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Media Resistance Skills and Drug Skill Refusal Techniques: What is Their Relationship with Alcohol Use Among Inner-City Adolescents?

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Abstract

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Past research related to alcohol advertising examined whether underage adolescents were targets of the alcohol industry and what impact such advertising had on adolescent drinking. The purpose of this study was to longitudinally examine the impact of media resistance skills on subsequent drinking among adolescents residing in inner-city regions of New York City. The study also tested whether drug skill refusal techniques (knowing *how* to say no to alcohol and other drugs) mediated the relationship between media resistance skills and adolescent drinking. A panel sample of baseline, 1-year and 2-year follow-ups (N = 1318) from the control group of a longitudinal drug abuse prevention trial participated. A series of structural equations models showed that media resistance skills directly negatively predicted alcohol use two years later and that drug skill refusal techniques mediated this effect. Baseline media resistance skills were associated with 1-year drug skill refusal techniques, which in turn negatively predicted 2-year alcohol use. These findings provided empirical support for including media resistance skills and drug skill refusal techniques in alcohol prevention programs.

Keywords: Adolescence, Alcohol use, Inner-city populations, Competence skills

Other Sections ▼

In the United States, the government does not have restrictions on alcohol advertising. Unfortunately, adolescents may be exposed to these alcohol advertisements. The alcohol industry voluntarily set guidelines in 2003 which limited advertising to places where the youth audience was 30% or less. However, young people (12 – 20 years) made up approximately 15% of the United States population. Underage youth exposure to alcohol advertising on television grew substantially in the five years from 2001 to 2005, by 41% for ages 12 to 20 ([Center on Alcohol Marketing and Youth, 2006b](#)). Moreover, alcohol companies spent \$4.7 billion to place 1.4 million advertisements on television. According to this study, cable television was most likely to expose youth to alcohol advertising: 93% of exposure to the target group for ages 12 to 20 was on cable in 2005.

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Furthermore, youth were more likely to see alcohol advertising on three cable networks compared to the apparent target audience of young adults aged 21 to 34.

However, television was not the only medium that exposed underage youth to alcohol advertising. Another study found that approximately half of alcohol advertising on radio aired during programs in which the audience was youth-oriented (i.e., composed disproportionately of persons aged 12-20 years; Jernigan et al., 2006). Magazines served as another means for alcohol advertising reaching youth. The alcohol industry spent \$696 million (from 1997-2001) to place 9148 advertisements in 35 major US magazines (Garfield, Chung & Rathouz, 2003). The magazines included 7 of the 10 most popular magazines among adolescents (excluding the 3 magazines that do not accept alcohol advertising). The study controlled for adult readers. The magazines tended to appeal to the general public, such as *TV Guide*. In addition, alcohol advertising on radio, television and magazines reached more African-American youth than their peers on a per capita basis (Center on Alcohol Marketing and Youth, 2006a). Thus further study of African-American youth should be a priority.

The media can be considered one of many potential sources of social influence on adolescent behavior including alcohol use. According to social learning theory, adolescents learn behaviors through a process of modeling and imitation (Bandura, 1977). Alcohol advertisements for the most part consisted of pleasant role models engaging in alcohol use, which could serve to entice adolescents to imitate these role models. Based on social learning theory and the adolescent exposure to alcohol advertising, this suggested that prevention programs incorporate media resistance skills. Furthermore, based on the theory of reasoned action media can be one source of influence on attitudes toward alcohol that in turn affect behavior (Ajzen & Fishbein, 1980). Media resistance skills and refusal skills should aid in combating the influence of alcohol advertising on adolescent drinking. Thus according to the theory of reasoned action, prevention program need to include skills to help resist the influence of alcohol advertising on adolescent drinking. Specifically, one way to stop adolescents from forming positive attitudes of alcohol based on exposure to alcohol advertising would be to include competence skills to resist such attitude changes: (1) media resistance skills and (2) refusal skills.

Additional research can explicate the potential role of media resistance skills for lowering adolescent alcohol use longitudinally, as well as the mediating mechanism of such an effect. One potential source of the effect of media resistance skills might be refusal skills. In a prevention study of 6th to 10th graders, the prevention program increased refusal skills but refusal skills did not mediate the effect of the program on alcohol misuse (Wynn, Schulenberg, Maggs & Zucker, 2000). Yet earlier research with adolescents from 6th to 10th grade indicated that refusal skills did mediate the effects of the same prevention intervention on alcohol misuse (Wynn, Schulenberg, Kloska, & Laetz, 1997).

