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A pilot study exploring the viability of focus groups as a brief social media literacy intervention for substance use prevention among adolescents

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FOCUS GROUPS AS A SOCIAL MEDIA LITERACY INTERVENTION

Abstract

This study used a sample of high school students (n= 33; M=16.4 years, SD=1.19) to explore whether focus groups (n=4) meant to inform the development of a substance use prevention social media campaign could also serve as a brief social media literacy intervention centered on alcohol and marijuana use prevention. A retrospective pretest was used to measure the effectiveness of focus groups as a social media literacy intervention while focus group transcripts were qualitatively analyzed to identify the active mechanisms that promoted participants' use of social media literacy. Overall, findings provide preliminary evidence that using focus groups to facilitate social media literacy may be a viable method for addressing online drinking norms and content promoting marijuana use.

Keywords: adolescents, focus groups, social media, underage drinking, drug prevention

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Social media has become an almost universal part of teens' daily lives in the United States and has vastly transformed the way youth socialize and interact with others (Anderson & Jiang, 2018). Social media refers to various types of online platforms that have emerged since the early 2000s that allow users to exchange information and ideas with other online users through blogs, direct messages, photos, videos, music, and other content. Social Network Sites (SNSs) such as Facebook, Instagram, and Snapchat are types of social media that enable users to create public or semi-public profiles, make visible and maintain their existing social networks (i.e. ties to individuals in the physical world), and initiate new relationships (Boyd, 2014; Boyd & Ellison, 2007). As teens mature and the desire to fit in with peers becomes increasingly important (Blakemore & Mills, 2014), these platforms afford youth a highly convenient way to manage their identity, social relations, and lifestyle choices (Livingstone, 2008). Undoubtedly, SNSs provide teens with opportunities for self-expression, creativity, civic engagement, and social connection. At the same time, the rapid, unfiltered, and pervasive distribution of user-generated content also creates the potential for harm.

Teens' Online Displays of Substance Use: A Rising Public Health Concern

Self-presentation or "impression management" occurs in the online world just as it does in the offline world enabling teens to filter the content they post online as a way to self-regulate how they want to be perceived by others (Boyd, 2014). Alcohol and marijuana remain the two most commonly used illicit substances among teens in the United States despite ongoing public health prevention efforts (Johnston et al., 2020). SNSs offer an outlet where youth can share alcohol and marijuana related content that glamorizes appeal and misrepresents frequency of use

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through the portrayal of both actual and perceived substance use (Beullens & Schepers, 2013; Loss, Lindacher & Curbach, 2014). Social norms theory posits that misperceptions of peers' attitudes and behaviors towards alcohol and marijuana can influence one's own feelings and decisions to engage in such behaviors (Berkowitz, 2004). Conceivably, adolescents who interpret other adolescents' online displays of pro-alcohol and marijuana related content at face value may overestimate the extent to which their peers engage in substance use (descriptive norms) and the extent to which their peers approve of substance use (injunctive norms), thereby becoming more likely themselves to try alcohol and marijuana (Borsari & Carey, 2003).

A growing number of studies indicates that displays of pro-alcohol and marijuana related content are relatively common occurrences on SNSs used by adolescents (Huang et al., 2014; Moreno, Briner, Williams, Walker, & Christakis, 2009a; Moreno, Parks, Zimmerman, Brito, & Christakis, 2009b; Moreno et al., 2010; Nesi, Rothenberg, Hussong, & Jackson, 2017; Park & Holody, 2018). Content analyses from two early studies of MySpace revealed that as many as 56% of social media profiles maintained by adolescents contained depictions of actual or perceived alcohol use (Moreno, Parks, Zimmerman, Brito, & Christakis, 2009b; Moreno et al., 2010). More recent studies of MySpace and Facebook (Huang et al., 2014; Nesi, Rothenberg, Hussong, & Jackson, 2017) found that approximately 20-30% of high school students had been exposed to peer-generated risk behaviors including drinking and partying. Moreover, a qualitative study by Moreno, Briner, Williams, Walker, & Christakis (2009a) revealed that adolescents may endorse (e.g. "like", comment on, follow) and display (e.g. generate and share) images or references to alcohol on social media to look "cool" or gain peer acceptance regardless of whether they are actually engaging in underage drinking. One study examining online marijuana messages (Roditis, Delucchi, Chang, & Halpern-Felsher, 2016) revealed that

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approximately 53% of high schoolers reported exposure to social media posts about the benefits of marijuana use and approximately 10% personally displayed these types of messages themselves. Finally, results from one study of both alcohol and marijuana (George et al., 2019) found that approximately 25% of 12th graders transitioning out of high school openly discussed these substances on Facebook via public posts and more than 50% held private conversations with their online peers. Taken together, the pervasive online presence of pro-alcohol and marijuana related content demonstrated by these studies has raised serious concerns about the influence of social media on initiation and maintenance of substance use during adolescence (Costello & Ramo, 2017; Moreno & Whitehill, 2014).

