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MEDIA LITERACY AND PARENT-ADOLESCENT COMMUNICATION ABOUT ALCOHOL IN MEDIA

Effects on Adolescent Alcohol Use

Youngju Shin, Michelle Miller-Day, and Michael Hecht

Introduction

During the developmental period of adolescence, the likelihood of engaging in risky behaviors dramatically increases (Griffin, Scheier, Botvin, & Diaz, 2000; Wong et al., 2006). A recent *Monitoring the Future* study (2015) reports that adolescent substance use in the United States drastically increases from 8th grade to 12th grade. In this national study, it is noted that among 8th grade students; alcohol (26 percent) is the most prevalent substance used, followed by illicit drugs (21 percent) and cigarettes (13 percent). When youth reach the 12th grade, lifetime alcohol, illicit drugs, and cigarettes increase to 64 percent, 49 percent, and 31 percent respectively.

While adolescent substance use is multi-determined, there has been an increasing interest in examining the influence of media on shaping adolescent perceptions of substance use (CAMY, 2009). Adolescents are increasingly exposed to media images of substance use by adults and underage youth in film, television, and print media in addition to social media (Banarjee & Greene, 2007). By portraying pro-use images of substances, mass media images tend to make substance use appealing and attractive, especially for adolescents (Kelly, Slater, & Karan, 2002b; Sargent, Wills, Stoolmiller, Gibson, & Gibbons, 2006) leading to increased substance use and abuse (Anderson, De Bruin, Angus, Gordon, & Hastings, 2009). Fortunately, increased substance use is not an inevitable outcome of media exposure to pro-use messages because media influence can be mitigated.

PARENT-ADOLESCENT COMMUNICATION ON ALCOHOL

One approach to reducing the potential risks associated with media exposure is protecting adolescents by increasing their media literacy (Greene et al., 2015b; Hindmarsh, Jones, & Kervin, 2015; Peek & Beresin, 2016; Potter, 2013). Adolescents who are high in media literacy are less likely to be persuaded by media depictions of positive substance use behavior than those with low media literacy (Draper et al., 2015; Scull, Kupersmidt, & Erausquin, 2014; Shensa Phelps-Tschang, Miller, & Primack, 2016). Therefore, it is plausible to argue that media literacy can be a protective factor for adolescent substance use. Yet, few studies to our knowledge have assessed the impact of media literacy on the lifetime substance use of adolescents.

In addition to the important role of media literacy, parent-adolescent communication about substances and substance use also serves as a protective factor to buffer risks. More importantly, past literature documents that parental communication about substance use in general affects adolescent attitudes, norms, and intentions to use substance use as well as actual substance use behaviors (Kam & Middleton, 2013; Miller-Day & Kam, 2010; Shin & Miller-Day, 2017; Shin Lee, Lu, & Hecht, 2016). The parent-adolescent communication characterized in the literature suggests conversations about expectations, rules, and knowledge (e.g., Miller-Day & Dodd, 2004), but little is known about what messages parents and adolescents exchange about *media portrayals* of substances and substance use and how these messages influence adolescents' actual substance use. Parents' discussion of media images of substance use may help students understand how marketing messages in advertisements and use of substances by characters in entertainment media can influence their attitudes toward drinking, and these discussions can correct erroneous beliefs about substance use that tend to be promoted by media (NIAAA, 2004/2005). Yet, there are few studies that examine the impact of parental discussions of media images on adolescents' actual substance use behavior.

To begin to fill this research gap, the present study examines the effects of adolescent media literacy and parent-adolescent communication about media portrayals of alcohol use on adolescents' lifetime alcohol use. The focus on alcohol is warranted when evaluating a young adolescent population since alcohol is the substance most commonly used and abused by adolescents (NIDA, 2016).

Media Literacy and Substance Use

There is evidence indicating that media portrayals of substance use make substance use appear normative and attractive (Cin et al., 2009; Heatherton & Sargent, 2009; Primack, Kraemer, Fine, & Dalton, 2009; Wills, Sargent, Stoolmiller, Gibbons, & Gerrard, 2008). Recent research

from the Centers for Disease Control and Prevention (CDC, 2013) reports that adolescent exposure to alcohol advertisements on television exceeded the viewership of the industry threshold (24 percent) and the standard proposed by the National Research Council/Institute of Medicine (36 percent). The excessive exposure to positive portrayals of alcohol on mass media socializes adolescents to believe that drinking alcohol is common in adolescence and makes the drinker more attractive, which in turn leads youth to initiate and continue drinking alcohol (Anderson et al., 2009; Kelly et al., 2002b; McClure et al., 2016; Sargent et al., 2006; Wills, Sargent, Gibbons, Gerrard, & Stoolmiller, 2009).