Another longitudinal study found that refusal skills (in combination with other factors) mediated the effects of two prevention programs on adolescent alcohol use among inner-city youth (Botvin, Schinke, Epstein, Diaz & Botvin, 1995). General competence skills consisted of decision-making (items related ability to make sound decisions, such as "When I have a problem I think about which of the alternatives is best.") and self-efficacy (the extent to which respondents believed they could achieve personal goals through their own efforts, such as, "I can learn almost anything if I set my mind to it") were related to refusal assertiveness which

▶ Alcohol advertising in magazines and adolescent readership. [JAMA. 2003]

▶ Preventing alcohol misuse: the impact of refusal skills and norms. [Psychol Addict Behav. 2000]

▶ The mediating influence of refusal skills in preventing adolescent alcohol misuse. [J Sch Health. 1997]

▶ Role of general and specific competence skills in protecting inner-city adolescents from alcohol use [J Stud Alcohol. 2000]

▶ Psychosocial determinants of alcohol use among minority youth living in public housing dev [J Dev Behav Pediatr. 1998]

▶ Social skills, competence, and drug refusal efficacy as predictors of adolescent alcohol use. [J Drug Educ. 1999]

in turn was related to adolescent drinking in a longitudinal etiology study of inner-city youth (Epstein, Griffin & Botvin, 2000). Drinking refusal skills also lowered the odds of drinking cross-sectionally among youth residing in public housing (Williams, Epstein, Botvin, Schinke & Diaz, 1998). Conversely, poor refusal skills have been associated with greater alcohol use longitudinally (Scheier, Botvin, Diaz & Griffin, 1999).

Another more detailed variable has been developed which examined the actual drug refusal skill techniques used rather than whether adolescents used refusal skills or not. Generic media resistance skills might be considered as one step toward reaching social competence. The more domain-specific drug refusal skill techniques should be the next level of social competence. Demonstrating the specificity of the drug refusal skill techniques, adolescents rated their used of a variety of techniques of how to say no (e.g., "tell them no or no thanks," "change the subject," "make up an excuse and leave") rather than rating a more global media resistance skills. Refusal skills can be called domain-specific to refusing alcohol and other substances. Drug refusal skill techniques, another domain-specific skill, merely expanded on the many ways to how to say no rather than just whether to say no. Refusal skills need foundational generic skills, such as media resistance skills, and in turn these generic skills need more domain-specific skills to build on for greater competence. In fact, such refusal skills might mediate the effects of generic skills as suggested by past research.

Although many factors, such as parents and peers, can influence an underage young person's decision to drink, research suggested that advertising might also be important. In addition, other important factors include alcohol availability, law enforcement, and alcohol prices (Room, Babor & Rehm, 2005). One study found that alcohol magazine advertising was associated with adolescent readership (Garfield et al., 2003). These results suggested that both the beer and distilled liquor industries indirectly targeted adolescent readers. Therefore, television, radio and magazine alcohol advertising all appeared to at least indirectly target adolescents. Another issue concerned whether such media exposure had an association with subsequent adolescent alcohol behavior.

Exposure to televised alcohol advertisements in 7th grade was longitudinally associated with subsequent beer consumption in 8th grade (Stacy, Zogg, Unger & Dent, 2004). Youth who saw more alcohol advertisements on average drank more and youth in markets with greater advertising expenditures drank more including those younger than the legal drinking age of 21 (Snyder, Milici, Slater, Sun & Strizhakova, 2006). Alcohol advertising promoted adolescent drinking in two ways in a longitudinal study: (1) among 7th grade non-drinkers exposure to in-store beer displays predicted drinking onset by grade 9 and (2) among 7th grade drinkers, exposure to alcohol advertising in magazines and to beer concession stands at sports or music events predicted frequency of 9th grade drinking (Ellickson, Collins, Hambarsoomians & McCaffrey, 2005).

Attempts to counter advertising with universal warnings did not appear to work over the long term. The government warning label required on alcohol beverage containers (starting in 1989) had initial positive effects on adolescents that leveled off in five years or less (MacKinnon, Nohre, Pentz & Stacy, 2000). Initially, there were increases in the awareness of, exposure to, and memory for the warning. The alcohol warning label did not affect alcohol consumption and driving after drinking (behavior) at any time. Adolescents exposed to the prevention program ALERT Plus were less likely to drink and less susceptible to in-store advertisements (Ellickson et al., 2005). This prevention program included media lessons focusing on identifying different types of advertising and countering the

▶ Alcohol advertising in magazines and adolescent readership. [JAMA. 2003]

▶ Effects of alcohol advertising exposure on drinking among youth. [Arch Pediatr Adolesc Med. 2006]

▶ Does alcohol advertising promote adolescent drinking? Results from a longitudinal assessment. [Addiction. 2005]

▶ Does alcohol advertising promote adolescent drinking? Results from a longitudinal assessment. [Addiction. 2005]

persuasive appeals of alcohol advertisers. Therefore, resiliency based on media resistance skills might be a more promising strategy for lessening adolescent drinking.