Social Media Alone Does Not Influence Substance Use

Mounting empirical evidence indicates that social norms promoting alcohol and marijuana use on SNSs predict more favorable attitudes towards and engagement in substance use (Beullens & Vandenbosch, 2016; Cabrera-Nguyen, Cavazos-Rehg, Krauss, Bierut, & Moreno, 2016; Geusens & Beullens, 2017; Litt & Stock, 2011; Nesi, Rothenberg, Hussong, & Jackson, 2017; Roditis et al., 2016). In a randomized controlled trial (Litt & Stock, 2011), adolescents shown Facebook profiles containing normative displays of alcohol use among older peers reported greater willingness to try drinking compared to youth who viewed profiles that did not contain references to alcohol. Longitudinal studies have also demonstrated associations between pro-alcohol related content displayed on social media and underage drinking. Nesi, Rothenburg, Husson, and Jackson (2017) found that high school students exposed to alcohol-related content posted by friends were more likely to initiate drinking up to one year later. Moreover, Geusens and Beullens (2017) discovered that teens who shared online references to underage drinking were more susceptible to binge drinking in the months that followed. Notably,

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findings from their study also revealed that binge drinking predicted online displays of alcohol suggesting a reciprocal relationship exists between offline and online behavior (Geusens & Beullens, 2017). Less robust research exists on the extent to which exposure to pro-marijuana related content influences marijuana use. However, one cross-sectional study conducted by Roditis and colleagues (2016) found that exposure to pro-marijuana messaging on social media was related to 6% greater odds of actual use in a racially diverse sample of 9th and 12th grade high school students in Southern and Northern California.

Indeed, it has become increasingly evident that a relationship exists between social media, underage drinking, and marijuana use among youth. However, it is important to understand that social media itself does not influence substance use. The perception that social media influences underage drinking and marijuana use implies that social media is inherently dangerous or bad erroneously shifting the focus on the medium rather than the user. In fact, social media is neither bad nor good because it simply serves as a channel for communication (Best, Manktelow & Taylor, 2014). Rather, the primary issue is how social media is both used and consumed by teens, and in turn strongly influences their decisions about substance use. Just as an automobile can be dangerous to an inexperienced driver, interacting on social media can pose serious health risks if teens are not taught how to become informed consumers, creators, and communicators in the online world (O'Keeffe & Clarke-Pearson, 2011). Consequently, there is a significant public health need to develop alcohol and marijuana use prevention interventions that teach adolescents how to develop literacy specific to their social media use.

A Call for Social Media Literacy Focused on Alcohol and Marijuana Use Prevention

Broadly, media literacy education (MLE) provides individuals with the skills necessary to access, critically evaluate, and exchange an array of content across various media so that they

can make informed decisions about issues pertinent to their daily lives (Aufderheide, 1993; Buckingham, 2007; Hobbs, 2010). Early MLE centered on the critical analysis of traditional media outlets, including print ads, film, television, and radio (Buckingham, 2003; Hobbs & Jensen, 2009). Aims of MLE have expanded over time to include advances in digital technology or newer, bidirectional methods of communication, such as social media (Buckingham, 2007; Hobbs, 2010). Consequently, social media literacy has recently emerged as a distinct sub-discipline of MLE (Livingstone, 2014). Social media literacy entails the ability to question various types of content displayed on social media rather than simply accept messages at face value. Due to the interactive nature of SNSs, social media literacy also encompasses the capacity to reflect on one's own online behavior including its impact on the self and others (Livingstone, 2014).

Being able to deconstruct social media messaging is increasingly complex relative to traditional media. The content displayed on SNSs often originates from individuals directly connected to teens via their social networks. Youth must learn how to identify the sociocultural factors that motivate their peers' online behavior in addition to understanding the social, economic, and political forces that drive mass media production delivered through SNSs (Buckingham, 2003; Livingstone, 2014). At the same time, adolescents must learn how to more carefully consider the types of content they want to share, why, and with whom (Livingstone, 2014). Youth are then better able to engage as effective digital citizens, communicating social media texts that respect the rights and privacy of others and promote civic action around particular social issues (Jones & Mitchell, 2016). For example, intentionally choosing to digitally endorse (e.g. share, "like", etc.) media content that encourages healthy behaviors (versus risk

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behaviors such as underage drinking) in an effort to help dismantle online peer norms promoting substance use.

When adolescents do not possess proficient social media literacy they are more apt to rely on automatic cognitive processing mechanisms forming impressions based on heuristics or mental shortcuts shaped by deeply embedded stereotypes, norms, and conditional assumptions (e.g. "if people my age are posting about alcohol and marijuana, then they must be using those substances,") that have been implicitly learned over time (Smith & DeCoster, 2000). While heuristics help save time making judgments and predictions about the likelihood or frequency of events, mental shortcuts are highly prone to error, resulting in misinformation and inaccurate probability estimations (Tversky & Kahneman, 1973).

