), and more than three times as likely to report sharing injection equipment other than syringes, i.e. cookers, cotton filters, or rinse water (OR=3.20, 95% CI 1.39 – 7.38). Past inhalant use was not associated with increased risk of these behaviors. The associations were not diminished by controlling for history of spending time in a mental health institution.

Conclusions

Injection drug users who also use inhalants are more likely to have a history of juvenile delinquency, mental health problems, and early alcohol use. They are more likely to drink alcohol frequently and in large quantities. IDU who use inhalants are more likely than non-inhalant using injectors to share needles and other injection equipment and, consequently, to be at increased risk of HIV or HCV infection.

Literature Cited


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