The present study examined whether generic media resistance skills lowered subsequent drinking among inner-city youth controlling for earlier drinking. Furthermore, the study tested whether drug refusal skill techniques mediated the relationship between generic media resistance skills and drinking. The mediated model also tested whether the direct effects of general competence skills (generic media resistance skills) on adolescent drinking were mediated by more domain-specific competence skills (drug refusal skill techniques). Moreover, in contrast to earlier work concentrating on refusal skills (saying no to alcohol and other drugs), this study examined drug refusal skill *techniques* (*how* to say no to alcohol and other drugs). To our knowledge, this would be the first attempt to evaluate these two skills (generic media resistance skills and specific drug refusal skill technique) together in a longitudinal model. In other words, the study evaluated whether specific competence skills concerning how to resist alcohol and other drugs contributed to the general competence skills of resisting media influences not specifically related to alcohol use. The study also concentrated on understudied ethnic minority (predominantly black/African-American) inner-city adolescents.

Method

Other Sections ▼

Overview

Participants in the present study were from the control schools of a randomized trial investigating the etiology and prevention of adolescent alcohol and other drug use. This prevention trial and its collection of data received ethical approval from our Institutional Review Board. A total of 13 junior high schools in New York City participated. Seventh graders from these schools completed questionnaires in which they reported their patterns of alcohol use and items assessing other factors relevant to alcohol use. A consent procedure approved by our Institutional Review Board was used to obtain parental consent. Fewer than 1% of the potential participants refused participation. Over 90% of the potential students participated in the baseline survey.

Sample

At baseline, 2228 adolescents participated. By the one-year follow-up, there was 80% retention (N=1782). Subsequently at the two-year follow-up, 67% of the baseline students remained in the study (N=1486). The panel sample across all three waves consisted of 1318 students (59% retention). Prior work with inner-city populations has found similar rates of retention for two-year follow-ups (e.g., Botvin, Schinke et al., 1995; Epstein et al., 2000). There was no further information available about students who did not continue participation. However, inner-city populations tend to be extremely mobile. Thus one reason for failure to continue may have been moving and no longer attending the school attended. Another reason students probably failed to participate is due to absenteeism. At this age, it is unlikely that the students dropped out of school.

Research with Project ALERT conducted in Oregon and California has shown retention rates ranging from 60% to 64% (Ellickson et al., 1993; Hays & Ellickson, 1990). A smoking prevention evaluation with a shorter follow-up conducted with an urban Los Angeles sample of African-American and Latino youth had a 60% retention rate (Sussman et al., 1995). Our retention rate seemed in the same range as other studies. The mean age at baseline for the panel sample was 12.9 years old (SD=0.59) and the sample was 51% girls. The study sample was 32%

► Role of general and specific competence skills in protecting inner-city adolescents from alcohol use [J Stud Alcohol. 2000]

► Changing adolescent propensities to use drugs: results from Project ALERT. [Health Educ Q. 1993]

► Empirical development of brief smoking prevention videotapes which target African-American [Int J Addict. 1995]

Students rated five items regarding what they would do "If someone asked you to smoke, drink, or use other drugs: tell them "no" or 'no thanks", tell them not now, change the subject, tell them you don't want to do it, and make up an excuse and leave (Epstein et al., 1997). Responses were indicated on five-point Likert scales ranging from "definitely would" (1) to "definitely would not" (5). These five measures were used to create a latent variable "Drug Refusal Skill Techniques" at year 2 (one-year follow-up). The Chronbach alpha for this measure was .82.

Results

Other Sections ▼

Attrition analyses

Mean differences on the alcohol measures between panel and dropout students were tested. Dropouts drank more frequently ($M_s = 1.67$ vs. 1.53 ; $p < .05$), were drunk more frequently ($M_s = 1.14$ vs. 1.07 ; $p < .05$) and drank more often ($M_s = 1.47$ vs. 1.39 ; $p < .05$) than panel students. This limited the generalizability of these findings to students in school. The differences in alcohol use between panel and dropout students were statistically significant, yet they were not practically significant (ranging from .07 to .14 on six-point or nine-point scales). Regressions with retention status as a dependent measure (dropouts=0 and panel members=1) with the psychosocial and alcohol variables as predictors (e.g., Biglan et al., 1991; Scheier and Botvin, 1998) accounted for only 3% of the variance. The loss of high end users may weaken the intensity of the relationships, which would be stronger if the students who dropped out the study had remained. Therefore, the loss of high-end drinkers makes it more difficult to find relationships with drinking. Although the results of this study were likely conservative, the large sample size still permitted the detection of meaningful relationships. However, any findings of the study cannot be generalized to students who were not in school.