One way to address the problems associated with online content supporting alcohol and marijuana use is to use social norms interventions, which seek to correct adolescents' misperceptions of substance use by providing them with information that reflects actual versus perceived use. However, much of the research conducted on the efficacy of social norms interventions is limited to investigations of alcohol use among college students, and shows significant, but small effect sizes (Foxcroft, Moreira, Almeida Santimano & Smith, 2015). Moreover, social norms interventions use passive learning and may lack credibility if teens perceive messages as originating from adults rather than peers (Bangert-Drowns, 1988). Media literacy interventions may offer more promise because they are designed to promote inquiry-based or active learning where adolescents construct their own conclusions through meaningful dialogue amongst peers (National Association for Media Literacy Education, 2007).

Using Focus Groups as a Way to Facilitate Social Media Literacy

Focus groups are a fitting and convenient method for delivering social media literacy interventions. Consistent with the Core Principles of Media Literacy Education (NAMLE, 2007) focus groups facilitate interactive, reflective learning amongst participants of equal standing. Focus groups offer a non-threatening, constructive environment for discussion of sensitive issues by reducing the power dynamic between teacher and pupil (Gatta et al., 2015; Friesem, 2016). A process analysis conducted by Gatta and colleagues (2015) revealed that focus groups designed to inform a larger substance use prevention initiative aimed at secondary students also facilitated increased self-awareness, open exchange of opinions, and critical thinking skills on issues relevant to alcohol misuse among participants. Additionally, Friesem (2016) found that the use of focus groups as a media literacy intervention centered on child sexual abuse not only expanded participants' knowledge of the issue but inspired them to think about their own behavior or social responsibility in helping to prevent or reduce the problem.

Present Study

To our knowledge, no studies have developed and assessed an intervention that facilitates adolescents' abilities to critically evaluate and effectively respond to pro-alcohol and marijuana related content displayed on SNSs. The present study aims to address this gap by exploring whether focus groups meant to inform the development of an alcohol and marijuana use prevention social media campaign can serve as a practical method for delivering social media literacy interventions centered on substance use prevention. We used a mixed method embedded design. Quantitative methods assessed the extent to which focus groups promoted adolescents' understanding of how consuming and creating alcohol and marijuana-related content on SNSs influences teens' attitudes and behaviors related to substance use. Qualitative methods uncovered

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the learning processes that occurred within the focus groups that related to those outcomes. Specifically, we addressed the following research questions [RQs]:

RQ1   Do focus groups facilitate teens' social media literacy in relation to online

displays of peer-generated alcohol and marijuana use?

RQ1A   If yes, then what are the thought processes that reflect and facilitate

social media literacy among participants?

Methods

Participants and Procedures

In 2015, community coalitions in Rhode Island expressed interest in developing a social media campaign centered on the prevention of underage drinking and marijuana use among youth ages 12-17 years old as part of the Strategic Prevention Framework Partnerships for Success (PFS) initiative. The PFS was a five-year (2013-2018) grant funded by the Substance Abuse and Mental Health Services Administration's (SAMHSA) Center for Substance Abuse Prevention (CSAP; Award Number: SP020159) aimed at reducing underage drinking and marijuana use in twelve high-need communities. In collaboration with coalition leaders, adolescents in grades 9-12 were recruited from school- and community-based youth groups within selected communities via convenience sampling. The university's Institutional Review Board approved study procedures. In order to participate in the study, adolescents needed to be enrolled in high school at the time of data collection and possess English fluency. Adolescents were verbally informed about the study two weeks before it was scheduled to take place and provided assent and passive consent forms to share with their legal caregiver(s). One week later, a reminder letter and second copy of the passive consent form were sent home to legal caregiver(s). Youth were assented into the study the day of the focus group discussion(s).

A total of thirty-three youth participated in one of four 1-hour focus groups. Participants were mostly female (69.7%) and Hispanic (72.7%; White=18.2% and other=9.1%) with a mean age of 16.4 years (SD=1.19). The length of the focus groups ranged from 37 to 62 minutes yielding 83 pages of transcribed data. Three focus groups were majority Hispanic and held in an urban community setting. Of those groups, one contained all boys (FG1; n=6), another all girls (FG2; n=8), and the third mixed sex (FG3; n=12). The fourth focus group (FG4; n=7) was mixed sex with primarily White youth from a suburban community. The lead investigator facilitated the focus groups and a co-moderator took notes. Focus groups were followed by a retrospective pretest measuring participants' social media use, exposure to alcohol and marijuana related social media content, and acquisition of social media literacy. Youth were given a $10.00 gift card for their participation. After completing each focus group and the retrospective pretest, the moderators conducted a separate 1-hour debriefing session to reflect on emerging issues and topics requiring further investigation. All focus groups were audio-recorded and transcribed verbatim.

