Brief article

Web-Based Personalized Feedback: Is This an Appropriate Approach for Reducing Drinking Among High School Students?

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ABSTRACT

Research indicates that brief Web-based personalized feedback interventions are effective in reducing alcohol use and the negative associated consequences among college students. It is not clear, however, that this is an appropriate strategy for high school students. This study examined high school students' perceptions of a brief Web-based personalized feedback program to assess the appropriateness of this approach for this age group. Results indicated that the majority of students found the program to be user-friendly and to have high utility. Additionally, students reporting alcohol use found the program more useful and indicated that they would be more likely to recommend the program to other students relative to non-drinkers. Findings support the appropriateness of this approach for high school students, and suggest that Web-based personalized feedback may be more positively perceived by students who have initiated drinking.

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1. Introduction

According to national survey data, lifetime prevalence rates for alcohol use among 10th and 12th grade students are 56% and 70%, respectively, with 40% of students reporting alcohol use in the past 30 days by their senior year (Johnston et al., 2012). Also concerning is the prevalence of heavy episodic drinking during high school, with 14.7% of 10th grade students and 21.6% of 12th grade students reporting binge drinking in the past 2 weeks (Johnston et al., 2012). Additionally, underage drinking is associated with a variety of negative consequences for teens who report drinking (U.S. Department of Health and Human Services, 2007). These data indicate that alcohol use increases substantially during high school, identifying a need to design prevention and intervention programs for high school students.

School-based programs using motivational enhancement and cognitive–behavioral principles are effective in reducing alcohol use among high school students (Conrod, Stewart, Comeau & Maclean, 2006; O'Leary-Barrett, Macie, Castellanos-Ryan, Al-Khudhairy & Conrod, 2010; Sussman, Dent & Stacy, 2002). These interventions are based on social norming theory (Perkins, 1997) and motivational enhancement models (Miller & Rollnick, 2002). These models support giving students accurate feedback about peer drinking and risk-status relative to peers in order to reduce alcohol use (Larimer et al., 2001; Marlatt et al., 1998; Miller & Rollnick, 2002; Perkins, 1997; Perkins & Berkowitz, 1986). These interventions, however, are typically time intensive and require substantial training for proper implementation and fidelity, making them more suitable for interventions with students identified

as high-risk relative to a universal prevention or early intervention strategy. These factors require resources from schools which may make it difficult for schools to implement these programs.

One approach that may be particularly useful in the high school setting is the use of Web-based interventions. Web-based programs are inexpensive, require minimal training, are easily standardized, and are easy to disseminate to large groups of students relative to in-person programs. Additionally, Web-based programs may be particularly appealing to adolescents due to their format. A growing number of controlled studies indicate that Web-based programs delivered to adolescents (Newton, Andrews, Teesson & Vogl, 2009; Schwinn, Schinke, & Di Noia, 2010) or adolescents and their parents (Koning et al., 2009; Schinke, Cole, & Fang, 2009; Schinke, Fang, & Cole, 2009) offer a promising approach to reducing drinking among adolescents. The Web-based interventions used in these studies, however, included 4–12 modules or sessions, with each session taking up to 40 minutes. As with in-person interventions, some schools may not be willing to carve out time in the curriculum to accommodate this length. Therefore, it is important to identify shorter Web-based programs that may still be effective for this age group.

Research indicates that successful school-based interventions include material designed to engage adolescents (Wagner, Tubman, & Gil, 2004). Additionally, understanding the persuasive elements of Web-based interventions is important in promoting behavior change (Lehto & Oinas-Kukkonen, 2011) as individuals must be motivated to process the information presented. The Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1986) is a theoretical approach that may offer guidance in selecting the type of Web-based intervention that may be most effective for adolescents. According to this model, information that is processed through central routes is processed more actively than information processed through peripheral routes. Central

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processing, including the formation of highly elaborated, accessible, well-integrated attitudes, leads to stronger behavioral changes. Further, presenting information using language that is easy to understand and that increases motivation by including content that is perceived to be highly relevant increases elaboration (Petty, Barden, & Wheeler, 2009). Following this model, to be appropriate for the intended audience, intervention content should be perceived as user-friendly and personally useful. Brief Web-based personalized feedback interventions targeting alcohol use provide information that is personally relevant in an easy to use format. Thus, this type of intervention should increase the likelihood of central processing, and thereby behavior change.

Considerable variability exists in terms of types of program content, length and interactivity of Web-based interventions, with some designed as multicomponent programs whereas others are brief online screening instruments with tailored feedback (Lehto & Oinas-Kukkonen, 2011). Consistent with the ELM, reviews of the literature indicate brief, Web-based programs that include assessment and personalized feedback are more effective in reducing alcohol use than educational programs among college students (Larimer & Cronce, 2002, 2007). Of the several Web-based personalized feedback interventions designed for college students, the eCHECKUP TO GO (San Diego State University Research Foundation) may be a particularly useful intervention program for high school students. The program is short, easy to navigate, provides information designed to increase motivation, and costs $1000 per year for unlimited use. Additionally, several studies have demonstrated the efficacy of the eCHECKUP TO GO among college students (Alfonso, Hall & Dunn, 2012; Doumas & Anderson, 2009; Doumas, Haustveit, & Coll, 2010; Doumas, Kane, Navarro, & Roman, 2011; Doumas, Nelson, DeYoung, & Conrad, 2014; Doumas, Workman, Navarro & Smith, 2011; Doumas, Workman, Smith & Navarro, 2011; Hustad, Barnett, Borsari & Jackson, 2010; Lane & Schmidt, 2007; Murphy, Dennhart, Skidmore, Martens, & McDevitt-Murphy, 2010; Salafsky, Moll & Glider, 2007; Steiner, Woodall & Yeagley, 2005; Walters, Vader & Harris, 2007).

