Short communication

Truancy and illicit drug use among adolescents surveyed via street outreach

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Abstract

This study investigates the association linking truancy and drug-related experiences among adolescents surveyed via a street outreach program. A total of 2126 adolescents aged 12 to 18 years recruited from Taipei street sites completed a self-administered anonymous questionnaire. The lifetime prevalence of illicit drug use for adolescents with truancy was 15.0–17.9% (12.1–14.5% for ecstasy, 4.6–7.3% for ketamine, and 3.5–8.8% for marijuana), and the corresponding estimate was 3.1–3.4% for youths without truancy. Multiple logistic regression analyses showed a dose-response effect linking the maximum days of truancy with illicit drug use. After holding constant of psychosocial environmental factors and use of readily available substance (i.e., alcohol, tobacco, and betel nut), the results of survival analyses suggested that there might be reciprocal relationships operating between illicit drug use and truancy. These findings may help form programs to identify or monitor youths at risk.

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Keywords: Illicit drugs; Adolescents; Truancy; Street outreach; Tobacco; Alcohol

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1. Introduction

Prior studies have found that youths wandering on the street may have experienced more drug-related problems (Forster, Tannhauser, & Barros, 1996). To reach youth samples which might be otherwise not recruited in household- or institute-based studies (e.g., school dropouts), the outreach program is usually considered as one of alternative ways to study this population. The outreach's purposeful sampling, however, may encounter the difficulty in determining the results' generalizability. One possible solution is to conduct separate analyses for adolescents with a greater versus lower likelihood of substance use (An, O'Malley, Schulenberg, Bachman, & Johnston, 1999). Among several potential risk factors associated with drug use among middle school students, truancy was consistently suggested as an excellent indicator in terms of better validity predicting drug use and greater comparability across studies (Hallfors et al., 2002).

In the past decade, adolescent illicit drug use has become one of emerging public health issues in many industrialized countries (e.g., the U.S. and some European countries) (see Bauman & Phongsavan, 1999). However, relatively little is known regarding such issues in the other parts of the world. To fill in these gaps, we then turned to the youth sample recruited from a street outreach program in Taipei. The main aim is to examine truancy-associated differences in substance use among adolescents. Our statistical approach involves survival analysis with time-dependent covariates, with the intention to estimate possible bi-directional associations linking truancy and illicit use.

2. Methods

The participants in this study were youths surveyed through a street outreach program that was conducted in collaboration with the Taipei Eastern Youth Service Center. Each outreach team consisted of 2 or 3 interviewers who were either experienced social workers or trained research assistants. Over the period from March to October 2002, the outreach teams worked from 4:00 pm to 10:00 pm each day at city sites where youths were known to congregate, such as after-hour school campus, parks, internet cafés, and downtown areas (e.g., fast food restaurants, Mass Rapid Transportation stations), across over all four major areas of Taipei. Interviewers would look for youths at the sites and contact those who appeared to be 12 to 18 years old, with an eye to those appeared to be wandering on the street. The interviewers would assure the youths that the survey was anonymous and confidential, and then accompanied the person to a more private place to sign an informed consent with first name or nickname only and undertake a self-administered questionnaire, which included demographic characteristics, the history of psychoactive substances involvement, as well as the experiences of truancy and sexual behavior. Of the 2412 adolescents surveyed on the street, 285 (12%) were excluded from subsequent analyses because their ages did not meet the criterion or their essential data were not available. The final sample size was 2126. The study was conducted under institutional review board approval at College of Public Health, National Taiwan University.

The use of illicit drug was analyzed initially as a binary outcome and hence logistic regression analysis was performed. Then, under the context of survival analysis by treating the participants as representative of a hypothetical cohort that gave rise to the observed sample, the Cox proportional hazards regression analysis with time-dependent covariates was conducted by using the Proc PHREG of the SAS (version 8.0 for Windows 2000).

3. Results

The sample consisted of 998 boys and 1128 girls. Among them, 21.1% had a working job, 21.3% were from a single-parent family, 5.6% did not live with family, and 6.0% were not student. Pertaining to their experience of truancy, 45.2% never had truancy, whereas 32.6% had a maximum truancy day of 1 day or less, 8.2% 2 days, and 14.2% 3 days or more. The truancy-related differences in substance use stratified by age group were summarized in Table 1. As to alcohol, tobacco, and betel nut, the adolescents who had ever been truant were found to have higher lifetime prevalence of use in both age groups. The most commonly used illicit drug was ecstasy, followed by ketamine and marijuana. Although the prevalence of illicit drug use tended to be higher as age increases, the age effect with a statistical significance was only found in marijuana and two-or-more illicit drugs for the group with truancy. The prevalence of any illicit drug use among the truancy adolescents was five-time higher than the one of those non-truants, and the ratio became close to 10 for ever use of two or more types of illicit drugs.