Measures

Social media literacy. Participants were asked to rate how much they agreed with the following five statements using a five-point Likert scale: (1) "After participating in today's discussion, I have a better understanding of how the types of messages other people post on social networking sites may influence my attitudes and behaviors," (2) "After participating in today's discussion, I have a better understanding of how the types of messages I post on social networking sites may influence other people's attitudes and behaviors," (3) "After participating in today's discussion, I have a better understanding of how posting messages on social networking sites that display underage drinking may encourage other people my age to engage in

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underage drinking," (4) "After participating in today's discussion, I have a better understanding of how posting messages on social networking sites that display marijuana use may encourage other people my age to use marijuana, " and (5) "Prior to participating in today's discussion, I hadn't really thought about how messages posted on social networking sites that display alcohol and marijuana use might encourage people my age to engage in underage drinking and substance use." The first four questions were used to assess adolescents' social media literacy skills following the focus group discussion. The last question was designed as a retrospective pretest (Lamb, 2005; Chang & Little, 2018), approximating a baseline measure of social media literacy. Possible responses were "strongly disagree," "disagree," "nether agree nor disagree," "agree," and "strongly agree."

Civic engagement. The extent to which participants were willing to take an active role in promoting substance use prevention on social media was measured with the following question using a five-point Likert scale: "If sometime in the future we asked you to create your own anti-drug message and post or share it on social networking sites like Instagram, Facebook and Twitter as part of a social media campaign aimed at reducing underage drinking and marijuana use, how likely are you to participate in the campaign?" Possible responses were "extremely unlikely," "unlikely," "neutral," "likely," and "very likely."

Social media use. Social media use was measured using two questions. The first question was, "How often do you use social networking sites such as Instagram, Snapchat, Facebook, Twitter, etc.?" Participants could respond with never (I don't use social media), rarely (1-3 times per month), sometimes (a couple times per week), fairly often (at least once a day), and often (several times a day). To ensure sufficient sample size, responses were reduced to two categories based on frequency distributions: "<several times a day" and "several times a day." The second

question asked, "What social networking sites do you currently use?" Teens could select from any or all of the following: Facebook, Friendster, Instagram, Snapchat, Tumblr, Twitter, or other."

Exposure to pro-alcohol and marijuana related content on social media. Adolescents were asked about their exposure to online displays of underage drinking and marijuana using the following two questions: (1) "When you use social networking sites, how often do you see people your age post messages on social media about getting drunk or drinking alcohol?" and (2) "When using social networking sites, how often do you see people your age post messages on social media about marijuana?" Responses for both questions included "never," "rarely," "sometimes," "often," and "always." Responses were grouped into three categories based on frequency distributions to ensure sufficient sample sizes: "never/rarely," "sometimes," and "often/always.

Demographics. Self-reported demographic characteristics included age, grade, sex, and race/ethnicity.

Process analysis of focus group discussions. A series of open-ended questions (Dunn, Pearlman, Beatty, & Florin, 2018) were posed to participants that addressed the following areas: (1) adolescents' reasons for using social media (e.g. "Why do so many people your age use social networking sites?") and (2) psychosocial factors that influence the types of content teens display online (e.g. "What types of things do people your age post about online?"). Follow-up questions were used to elicit additional information thereby promoting further critical thinking and reflection (e.g. "Why do you think someone your age would post that type of message?")

Design and Analysis

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Adolescents are often resistant to universal health programs that attempt to teach them about the risks of substance use (Onrust, Otten, Lammers, & Smit, 2016). Therefore, two design elements were implemented to increase participants' willingness to engage in the focus groups. First, participants were deliberately blinded to the purpose of the study. Focus groups were designed to serve two objectives: (1) to better understand how and why adolescents use social media in order to develop community-based alcohol and marijuana use prevention campaigns that successfully engage teens online as part of a larger federally funded grant and (2) to examine whether the focus group discussion(s) facilitate participants' social media literacy skills as part of the present study. Participants were only informed about the first aim to mitigate the possibility of youth thinking they were being persuaded to think a certain way. The instructions were also phrased to imply that youth (as opposed to the facilitator) were the "experts" in terms of knowing how people their age think and act to minimize any potential power imbalance between the facilitator and group participants. Specifically, participants were told:

> You are being asked to be in this study because you represent the age group of young people we are trying to engage and may be able to help us understand some reasons why they may or may not want to participate in social media campaigns related to underage drinking and marijuana use.

Second, focus group questions were designed to elicit information from participants that reflected the behaviors of "most people their age" rather than asking youth to share their personal experiences on social media. Framing the questions to have youth serve as proxy subjects for their peers was done to reduce social desirability bias (Nederhof, 1985), protect youth's privacy in a group setting, and create an atmosphere in which youth would feel comfortable sharing sensitive information about substance use.

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Focus groups were digitally recorded and participants were asked to complete an anonymous, self-administered retrospective pretest to measure the effectiveness of focus groups as a social media literacy intervention. Youth were then instructed to put their completed surveys into a large manila envelope, collected and sealed by a randomly selected participant from their focus group to ensure anonymity. The retrospective pretest design was chosen over a typical pretest design because asking participants to complete a traditional pretest would not have been conducive to maintaining the blinded nature of the study. Evaluation research has shown that the retrospective pretest can serve as a highly effective alternative when a traditional pretest is not feasible, and can help attenuate response shift bias wherein participants overestimate knowledge when completing a traditional pretest (Howard et al., 1979; Chang & Little, 2018). In other words, a retrospective pretest has participants gauging their knowledge and learning using the same conceptual understanding for both tests. Numerous studies have supported the use of this method to counteract response shift bias (Howard, 1980; Lam & Bango,2003; Lamb & Tschillard, 2005; Mezoff, 1981; Pohl, 1982; Pratt, McGuigan & Katzev, 2000; Rockwell & Kohn, 1989; Rohs, 2002).