More recently, the efficacy of eCHECKUP TO GO has been examined among high school students (Doumas, Esp, Turrisi, Hausheer, & Cuffee, 2014; Doumas, Hausheer, Esp, & Cuffee, 2014). Using a randomized controlled design, Doumas, Esp, et al. (2014) demonstrated a reduction in alcohol use and the negative associated consequences among students receiving the eCHECKUP TO GO relative to a control group at a 3-month follow-up. Reductions in drinking and alcohol-related consequences among students in the intervention group, however, were not sustained at a 6-month follow up (Doumas, Hausheer, et al., 2014). Additionally, findings among high school students were not as robust as those found in the college literature. Therefore, the appropriateness of this intervention for this age group needs further examination as it was originally designed for college students.

The purpose of the present study is to examine high school students' perceptions of the eCHECKUP TO GO as an initial step toward assessing the program's appropriateness for this age group. The following aspects of the eCHECKUP TO GO were assessed: 1) student perception of intervention user-friendliness and 2) student perception of intervention utility. Differences in perceived user-friendliness and utility between drinking and non-drinking students were also examined. Based on the ELM, adolescents who have initiated drinking may perceive the intervention to have higher utility than non-drinkers as they may find the feedback more personally relevant than non-drinkers. Thus, it was hypothesized that students who report alcohol use would have higher utility ratings than non-drinkers, but there would be no difference in user-friendliness between the two groups.

2. Method

2.1. Participants

Participants were recruited as part of a larger study conducted at three public junior high schools in the northwest. Participants in the current study were 9th grade students recruited from the two high schools assigned to the intervention condition. Parents of all 9th grade students at each school ($N = 440$; school A $= 216$; school B $= 224$) were sent consent forms. A total of 36.6% ($n = 161$; school A $= 88$; school B $= 73$) provided consent. Of these, 159 (56% male, 44% female) students agreed to participate in the study. Participant ages ranged from 13 to 16 ($M = 14.34$, $SD = 0.52$). Participants were primarily Caucasian (70.8%), with 8.4% Hispanic, 5.2% Asian, 4.5% American Indian/Alaskan Native, 3.9% African-American, and 7.1% other.

2.2. Procedure

All study procedures were approved by the university institutional review board. Convenience sampling was used to select the schools. The schools are located in a metropolitan region; students are primarily Caucasian, and approximately 30% of the students qualify for free or reduced lunch. All 9th grade students registered at the school were eligible to participate. All parents of 9th grade students were contacted by the schools via letter by mail at their permanent addresses provided by the registrar's office. A parental consent form and a project-addressed, stamped envelope were enclosed in the letter. Parents were asked to return signed consent forms indicating permission for their adolescent to participate in the study. In addition, a phone number and email address were provided so that parents could ask questions prior to signing the consent form.

All students were recruited by the schools during class periods. At the start of the class, a member of the research team and a school counselor described the research and invited students with parental consent to participate. Students with parental consent who elected to participate were assigned a unique pin number and the URL for participation. The pin number was used to track students as part of the larger study. Participants logged on to the survey Website and were directed to a welcome screen describing the research and were asked to enter their PIN number. Once they entered the PIN, they were presented with the informed assent statement describing the study procedures and were asked to indicate their assent by clicking "Agree". As part of the assent procedure, students were given assurances of confidentiality. If participants indicated their willingness to continue, they were routed to a baseline survey, which was completed immediately. This survey was part of the larger study and contained questions regarding alcohol use, attitudes and beliefs about alcohol use, and perceptions of parental attitudes and parent–teen communication. The survey took approximately 15 minutes to complete. The next day, students had an additional class meeting in which the counselor attended the class and guided the students through logging onto the online intervention. Upon completion of the intervention, students completed a brief exit survey assessing impressions of the intervention. Students without parental consent and those who chose not to participate were given an alternative activity to complete during the class period.

2.3. Measures

2.3.1. Drinker status

Frequency of drinking was assessed using the Quantity/Frequency/Peak questionnaire (QFP; Dimeff et al., 1999; Marlatt et al., 1998). Participants were asked "In general, how often do you have any drink containing alcohol, whether it is wine, beer, hard liquor, or any other alcoholic beverage?" An 8-point scale with options ranging from 0 (do not drink alcohol at all) to 7 (every day) was provided. Sixty-eight percent of students endorsed "do not drink at all" and were classified as non-drinkers ($n = 108$). Correlations among this frequency item and other items of alcohol use on the survey from the larger study ranged from r $= .78$ to .83.

2.3.2. Appropriateness of the intervention

Appropriateness of the intervention was assessed using an exit survey comprised of 7 items. These items were ranked on a 4-point scale