After taking into account possible confounders in psychosocial environment simultaneously, the odds of having initiated illicit drug use among adolescents recruited from street outreach increased linearly with both the numbers of readily available substance use and maximum days of consecutive truancy (Table 2). The same factors remained in the multiple logistic regression analysis for illicit drug use were then subjected to Cox's proportional hazards regression analysis, with use of any readily available substances and truancy treated as time-dependent covariates. For time-invariant psychosocial variables, those that were found to be predictive of the hazard of initiating illicit drug use were similar to those derived from multiple logistic regression analysis. The risk of initiating any illicit drug use was 3.6 times

Table 1

Lifetime prevalence of substance use by truancy experience and age among the adolescents of the street outreach

Variable	Without-truancy adolescents		With-truancy adolescents		Truancy group comparison	
	Age 12–15 years (N=510)	Age 16–18 years (N=447)	Age 12–15 years (N=347)	Age 16–18 years (N=822)	Age 12–15 years	Age 16–18 years
	n (%)	n (%)	n (%)	n (%)	P	P
Readily available substances						
Alcohol	186 (36.5)	223 (49.9)**	268 (77.2)	620 (75.5)	<0.01	<0.01
Tobacco	82 (16.1)	99 (22.2)*	238 (68.6)	463 (56.3)**	<0.01	<0.01
Betel nut	19 (3.7)	34 (7.6)**	104 (30.0)	183 (22.3)**	<0.01	<0.01
Illicit drugs						
Ecstasy	10 (2.0)	12 (2.7)	42 (12.1)	119 (14.5)	<0.01	<0.01
Ketamine	3 (0.6)	7 (1.6)	16 (4.6)	60 (7.3)	<0.01	<0.01
Marijuana	3 (0.6)	2 (0.5)	12 (3.5)	72 (8.8)**	<0.01	<0.01
Secobarbital/methaqualone	4 (0.8)	1 (0.2)	4 (1.2)	20 (2.4)	0.58	<0.01
Amphetamine	2 (0.4)	1 (0.2)	4 (1.2)	17 (2.1)	0.19	<0.01
FM2	1 (0.2)	0 (0.0)	2 (0.6)	6 (0.7)	0.35	0.07
Heroin	1 (0.2)	0 (0.0)	1 (0.3)	5 (0.6)	0.78	0.1
Glue	3 (0.6)	2 (0.5)	3 (0.9)	7 (0.9)	0.63	0.41
Above illicit drugs						
Ever used ≥ 1 drug	16 (3.1)	15 (3.4)	52 (15.0)	147 (17.9)	<0.01	<0.01
Ever used ≥ 2 drugs	3 (0.6)	6 (1.3)	22 (6.3)	91 (11.1)*	<0.01	<0.01

* $p < 0.05$; ** $p < 0.01$ for comparing the group of age 12–15 years with that of age 16–18 years within each truancy group (2-sided).

Table 2

Logistic regression analysis of illicit drug use on potential correlates among the adolescents of the street outreach

Variable	Total <i>n</i>	Prevalence <i>n</i> (%)	Adjusted odds ratio ^a (95% CI)
Age			
12–15 years	857	68 (7.9)	1.0
16–18 years	1269	162 (12.8)	1.5 (1.1, 2.2)
Sex			
Male	998	116 (11.6)	1.0
Female	1128	114 (10.1)	1.2 (0.8, 1.6)
Being non-student			
No	1977	171 (8.7)	1.0
Yes	127	53 (41.7)	2.7 (1.8, 4.2)
Working			
No	1636	151 (9.2)	1.0
Yes	437	72 (16.5)	1.4 (1.0, 2.0)
Single-parent family			
No	1613	135 (8.4)	1.0
Yes	436	83 (19.0)	1.6 (1.1, 2.2)
Use of alcohol, tobacco, or betel nut			
Never	684	8 (1.2)	1.0
1	661	34 (5.1)	4.0 (1.6, 9.8)*
≥ 2	789	189 (24.0)	15.6 (6.7, 36.6)*
Maximum truancy days			
Never	957	31 (3.2)	1.0
≤ 1 day	690	64 (9.3)	1.5 (0.9, 2.4)*
2 days	174	29 (16.7)	2.2 (1.2, 4.0)*
≥ 3 days	296	106 (35.8)	5.0 (3.0, 8.2)*

CI=confidence interval.