SPSS Version 24 was used to conduct all quantitative analyses. Descriptive statistics and one-sample Wilcoxon signed-rank tests were performed to assess the extent to which adolescents' social media literacy improved as a result of participating in the focus groups. Each of the 5-point Likert scales used in this study were analyzed on a scale from 0 to 4. The null hypothesis for the Wilcox signed-ranked test assumes data are symmetric, whereas the alternative hypothesis is to determine if data are asymmetric or significantly skewed from a default (i.e. reference) value reflecting symmetry. Therefore, 2 was selected as the reference value.

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The lead investigator used NVivo Version 11.3.2 to carry out a qualitative content analysis of the focus group transcripts following a sequence of five steps adapted from Huberman and Miles (1994): reading/immersion, coding, displaying, reducing, and interpretation (Ulin, Robinson, & Tolley, 2005, p. 144). The reading/immersion phase used a "horizontal" procedure such that all transcripts were read and re-read from beginning to end and analyzed collectively across groups to identify emergent themes (Crabtree & Miller, 1999; Ulin, Robinson, & Tolley, 2005). Next, data were coded following an inductive approach wherein main codes were developed through direct observation and interpretation of the data in response to RQ1A. The lead investigator then displayed data by each of the main codes that emerged in the coding scheme, and subsequently reviewed within code variation to identify potential sub-themes. Main codes were then reduced so that only sub-themes most central to RQ1A were retained for final interpretation. In the final phase of the analysis, relationships between main codes and relevant subthemes were synthesized to essentially tell a story of how the data fit together to answer RQ1A (Ulin, Robinson, & Tolley, 2005).

Results

Quantitative Results

Table 1 describes the study sample. All participants reported using SNSs. Most participants reported going online several times per day (90.9%) and using more than one social network platform (84.6%). Among the most popular platforms were Instagram and Snapchat. More than half of participants reported relatively frequent exposure to peer-generated social media referencing alcohol and marijuana. Specifically, 63.6% of participants reported either "often" or "always" seeing people their age post social media messages about getting drunk or

drinking alcohol and 66.7% reported "often" or "always" seeing people their age post about

using marijuana.

Table 1
Demographics and Behavioral Characteristics of High School Students' Social Media Use

	Total sample (n=33)	
	Mean/%	SD
Age (range 14-18)[1]	16.38	1.19
Grade (range 9-12)	10.79	1.08
Sex[2]		
Female	69.70	-
Male	24.24	-
Race/ethnicity		
Hispanic	72.73	-
White	18.18	-
Other	9.09	-
Number of social media platforms used		
1 site	15.15	-
2 sites	21.21	-
3 or more sites	63.64	-
Type(s) of social media platforms used		
Facebook	60.61	-
Instagram	87.88	-
Snapchat	84.85	-
Tumbler	12.12	-
Twitter[3]	57.58	-
Frequency of social media use		
<Several times a day	9.09	-
Several times a day	90.91	
Exposure to peer-generated alcohol content[1]		
Never/Rarely	9.09	-
Sometimes	24.24	-
Often/Always	63.64	-
Exposure to peer-generated marijuana content[4]		
Never/Rarely	6.06	-
Sometimes	18.18	-
Often/Always	66.67	-

[1]One response missing
[2]Two responses missing

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[3]Survey item was revised after the initial focus group resulting in 6 missing responses
[4]Three responses missing

The extent to which participants thought about how online displays of alcohol and marijuana might encourage people their age to engage in substance use was mixed prior to participating in the focus groups. Almost half of participants (48.5%) "agreed" or "strongly agreed" that they had *not* previously considered the effects online exposure to pro-alcohol and marijuana related content might have on offline substance use compared to about one-third (33.4%) who "disagreed" or "strongly disagreed" and less than one-fifth (18.2%) who "neither agreed nor disagreed." Results from one-sample Wilcoxon signed-rank tests suggested that participants exhibited social media literacy on multiple fronts after participating in the focus group discussion(s). First, findings indicated that participants had a significantly better understanding of how posting pro-alcohol related content on SNSs may encourage people their age to engage in underage drinking (median=3) when compared to the reference value (median=2), $T=485.00$, $z=4.85$ $p=<.0001$. Similarly, participants reported that they had a significantly better understanding of how posting marijuana related content on SNSs may encourage actual use (median=3) when compared to the reference value (median=2), $T=410.50$, $z=4.34$ $p=<.0001$. More broadly, participants also indicated that they had a significantly better understanding of how their conduct on social media (i.e. the types of content they display) may influence others' attitudes and behaviors (median=3), $T=549.50$, $z=5.01$ $p=<.0001$, and alternatively how others' online behavior may influence their own decisions (median=3), $T=435.00$, $z=4.94$, $p=<.0001$, when compared to the reference value (median=2). The majority of participants reported that they would be "likely" (36.3%) or "very likely" (30.3%) to disseminate

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their own anti-drug messages as part of a larger social media campaign if recruited by a

substance use prevention community coalition sometime in the near future.