Adolescents, however, are not the powerless victims of manipulative media moguls, submitting to pro-alcohol use images. Rather, adolescents with high levels of media literacy are fully capable of resisting these appeals, with media literacy referring to "the ability to access, analyze, evaluate, and produce media in a variety of forms" (Kupersmidt, Scull, & Austin, 2010, p. 526) and media literacy education results in counteracting negative impacts on adolescents (Greene et al., 2015b; Hindmarsh et al., 2015; Peek & Beresin, 2016; Potter, 2013). Beyond alcohol, evidence suggests that smoking media literacy intervention changed high school students' attitudes and normative beliefs about smoking (Primack et al., 2014; Shensa et al., 2016) and significantly reduced high school students' intention to smoke (Phelps-Tschang, Miller, Rice, & Primack, 2016). What is more, there is a promising result that adolescent media literacy has stronger relationships with intention and actual behavior of drinking and smoking (Chang et al., 2016). Kupersmidt et al. (2010) found that children who received a media literacy intervention reported higher levels of critical thinking and understanding of persuasive intent of media than those in the control condition. Moreover, children in the intervention condition were less likely to intend uses of alcohol and tobacco than others in the control condition. More evidence highlights that media literacy of elementary school students was significantly associated with normative beliefs and intention to use alcohol and tobacco (Austin & Johnson, 1997b; Scull et al., 2014). Despite the strong evidence supporting the claim that increasing media literacy in youth leads to changes in substance use related beliefs, attitudes, and intentions, few studies have measured adolescents' actual substance use behavior. Moreover, a majority of past studies focus on pre-adolescent children (K1-K6) and late adolescents (9th grade or above). Thus, more research needs to investigate media literacy on actual substance use behaviors of early adolescents (6th-8th grade).

Based on previous research, it is logical to assume that adolescents who score high in media literacy are less likely to be influenced by media portrayals of alcohol use than those who score low in media literacy. Therefore, the first research hypothesis we pose is:

PARENT-ADOLESCENT COMMUNICATION ON ALCOHOL

RH1: Adolescent media literacy is negatively related to adolescent alcohol use.

Parent-Adolescent Communication about Media Portrayals of Substance Use

It is recognized that parents serve as anti-substance use socialization agents for adolescent behavioral health (Kam & Miller-Day, 2017; Miller-Day, 2008; Pettigrew et al., 2017a; Van der Vorst, Engels, Meeus, Dekovic, & Van Leeuwe, 2005). Primary socialization theory (Oetting & Donnermeyer, 1998) explains the important role of parents for adolescent developmental functioning; parental communication about substance use is key to socialize adolescent attitudes, norms, intentions, and actual use of substances (Choi et al., 2017; Kam, Potocki, & Hecht, 2014; Pettigrew, Shin, Stein, & Raalte, 2017b; Shin & Miller-Day, 2017). Past literature suggests that parental messages mitigate the negative impacts of media messages on children, adolescent media usage, and the risky behaviors of both children and adolescents (Dalton et al., 2006; Fisher et al., 2009; Nathanson, 1999). This effect is particularly strong on adolescents' intention to drink alcohol (Tanski, Cin, Stoolmiller, & Sargent, 2010). Furthermore, it was found that parental communication is an intervention that remains effective in reducing substance use for older adolescents and emerging adults (Chen & Austin, 2013).

Despite the protective effects of parental anti-substance socialization and the pervasiveness of exposure to pro-alcohol media content, little is known about the effects of parental communication about media content, specifically portrayals of alcohol use, and how this might impact adolescents' alcohol use. While it is evident that general openness in communicating about rules, expectations, and providing knowledge about substances seems to impact adolescent alcohol use (Kelly, Cornelio, & Hunn, 2002a), it is not clear if parents talk about pro-alcohol media content. If they do, are those messages effective in affecting adolescent alcohol use?