Latent Variable Models

The first step was to run a confirmatory factor analysis (CFA) model. This helped verify the psychometric adequacy of the hypothesized measurement model. In the next stage, a series of longitudinal structural equation models tested the hypothesized paths between the latent factors. Mplus Version 4 (Muthén, & Muthén, 1998–2006) was used to test all the models. To handle missing data, Mplus used the maximum likelihood method. Four latent factors were specified in the CFA or measurement model. Each factor had three to five indicator items. Two latent factors were measured at baseline in 7th grade: the Baseline Alcohol Use factor loadings ranged from .47 to .88 and the Media Resistance Skills latent factor loadings ranged from .68 to .80. Drug Refusal Skill Techniques latent factor (assessed at the one-year follow-up in 8th grade) loadings ranged from .48 to .80. The outcome factor, Alcohol Use at the two-year follow-up in 9th grade, had loadings ranging from .72 to .92. The factor loadings for all the latent constructs were highly significant (p 's $< .001$) and in the expected direction. Therefore, the CFA showed that the measurement model was properly specified and that each factor was statistically reliable according to the hypothesized model.

Two criteria were used to assess the overall fit of the CFA model and subsequent SEM: (1) the Comparative Fit Index (CFI), which compares the predicted covariation in the hypothesized model to that of the null model, with values greater than .90 indicating an excellent fit of the model to the data; and (2) the standardized root mean squared residual (SRMR), which should be less than .05. According to these criteria, the CFA model was a good to excellent fit, CFI = .96, SRMR = .038.

Effects of Generic Media Resistance Skills on Alcohol Use

In a direct effects model, Generic Media Resistance Skills significantly predicted less drinking in the 9th grade. The model controlled for baseline drinking making this model and the subsequent model predictions of change in drinking. This direct effects model showed a good fit to the data, CFI = .971, SRMR = .030.

Specifically, the path from Generic Media Resistance Skills to subsequent drinking was $-.08$ ($p < .05$). As expected, earlier drinking was associated with drinking two years later and it had a path coefficient of $.42$ ($p < .001$). Moreover, earlier drinking was negatively related to Generic Media Resistance Skills with a path coefficient of $-.18$ ($p < .001$).

Final Mediation Model

For the final mediated model, Drug Refusal Skill Techniques (a latent factor measured in the 8th grade) was added to the earlier direct model to test whether Drug Refusal Skill Techniques mediated the direct effect of Generic Media Resistance Skills on subsequent Drinking (see [Figure 1](#)). The path from Generic Media Resistance Skills to the Drug Refusal Skill Techniques was $.17$ ($p < .001$), and the path from Drug Refusal Skill Techniques to later Drinking was $-.27$ ($p < .001$). Therefore, both paths to and from the mediator were significant. The addition of the mediator Drug Refusal Skill Techniques reduced the path from Generic Media Resistances Skills to later Drinking from $-.08$ to $-.05$. The path changed from significance to non-significance with the addition of the mediator. These findings (direct effects latent variable affected mediator, mediator was related to the drinking outcome and the direct effect became non-significant) supported a mediation effect for Drug Refusal Skill Techniques. This mediation model had a very good fit to the data, CFI = .955, SRMR = .038. Specific competence skills concerning how to resist alcohol and other drugs mediated the general competence skills of resisting media influences not specifically related to alcohol use.

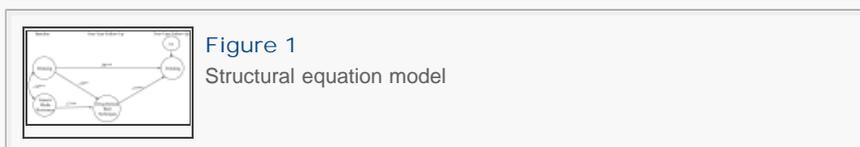


Figure 1
Structural equation model

Discussion

Other Sections ▼

Both generic media resistance skills and drug refusal skill techniques proved to be important competence skills in adolescent drinking. First, generic media resistance skills had a direct impact on subsequent alcohol use controlling for earlier alcohol use. Then, drug refusal skill techniques mediated the relationship between generic media resistance skills and later adolescent drinking controlling for earlier drinking.