Qualitative Results

The processes that reflected and facilitated social media literacy emerged from a

constructive dialogue spanning three themes: (1) recognizing how social contexts shape

adolescents' decisions to display pro-alcohol and marijuana related content on SNSs (2) critically

evaluating the nature of those messages, and (3) exercising autonomy in how one chooses to

respond to or deal with peers' online displays of substance use and endorsement. In the sections

that follow, each content area is discussed in greater detail.

Recognizing how social contexts influence teens' decisions to display pro-alcohol

and marijuana related content on SNSs.

When participants were asked what people their age post about on SNSs, responses

varied across groups. For example, participants from the predominantly Hispanic, mixed sex

focus group (FG3) were quick to respond with "anything" and "everything" whereas youth from

the all-male focus group (FG1) felt that it depended on the individual. As one boy put it, "It

depends on what kind of person you are, let's say, the kids in [Community X] I bet aren't posting

as many fights and parties and all that… In [Community Y] you're going to see more of that."

Unlike FG3, participants in FG1 were considering how social and environmental contexts, such

as one's community, shape youths' online behavior. The male participant's comment above also

implied an underlying assumption that much of what takes place offline transpires on SNSs. In

other words, the content displayed on SNSs generally reflects teens' behavior in the physical

world.

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The influence of peer norms on teens' social media use became a salient issue among youth in all four focus groups as the discussions evolved and more participants started speaking up. When participants were asked whether some types of posts receive more attention than others, there was a general consensus that online depictions of and references to risk behaviors often generate significant digital reactions (e.g. "likes") from teens. A male participant offered the following example, "Every time I post a picture of me doing community service and then [my friend] posted a picture of him smoking or something he would get more attention or something," (FG1). In turn, nearly all participants concluded that teens' motivations for displaying illicit material stem from desires to "look cool" and "fit in" with their peers. As one boy put it, "The point of posting something is to get 'likes' and make people think that – to agree with you – and to think you're cool" (FG1).

Critically analyzing pro-alcohol and marijuana related social media content.

After discussing how social contexts, such as one's community and peers, influence the types of content teens post online, the nature of the discussions appeared to shift toward a more critical analysis of peer-generated content. Across all focus groups, participants indicated that pro-alcohol and marijuana related content posted by young people reflected real or actual substance use. However, in three out of the four focus groups several youth added that some illicit content they see online is "fake." For example, a female participant from the predominantly Hispanic mixed-sex focus group explained that people her age, "post [pro-drug related] pictures because they want to seem like they do that stuff when in reality, they don't." In two of the focus groups, the conversation shifted back to thoughts about how peer norms influence what teens display on their social media profiles. One girl shared:

Some people post… not like actually post, 'hey, I smoke weed,' but they share the

stuff… and then they talk about different stuff. They say that they don't do it [smoke

weed] but then they say that they do it, and it's like confusing and stuff. And, then it's

going back to fitting in. Like some people may like you doing it and some people may

not, so you just do it to like fit in. Yeah." (FG2)

In the example above, this participant brought attention to the notion of impression

management, or the idea that teens deliberately construct and filter their social media content to

reflect socially desirable behavior (Boyd, 2014). By bringing up the topic of "fake" posts in the

focus groups, participants raised the importance of questioning the content produced by their

peers rather than accepting those messages at face value.

When participants were asked whether they thought social media content depicting actual

or perceived substance use influences people their age, responses were mixed. While some

participants believed people their age could be 'tempted' by online displays of illicit content,

others thought it made no difference. In the predominantly Hispanic, all-female focus group, one

participant commented, "you have to know how to stand up for yourself." Other participants

chimed in, agreeing that youth who are not able to "choose wisely" and "control themselves" are

the most susceptible to negative online influences. In addition to individual factors, a participant

from the primarily Hispanic, all-male focus group also thought that parents play an important

role in protecting their children from online pressures to engage in substance use:

It kind of depends on your parents who brought you up and everything they tell you, 'this

is bad, this is bad, this is bad.' You obviously know it's [substance use] bad. It doesn't

matter how tempting it is because your parents told you it's bad.

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After thoughtful deliberation, participants concluded that the extent to which social media content affects people their age ultimately "depends on the person."

Asking participants why people their age might *not* post pro-alcohol and marijuana content on social media prompted discussions in all four focus groups about the consequences of producing and/or endorsing online portrayals of substance use. The most common concern was disappointing or getting in trouble with family members. There was a general consensus that teens gravitate towards social media platforms mainly used by people their age (e.g. Snapchat) and rely on privacy features such as time-limited posts (e.g. delete after 24 hours) as ways to avoid parental monitoring and reprisal. At the same time, several participants also acknowledged that taking such measures did not guarantee that their information would be kept from reaching unintended audiences: "They end up finding out still. Because you still make things private, but that doesn't mean that they can't look at it on other people's pages. They can still find your page," (FG2). More distal consequences included getting in trouble with school faculty or law enforcement, being turned down from college admissions, and setting a poor example for younger siblings. Despite these issues, participants from the predominantly Hispanic, all girls focus group commented that when people their age are caught up in the moment, many are not considering the consequences of what they are posting:

> They just don't care right now. I feel like there is just an age that people go like, 'Well, I don't care, like whatever.' I guess like how parents say like the 'teenager stage' where you just don't care and you don't really think twice. There could be times where you do think but most of the times you're just like, you're just like going with the wind, doing whatever. (FG2)

Nevertheless, there was acknowledgement from some participants that posting illicit material on SNSs could lead to serious and lasting consequences.