One would expect that parents, exposed to some of the same media influences, would address this with their children and such communication would have the same positive effects as communicating in general about substances and substance use. Based on the primary socialization theory (Oetting & Donnermeyer, 1998) and previous literature (Dalton et al., 2006; Fisher et al., 2009; Nathanson, 1999; Tanski et al., 2010), we postulate that adolescents who engage in parent-adolescent communication about media portrayals of substance use are less likely to drink alcohol than those with less communication. Thus, it is hypothesized that:

RH2: Parent-adolescent communication about media portrayals of alcohol use is negatively related to adolescent alcohol use.

Methods

Participants and Procedure

As part of a larger project that examined adaptation and implementation processes of a school-based drug prevention intervention (Colby et al., 2013; Pettigrew et al., 2015), cross-sectional survey data were collected in rural communities in two Midwestern states.¹ The 8th grade students participated in a paper and pencil, self-report survey. For the present study, we used a subsample ($n = 603$) of students in the control condition who had not received any substance use intervention. Prior to the survey, the university institutional review board approved the procedures of the current study and parental informed consents and student assents were obtained. The sample was comprised of (51 percent) male and (49 percent) female, with a European American majority (94 percent), African American (3 percent), Hispanic (2 percent), and Asian or Pacific Islander (1 percent), which matched the demographic distribution of the geographic location.

Measures

Media literacy. Six-items were adapted from Primack and Hobbs' (2009) scales to measure the degree of general adolescent media literacy. Using four-point scales, students answered questions such as "People are influenced by advertising" and "When people make movies and TV shows, every camera shot is very carefully planned." (1 = definitely no, 4 = definitely yes). Higher scores indicated higher levels of media literacy. Cronbach's alpha was 0.73 (mean = 2.83, SD = .64).

Parent-adolescent communication about alcohol portrayals in media. Students were asked to report how frequently their parent(s) discussed media portrayals of alcohol use with them. Three items with four-point scales were selectively chosen from the original measurement (Miller-Day & Kam, 2010). For example, items included "At least one of your parents ever makes comments about how drinking alcohol is bad if a character on TV is drinking or drunk?" and "At least one of your parents ever show you information on the Web, TV, or in the news about the dangers of drinking alcohol, smoking/chewing, or other drug use?" (1 = no, never; 4 = yes, all the time). Higher scores indicated frequent parent-adolescent communication. Cronbach's alpha was 0.90 (mean = 1.79, SD = .89).

Lifetime alcohol use. A single item was used to assess adolescent alcohol use in their lifetime (Hansen & Graham, 1991). Using a 9-point scale, a question was asked, "How many drinks of alcohol have you had in your entire life?" (A "drink" = 1 bottle or can of beer, 1 glass of wine, or 1 shot of hard liquor; 10 = more than 100 drinks) (mean = 3.23, SD = 2.51). Higher scores indicated more alcohol drinking. Due to the nature of a single item measure, no reliability test was available for the lifetime alcohol use.

PARENT-ADOLESCENT COMMUNICATION ON ALCOHOL

There is ample evidence that using a single item measure for reporting substance use is effective and is commonly used in other studies (Elek et al., 2006; Pettigrew et al., 2017; Shin et al., 2016).

Analysis Summary

A confirmatory factor analysis (CFA) was first conducted to test the measurement model of adolescent media literacy and parent-adolescent communication about alcohol portrayals in media, using *MP/us 7.1* (Muthen & Muthen, 2012). Based on the model fit criteria [the root mean square error of approximation (RMSEA) < .08, the comparative fit index (CFI) > .95, and the standardized root mean square residual (SRMR) > .08] (Kline, 2005; Hu & Bentler, 1999; Yu, 2002), the CFA model fit the data well [$\chi^2(19) = 125.94, p < .001, RMSEA = .07, CFI = .96, SRMR = .03$].

Next, a regression analysis with the measurement model was performed. Adolescent media literacy and parent-adolescent communication about alcohol portrayals in media were entered as independent variables and lifetime alcohol use was entered as a dependent variable. The gender variable was also included as a controlling variable in the regression analysis. The test of skewness (-.42 for media literacy, .98 for parent-adolescent communication, 1.17 for lifetime alcohol use) and kurtosis (.06 for media literacy, -.90 for parent-adolescent communication, .46 for lifetime alcohol use) of the independent and dependent variables were considered as an acceptable range (Kline, 2005), maximum likelihood (ML) estimation method that deals with normally distributed data was used. It was also found that missing data was not a significant concern for the data analysis (.02 percent). Thus, it was handled as missing at random (Graham, Cumsille, & Elek-Fisk, 2003). The analysis yielded an appropriate model fit [$\chi^2(33) = 90.09, p < .001, RMSEA = .05, CFI = .97, SRMR = .04$].

