



Adolescent Technology Use and Substance Use

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Abstract

Technology use has been rapidly increasing for adolescents. The Pew Internet and American Life Project (2011) report that 80% of youth use social media, 75% text message, and about 11% use e-mail. In addition, about 35% of adolescents watch more than three hours of television per day (YRBS, 2007). However, researchers only recently are beginning to investigate the relationship between technology use and adolescent adjustment. One area that has been relatively unexplored is adolescent substance use. As such, this study sought to examine the longitudinal relationship between adolescent technology use and substance use. Given that gender differences have been found for both technology use (e.g. Witt et al., 2011) and substance use (e.g. MacArthur et al., 2012) during adolescence, gender differences were examined.

Sample

- 1,036 10th and 11th grade high school students (53% girls)
- 58% Caucasian; 22% African-American; 11% Hispanic; 2% Asian
- Mean age = 16.15 (SD=.75); age range 14-19 years old
- All adolescents attended a public high school in Delaware, Pennsylvania, or Maryland
- Most of the participants (56%) lived with both biological parents; 89% lived with their biological mother and 61% lived with their biological father

Measures

Technology Use Questionnaire

The Technology Use Questionnaire was used to assess frequency of technology use. The questionnaire was comprised of nine items with responses ranging from 1 = *none* to 6 = *4 hours or more per day*. For the present study, only watching television, text messaging, and emailing/IMing were considered.

Measures

Alcohol Use Survey

Adolescents reported how much and how often, on the average day, they usually drank (beer, wine, or liquor) in the last six months. Based on this information, a total alcohol quantity x frequency score was calculated. As an index of binge drinking, adolescents were asked how many times they had 6 or more drinks in the past six months. Because the alcohol use score was skewed, the scores were linearly transformed.

Drug Use Survey

In order to assess drug use, adolescents were asked how frequently they had used marijuana, sedatives, stimulants, inhalants, hallucinogens, cocaine or crack, and opiates in the last 6 months. A total drug use score was calculated by summing the scores of these drugs. Because the drug use score was skewed, the logarithmic transformation of the scores was used.

Procedures

During the spring of 2007 and 2008, trained research assistants gave surveys to students who provided assent and had parental consent. The survey took approximately forty minutes to complete. Participants were informed that their participation was voluntary and they could withdraw from the study at any time. All adolescents were assured that their answers would be kept confidential. Upon completion of the survey, the participants were given a movie pass.

Results

A linear regression model was conducted separately by gender. In this model, adolescent substance use variables (assessed at Time 2) were regressed on adolescent technology use (assessed at Time 1). Results, by gender, are presented in Table 1.

Boys

For boys, watching television predicted less alcohol use ($\beta = -.14, p < .05$), whereas texting predicted more alcohol use ($\beta = .21, p < .005$) and more drug use ($\beta = .27, p < .001$).

Girls

For girls, watching television predicted less alcohol use ($\beta = -.19, p < .001$), less drug use ($\beta = -.12, p < .05$), and less binge drinking ($\beta = -.17, p < .01$). In contrast, e-mailing and instant messaging predicted more alcohol use ($\beta = .17, p < .01$) and more drug use ($\beta = .13, p < .05$).

Table 1
Linear Regression: Predicting Adolescent Substance Use at Time 2 from Technology Use at Time 1

| Technology | Alcohol Use | | Drug Use | | Binge Drinking | |
|---------------------|-------------|---------|----------|-------|----------------|--------|
| | Boys | Girls | Boys | Girls | Boys | Girls |
| Watching television | -.14* | -.19*** | -.12 | -.12* | -.08 | -.17** |
| Text messaging | .21** | .03 | .27*** | -.06 | .01 | -.01 |
| E-mailing/IMing | .10 | .17** | -.24 | .13* | .17 | .13 |

* $p < .05$, ** $p < .01$, *** $p < .001$.

Note: Standardized regression coefficients presented

Conclusions

In sum, for both boys and girls, the more social types of technology (e.g., e-mailing, texting) were related to more substance use, whereas the less social types of technology (e.g., television viewing) were related to less substance use. Perhaps social types of technology are more closely linked to substance use because they allow for peer influence. Future research should examine whether peer variables (e.g., peer pressure, peer substance use) mediate the relationship between technology use and substance use.