Exercising autonomy in the social media world.

During discussions about the potential consequences of social media, participants began expressing their opinions about how to deal with online content promoting underage drinking and marijuana use. In doing so, they appeared to redefine existing peer norms promoting substance use. For example, disapproving reactions began to emerge across all four focus groups after discussing how many adolescents reference substance use on social media to look cool or fit in with peers. A female high school student from the mixed sex, predominantly White focus group stated:

> I feel like it's just, I don't know, it's just dumb. If you smoke, okay. But to put it out there every Friday, that's not cool. To do it to begin with, it's just dumb but to post it out there every Friday, every day, it gets old. We get that you smoke. We get that you vape. We get it, but you don't have to post it every Friday, every day. We understand. You made it pretty clear like two days ago, and now you're still posting about it. So it just gets annoying.

Participants also shared ideas about how they could take a more proactive role on social media to help counteract their peers' online portrayals of substance use. Several teens said that they would be willing to participate in social media campaigns aimed at reducing underage drinking and other drug use by creating and sharing positive health messages of their own. A participant from the predominately Hispanic all-girls focus group also explained how she planned to use social media to individually benefit other youth:

Me, personally, I would post the good things. Like what I did with [my peer leader] on Saturday. I will post me doing good. Like helping the community, or if I get a certificate in school, I will post that so that people could see good things. And maybe someone would want to follow me, like, you know how there's people that have followed the bad people? I would want people to follow me, like the good things that I do.

Another teen described how he refrains from posting illicit material on social media to avoid jeopardizing his chances of getting into college:

I do it across the board because I want to play college baseball and college recruits, they [look] at all social media that you have because they don't know you personally yet. They see what you post about what you write about on Facebook, what pictures you post on Instagram, or what you write about on Twitter. And, if you already give a bad impression like swearing on those social media and posting inappropriate thing on those social media, they'll reject you right away.

Collectively, these participants illustrated how social media could be used to both positively influence others and skillfully promote oneself to different networked audiences.

Discussion

To our knowledge, this is the first study to assess whether focus groups can be used as a viable method to facilitate social media literacy centered on prevention of underage drinking and marijuana use among adolescents. Consistent with previous studies (Moreno et al., 2009b; Moreno et al., 2010), our findings revealed that participants were frequently exposed to online displays of alcohol and marijuana use. Yet, only about one-third of participants actually considered how consuming and creating alcohol and marijuana-related content on social media might influence people their age to engage in substance use. Preliminary evidence suggests that

using an approximately 1-hour focus group to engage teens in an inquiry-based dialogue may increase teens' ability to more critically think about the types of messages they interact with on social media.

Findings from our process analysis indicated that having teens participate in a focus group on how to develop effective alcohol and marijuana use prevention social media campaigns facilitated discussions about what people their age are willing to share with their peers and why. Consistent with previous research (Moreno et al., 2009a), there was widespread consensus that many adolescents reference pro-alcohol and marijuana related content on social media to fit in with their peers or look "cool." Exchanging opinions about the extent to which peer norms influence adolescents' social media behaviors evolved into conversations about the legitimacy of peer-generated content. Participants agreed that not all teens endorsing alcohol and marijuana use on social media actually engage in those behaviors. Moreover, some participants commented that regardless of message validity, promoting alcohol and marijuana related content on social media is 'not cool' thereby redefining existing norms to discourage online portrayals of substance use and encourage more positive health messages. Overall, teens from this study agreed that by participating in the focus group(s), they had a better understanding of the reciprocal relationship that exists between social media use and engagement in risk behaviors including underage drinking and marijuana use. Participants also expressed interest in civic engagement. Sixty-seven percent reported that they would be willing to participate in substance use prevention social media campaign if recruited by a prevention specialist sometime in the near future.

The findings produced by this study underscore the need to look beyond traditional alcohol and marijuana use prevention strategies to address social norms reinforced by

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adolescents on SNSs. Compared to generic health education programs, media literacy programs are gaining attention in the field of substance use prevention as effective approaches for addressing risk outcomes associated with adolescents' frequent exposure to pro-alcohol and marijuana related messages (Greene, 2013; Hindmarsh, Jones, & Kervin, 2015). Most media literacy programs are dominated by the critical analysis of media messages with little or no focus on media production where adolescents reflect on the impact of their own media creation and sharing activities. In a study of adolescents' reactions to tobacco ads, Banerjee & Greene (2006) found that media literacy workshops combining content analysis and production were more effective in reducing positive attitudes towards smoking than content analysis workshops alone. Furthermore, no existing media literacy programs specifically address the pervasiveness of pro-alcohol and marijuana related content consumed and created by teens on social media (Hindmarsh et al., 2015; Greene et al., 2016). The current study begins to fill these critical research gaps by providing initial evidence that focus groups are an innovative way to promote media literacy skills that address the prevalence of online teen norms promoting substance use.