Results

Two research hypotheses were posited to test the significant relationships between adolescent media literacy and lifetime alcohol use, as well as between parent-adolescent communication about media portrayals of alcohol use and adolescents' lifetime alcohol use. Both research hypotheses were supported. It was found that media literacy was significantly associated with adolescent lifetime alcohol use ($\beta = -.149, SE = .049, p < .01$). Parent-adolescent communication about media portrayals of alcohol use was also found to be a significant predictor for adolescent lifetime alcohol use ($\beta = -.092, SE = .043, p < .05$). Approximately 4 percent of the variance was explained by the regression analysis with the measurement model while controlling for gender. See Figure 2.1 for the visual analysis model.

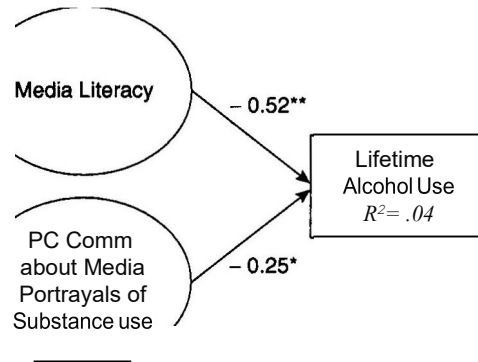


Figure 2.1 Regression Analysis with the Measurement Model

Note: Regression coefficients in the figure are standardized and only significant pathways and correlations are highlighted by boldface [$X^2(33) = 90.086$; RMSEA = .05; CFI = .97; SRMR = 0.04]. Effect of gender was controlled but the pathways are not shown in the figure for reasons of clarity. * $p < .05$; ** $p < .01$; *** $p < .001$

Discussion

The present study seeks to investigate the effects of adolescent media literacy and parent-adolescent communication about media alcohol portrayals on adolescents' lifetime alcohol use. Results revealed that both media literacy and parent-adolescent communication were significant predictors of 8th graders' lifetime alcohol use. This is consistent with previous studies reporting that media literacy is negatively related to alcohol use intentions, and also extends these findings to actual alcohol use behavior. Higher levels of media literacy seemed to buffer the adolescents in this sample against drinking alcohol, likely by increasing their ability to analyze images and cognitively frame the media messages in a way that makes those messages less persuasive or glamorous. The findings of this study suggest that it may be critical to offer curricula in school settings to teach media literacy in the context of substance use. Previous intervention attempts have been reported, but these programs are targeted at improving media literacy among high school students to reduce alcohol use (Austin & Johnson, 1997a; Greene et al., 2015a; Greene et al., 2015b). Perhaps future research should investigate the important role of media literacy among early adolescents. More research is needed to examine the differential effects of various types of mass media and new communication technology on attitudes about substance use and testing the effects of media literacy in all forms of media on behavioral outcomes such as substance use behaviors.

PARENT-ADOLESCENT COMMUNICATION ON ALCOHOL

Significantly, the longitudinal data from National Survey on Drug Use and Health, shows that adolescents in rural areas consume higher rates of alcohol than adolescents in urban areas (Lambert, Gale, & Hartley, 2008). Therefore, it is important to focus efforts on specific populations that might be at heightened risk. With the prevalence of rural adolescent drinking behaviors, interventions are needed to reduce adolescent alcohol use risk. The present study provides an initial step by providing basic research supporting the need for increased media literacy among early adolescents. These findings provide evidence that rural adolescents with higher levels of media literacy were less likely to drink alcohol in their lifetime. Therefore, more attention needs to be made to specifically target rural adolescents for effective media literacy intervention (Chang et al., 2016; Colby et al., 2013; Pettigrew, Miller-Day, Krieger, & Hecht, 2011; Rhew, Hawkins, & Oesterle, 2011; Shin, Miller-Day, Hecht, & Krieger, 2015).