^a Estimated from a model containing all the variables in the table.* $p < 0.001$ for trend test.

greater (95% CI: 2.5–5.5) after the youths had truancy-related experiences and 9.9 times greater (95% CI: 5.2–18.8) after the youths started use of alcohol, tobacco or betel nut. To probe whether the onset of illicit drug use may increase later risk of truancy, similar Cox regression analysis was performed. The results showed that the risk of initiating truancy was 2.2 times greater (95% CI: 1.6–3.0) after the youths started use of illicit drug use and 2.5 times greater (95% CI: 2.2–2.9) after the youths started use of alcohol, tobacco or betel nut.

4. Discussion

The rate of being non-student in this outreach sample were higher than recent official statistics (i.e., 0.47% for junior high school, 1.57% for senior high school, and 5.38% for vocational school students in 2001, Taipei) (Education statistical information of the Ministry of Education, 2003). Likewise, having a single parent seemed more common among our youth sample in comparison with the general adolescent population (i.e., 21.3% vs. 8%) (see Hsueh, 2002). These features highlight that our street outreach approach can indeed capture high risk adolescents who would otherwise be missed in school-based surveys.

Our data showed that the lifetime prevalence of any illicit drug use among the truant adolescents was much higher than that of their non-truant counterparts, with ecstasy, ketamine, and marijuana as the most frequently used illicit drugs. The popularity of these illicit drugs may echo with the global trend of teenagers' rave culture (Arria, Yacoubian, Fost, & Wish, 2002). This observed higher prevalence of illicit drug use among the with-truancy adolescents provides important implications for drug prevention and intervention, because truancy experience is much more common than complete dropout and can be easily identified by school educators. Moreover, the prevalence of illicit drug use in the without-truancy adolescents was still higher than that of a series of school-based surveys in Taiwan (1.5%) (Chou, Liou, Lai, Hsiao, & Chang, 1999). In contrast, the lifetime prevalences of alcohol, tobacco and betel nut use among the 12 to 15 years old without-truancy adolescents in this study were very similar to those of a recent survey in junior high school students in Taipei (48% for alcohol, 18% for tobacco and 4% for betel nut) (Kuo, Yang, Soong, & Chen, 2002). The higher rate of illicit drug use in our study may be, in part, due to a surging drug availability in Taiwan recently (Li, 2001), or indeed a faithful reflection of drug experiences of at-risk youths who might be absent in the school-based survey. Furthermore, as recent studies have pointed out that survey technologies with advanced confidentiality protection may increase the sensitivity of self-reported drug use (Turner et al., 1998), it is very possible that the youths were more likely to report their actual drug experience given that the outreach program's street interview setting provides greater levels of confidentiality and anonymity than school.

The association of truancy with illicit drug use was further strengthened in both the multiple logistic and Cox proportional hazards regression analyses, after many other risk factors for illicit drug use were statistically adjusted. But their relationship appears not to be unidirectional. On the one hand, the dose-response effects linking the maximum days of truancy with illicit drug use highlight a cumulative relationship between this risk behavior and illicit drug use. On the other hand, the results of Cox regression analyses revealed that there were indeed reciprocal relationships between illicit drug use and truancy, i.e., truancy increased the risk of illicit drug use and vice versa. Of note, the magnitude of hazard ratios was greater for the direction of truancy to illicit drug use than for the opposite direction. This indicates that there were more adolescents who started truancy before using illicit drugs than those who went from illicit drug use to truancy.

Some limitations of this study should be kept in mind. First, both the information of truancy and illicit drug use in this study relied exclusively on self-report, which might lead to an artificial association between the two. Second, the selection rules for participants were not easy to be implemented and some selection bias might occur when sampling cannot reflect the lifestyle of adolescents wandering on the streets (e.g., the street surveys were only conducted in the afternoon and evening). Third, the outreach sites were limited to public and relatively safe places. Certain 'dark street corners' were avoided and hence we might have missed persons who had violence-related problems in addition to drug abuse.

Acknowledgements

This study was supported by a grant from the National Bureau of Controlled Drugs, Department of Health, Taiwan (DOH91-NNB-1001).

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