The direct effect of generic media resistance skills on adolescent drinking showed how critical these skills can be. Furthermore, in the mediated model drug refusal skill techniques undermined adolescent drinking.

The final model indicated that the effect of generic media resistance skills on adolescent drinking was mediated by drug refusal skill techniques. This indicated that general competence skills (generic media resistance skills) had a relationship with more specific competence skills (drug refusal skill techniques). There was a conceptual similarity to past research that found general competence skills (decision-making and self-efficacy) were related to specific competence skills (refusal assertiveness), which in turn were associated with adolescent drinking

► Role of general and specific competence skills in protecting inner-city adolescents from alcohol use [J Stud Alcohol. 2000]

longitudinally (Epstein et al., 2000). In the present study the focus was on media resistance skills in a longitudinal model with an inner-city sample, which has not been investigated to our knowledge. Furthermore, in examining mediation rather than using a refusal skills or refusal assertiveness measure, this study concentrated on the use of specific techniques for refusing alcohol and other drugs (e.g., changing the subject).

The current study's findings implied several strategies for prevention. First, these findings suggested that skills related to resisting media influences might be a promising strategy for lessening adolescent drinking, as suggested in earlier prevention research (Ellickson et al., 2005), as well as by social learning theory (Bandura, 1977) and the theory of reasoned action (Ajzen & Fishbein, 1980). Second, the present study's results argue for the inclusion of other competence skills particularly those that teach adolescents specific techniques for resisting alcohol, rather than only including a message to resist alcohol ("say no"). Knowing how to accomplish this should lead to greater ability in resisting social influences, including the media, to drink.

Specifically, the findings suggested that alcohol prevention programs that include competence enhancement skills should be more effective than those that do not. Other prevention research has demonstrated the effectiveness of such approaches on alcohol use with ethnic minority inner-city adolescents (e.g., Botvin, Epstein, Baker, Diaz & Ifill-Williams, 1997; Botvin, Griffin, Diaz, & Ifill-Williams, 2001; Botvin et al., 1995). The current study suggested support for competence enhancement programs to include generic media resistance skills and new knowledge about the mechanism through which these competence skills may work. Generic media resistance skills appear to be the first step toward competence enhancement in combating adolescent drinking. What then makes it more feasible to resist alcohol is the next step in competence enhancement: drug refusal technique skills, which mediated the effect of generic media resistance skills.

Limitations and Strengths of the Study

The study had several limitations. One limitation was the small number of variables tested in the model. However, this model was very focused on testing particular hypotheses. Another limitation common to school-based research was the use of self-report data. To address this, the data collection protocol was designed to ensure confidentiality to increase the validity of self-reports. Important components of the data collection protocol included not involving school personnel in data collection, using members of the same ethnic groups as the students to collect data, assuring students that parents, friends, teachers and others would not know how they responded and explaining that all the information would be confidential. A potential third limitation arose from the nature of the sample used in the study. The findings of this study may not generalize to non-school samples, other inner-city populations, or adolescents who were absent moved or otherwise did not participate in subsequent surveys (those who failed to participate). Thus the findings may not apply to these other adolescents.

There were also several strengths to this study. A major strength was the longitudinal design during early adolescence when alcohol use starts and escalates. A second strength concerned the predominantly ethnic minority adolescents, who tended to be an understudied population. Specifically, for ethnic minority adolescents relatively little existed in the literature related to the etiology of alcohol use especially regarding these particular competence skills. Finally, the model tested in this study was based on a widely-used competence enhancement

► Does alcohol advertising promote adolescent drinking? Results from a longitudinal assessment. [Addiction. 2005]

► Drug abuse prevention among minority adolescents: posttest and one-year follow-up of a school-based program. [Prev Sci. 2001]

approach to adolescent drinking. Thus the model relied on the theory of such an approach and its practical implications.

Conclusions and Implications

This longitudinal model of alcohol use among inner-city adolescents suggested that both media resistance skills and drug skill techniques (*how* to say no to alcohol and other drugs) were critical in this understudied group. Media resistance skills had a direct negative effect on drinking two years later. This effect was mediated by drug skill techniques one year later. Specific competence skills concerning how to resist alcohol and other drugs contributed to the general competence skills of resisting media influences not specifically related to alcohol use ("I think about whether what the ad says is true"). The findings imply that alcohol prevention programs incorporate competence enhancement skills, particularly media resistance skills (how to resist advertising) and drug technique skills (*how* to say no to alcohol and other drugs).

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