This study also found that parent-adolescent communication about media portrayals of alcohol use protected adolescents from drinking alcohol. In other words, adolescents who reported higher levels of parental communication about media images were less likely to drink alcohol than others with lower levels of communication. This finding supports previous literature indicating the positive influence of parent-adolescent communication in general on substance use attitudes (Reimuller, Hussong, & Ennett, 2011; Shin et al., 2016), but extends it to highlight messages specific to media depictions of substance use. As found in previous studies, it is not just generally open communication about substances that is important, but specifically targeted communication about media portrayals that matters (Miller-Day, 2008; Miller-Day & Kam, 2010; Shin & Miller-Day, 2017).

Moreover, the specificity of parent-adolescent communication about depictions of alcohol in media needs further investigation with regard to different types of media. Considering the current study focused on general conversations about alcohol use on television and the Internet, future research should examine parental communication surrounding alcohol-related messaging on various channels of televised programs and social media (e.g., YouTube, Facebook, Twitter, Snapchat, Instagram). Other media such as film also need to be further investigated. One can argue that persuasion of media may differ, depending on different media channels. Different genres of media may have differential impacts on adolescents' substance use. Television dramas and movies are based on narrative storytelling, with the introduction, development, climax, and resolution, whereas postings on social media tend to be brief and include immediate feedback from others that might reinforce the message. Parents may need to use different strategies to communicate with adolescents about media messages depending on the media channel. It is plausible to assume that parental messages about television or advertisements might differ from parental messages about social media (e.g., Facebook posts, tweets).

There also is the question about whether the communication is concurrent or synchronous with media exposure (i.e., as it is being consumed or some immediately afterwards) or removed in time and place. Some media, like television (broadly defined to include digital manifestations) and Internet content lend themselves better to concurrent interactions and these effects may be more pronounced. Since youth are likely to be digital natives and their parents tend to be digital immigrants, special consideration of emerging social media and online gaming may be particularly difficult for parents. At present, this is all speculative. Future research may benefit from understanding media literacy-related parent-adolescent communication pertaining to various types of media and develop strategies to increase effectiveness of that communication.

The findings of this study suggest that family- and parent-based prevention interventions might consider including material that educates parents about how to add media depictions of substance use in their conversation with youth. While these interventions, like Strengthening the Family (Kumpfer & Alvarado, 2003), are powerful, the current findings suggest that effects can be enhanced and perhaps even more protective against influences by media if such content were added. For example, a session might be added to these programs with the objective of enhancing parental skill in discussing media content with youth. This session could address messaging strategies for when the content is being consumed concurrently with the youth (e.g., watching television together) and strategies for when the content is consumed separately or asynchronously (e.g., parent viewing the youth's Facebook page and past posts). This session could also consider strategies for setting family rules and norms regarding media consumption, including social media and online gaming.

Despite the significant findings of this study, it is not without limitations. First, it must be recognized that these findings do not assume causality. Future research should make an effort to collect the longitudinal survey data and examine the long-term effects of media literacy and parental communication on youth alcohol use. Second, the present study did not assess participants' exposure to media in the analysis model. Accounting for the frequency of media exposure and types of media would broaden our understanding of media and adolescent behavioral outcomes including attitudes, norms, intentions, and actual behavior. For instance, it would be interesting to investigate a comparison between the quantity of the media exposure and the quality of the media persuasion. As previously noted, different channels (e.g., television vs. Twitter) and genres of media (e.g., drama vs. entertainment show) may generate differential impacts on adolescent outcomes.

There is also the need to consider Internet content and online gaming, media that youth are likely to be far advanced of parents (e.g., digital natives). Are there separate literacies for Instagram and other social media

PARENT-ADOLESCENT COMMUNICATION ON ALCOHOL

content? Different ways these need to be discussed? What about the use of these social media in parent-child communication?

In conclusion, the present study provides evidence supporting the protective effects of adolescent media literacy and parent-adolescent communication about alcohol portrayals in the media. The findings suggest that interventions might be developed to enhance adolescent media literacy and to provide education for parents in ways to communicate with youth about media images promoting alcohol use. In this regard, we suggest more synergetic effects be developed in school and community-based programs to prevent adolescents from initiating substance use and continuous use.

Note

1 Rural was defined as any incorporated place, census designated place, or non-place territory and defined as rural by the United States Census Bureau (U.S. Department of Education, 2006).

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