Focus groups, in many ways, embody principles of Problem-based Learning (PBL), a pedagogical method where individuals work together in small self-directed groups to solve real-world problems (Barrows & Tamblyn, 1980; Savery & Duffy, 1995). This study was designed to address a real-world problem: How can researchers and practitioners develop an alcohol and marijuana use prevention campaign that would successfully engage adolescents on social media? Self-directed focus groups with teens had two important benefits. First, the groups created collective ownership over the problem. Second, the groups promoted the use of flexible thinking or negotiation to generate creative solutions to helping their peers acquire social media literacy pertaining to substance use. Moreover, giving participants a voice enabled them to examine, test,

and refine new ideas to integrate into their existing belief systems. Qualitative findings revealed that some participants felt strongly that alcohol and marijuana related content displayed on social media influences young people to engage in substance use while others believed that those types of messages made no such difference (i.e. "it depends on the person"). These results are consistent with a recent report released by the Pew Research Center indicating the teens have mixed views about how social media impacts the lives of people their age (Anderson & Jiang, 2018). However, by exchanging these opposing ideas in our study, participants ultimately concluded that youth who are not able to critically think for themselves are most susceptible to online influences. According to Kolb (1984) ideas acquired through cognitive integration, as reflected in the example above, are more likely to become highly stable beliefs over time compared to traditional pedagogical methods that focus on trying to replace old beliefs with new beliefs. Therefore, this study provides preliminary evidence that focus groups are an optimal method for acquiring social media literacy competency pertaining to underage drinking and marijuana prevention.

Limitations

This study is not without limitations. First, participants selected into this study were predominantly Hispanic high school aged youth with prior involvement in substance use prevention activities, which limits the generalizability of our findings. To help address this issue, participants were asked to provide information they believed reflected the attitudes and behaviors of "most young people their age" rather than their personal opinions and experiences. Second, results were derived from a non-experimental, retrospective pretest design given the novel and blinded nature of the study. Retrospective pretest designs have proven effective in reducing response shift bias, however, there is concern that younger populations may not be able to

accurately recall their thoughts and feelings before receiving the intervention (Chang & Little, 2018). Recall bias is not likely a strong threat to our study due to the age of our sample and the brief, time-limited nature of the intervention. It is also possible that participants experienced demand characteristics, or modified their responses in both the focus group and retrospective pretest to fit with what they thought would be perceived as a "good" response given the high degree of interaction between participants and the facilitator (Orne, 2009). This is a concern since facilitation is central to unbiased data collection. The focus groups in this study were led by an experienced facilitator who made it explicit to participants that the study was not about them specifically, but rather about people their age. Nevertheless, without a baseline measure or comparison group, it is not possible to assess the magnitude of change in participants' acquisition of social media literacy or to rule out extraneous factors. Third, follow-up assessments were not administered so the extent to which participants retained information and actually changed their behaviors with regard to their social media use, involvement in underage drinking or marijuana use, and civic engagement could not be determined. Fourth, the reliability of these results should be interpreted with caution. The use of four focus groups limited the amount of saturation obtained across each of the different content areas. Nevertheless, this study is the first to explore adolescents' exposure to pro-alcohol and marijuana related content on SNSs that includes a media literacy component.

Implications

This study provides an important first step towards understanding how to address adolescents' frequent exposure to pro-alcohol and marijuana related content on social media. Findings revealed that many of teens in this study were not thinking about how exposure to alcohol and marijuana-related content displayed on SNSs might influence young people to

engage in substance use prior to participating in focus group discussions. Interventions that educate teens about the health risks associated with social media use are urgently needed. Results provide preliminary evidence that using focus groups to promote social media literacy may be a viable method for addressing online norms pertaining to underage drinking and marijuana use. Experimental studies that follow youth over time are needed to better understand the extent to which a one-hour substance use prevention social media literacy intervention can produce meaningful and sustainable change in how teens engage with pro-alcohol and marijuana related content online as well as offline. Research is also needed to assess whether this approach can be used with younger populations. Middle school is a time when many youth start to experiment with social media as well as substance use. At least 20% of students are using social media by the time they enter the 6th grade (Martin, Chuang, Petty, Wang, & Wilkins, 2018; Rideout & Robb, 2019) with approximately 24% experimenting with alcohol and 15% with marijuana by the time they reach the 8th grade (Johnston, et al., 2020). Early adolescence (ages 11 to 13) is also period of development when youth begin to cognitively mature in their capacity to distinguish credible media from misleading or persuasive content and start to develop their own social norms and rules (Greene, 2013; Livingstone, 2014). Taken together, middle school students in particular may benefit from social media literacy centered on underage drinking and marijuana use.

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