



A computer-based feedback only intervention with and without a moderation skills component

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ABSTRACT

Research on the efficacy of computer-delivered feedback-only interventions (FOIs) for college alcohol misuse has been mixed. Limitations to these FOIs include participant engagement and variation in the use of a moderation skills component. The current investigation sought to address these limitations using a novel computer-delivered FOI, the Drinkers Assessment and Feedback Tool for College Students (DrAFT-CS). Heavy drinking college students ($N = 176$) were randomly assigned to DrAFT-CS, DrAFT-CS plus moderation skills (DrAFT-CS+), moderation skills only (MSO), or assessment only (AO) group, and were assessed at 1-month follow-up ($N = 157$). Participants in the DrAFT-CS and DrAFT-CS+ groups reported significantly lower estimated blood alcohol concentrations (eBACs) on typical heaviest drinking day than participants in the AO group. The data also supported the incorporation of a moderation skills component within FOIs, such that participants in DrAFT-CS+ group reported significantly fewer drinks per week and drinks per heaviest drinking occasion than participants in the AO group.

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1. Introduction

Alcohol misuse by college students is a significant problem on many college campuses (Johnston, O'Malley, Bachman, & Schulenberg, 2010). Wechsler and colleagues, (2002) found that over 40% of a large national sample of college students reported having engaged in heavy episodic alcohol consumption within the previous 2 weeks. Alcohol misuse by college students has been associated with a number of related problems including driving after drinking, damaging property, sustaining injury, experiencing/perpetrating a sexual assault, and death (Hingson, Zha, & Weitzman, 2009; Wechsler et al., 2002). Given the associated consequences of heavy alcohol consumption on college campuses, researchers have examined a variety of intervention and prevention strategies aimed at reducing alcohol consumption and related problems (Larimer & Cronce, 2007).

Among these strategies are personalized feedback interventions (PFI). PFIs are designed to enhance motivation for change by highlighting discrepancies regarding one's current alcohol use behaviors through the use of personalized drinking feedback and motivational enhancement strategies (Miller & Rollnick, 2002; Miller, Sovereign, & Krege, 1988; Walters & Neighbors, 2005). Content of the alcohol-related feedback varies, but PFIs typically include personalized

feedback regarding quantity/frequency of alcohol use, perceived drinking norms, and alcohol-related problems (Miller et al., 2012). Research has also begun to examine PFIs without the use of an in-person interview.

1.1. Feedback-Only Interventions

Research has examined the use of personalized feedback in the absence of a one-on-one session with a clinician. These feedback-only interventions (FOI) include similar feedback to that provided in PFIs that utilize an in-person meeting plus feedback, but students are asked to review their feedback independently. FOIs have been delivered in a variety of formats including mailed, computer-delivered, and in-person during which the participant receives printed feedback following assessment that is reviewed privately without the assistance of a clinician (e.g., Agostinelli, Brown, & Miller, 1995; Neighbors, Larimer, & Lewis, 2004; White, Mun, Pugh, & Morgan, 2007). Beyond the personalized feedback, there exist important variations in additional content, and the delivery of BMIs. Two sources of variation that are relevant to the current investigation are the method of delivery of these interventions and the use of moderation skills training designed to provide students with strategies for promoting more responsible drinking.

Research examining the efficacy of FOIs is somewhat mixed. Some studies have found them to be efficacious when compared to control conditions (Agostinelli et al., 1995; Collins, Carey, & Sliwinski, 2002;

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Walters, Vader, & Harris, 2007), whereas others have not (e.g., Murphy, Dennhardt, Skidmore, Martens, & McDevitt-Murphy, 2010; Walters, Vader, Harris, Field, & Jouriles, 2009). Research that has directly compared FOIs to in-person BMIs has also been mixed. Some studies have found FOIs to be as effective as in-person interventions (e.g., Butler & Correia, 2009; Murphy et al., 2004; Juarez, Walters, & Daugherty, 2006), whereas others found superior effects for in-person interventions (Carey, Henson, Carey, & Maisto, 2009; Murphy et al., 2010; Wagener et al., 2012; Walters et al., 2009). This variability in findings regarding the effects of FOIs may be due to a limitation of the intervention format. In-person feedback includes an interaction between the participant and the clinician that may promote engagement in the personalized information. In contrast, there may be a variety of reasons (e.g., disinterest, confusion) for which many participants may not adequately engage in the feedback material presented in FOIs.

In an attempt to address these limitations, Leffingwell et al. (2007) developed the Drinking Assessment and Feedback Tool for College Students (DrAFT-CS). The DrAFT-CS was developed to provide a computer-delivered personalized feedback experience that is more similar to in-person interventions. Like other computerized FOIs, assessment and feedback are completed via computer without any face-to-face interaction with an interviewer. Unique to the DrAFT-CS, though, participants' feedback is provided and explained by an on-screen virtual interviewer who introduces the feedback as it is presented on the computer screen. No printed feedback is provided. Modeled to reflect feedback from the Brief Alcohol Screening and Intervention for College Students (BASICS; Dimeff, Baer, Kivlahan, & Marlatt, 1999), the DrAFT-CS takes approximately 45 minutes to complete and consists of assessment and feedback for drinking-related variables in a multimedia format. Participants are asked a number of questions related to their current drinking behavior with the guide of a video "interviewer" that introduces the assessment content. The measures used to generate feedback include measures of quantity and frequency of drinking (using items adapted from the Daily Drinking Questionnaire; Collins, Parks, & Marlatt, 1985; and Frequency-Quantity Questionnaire; adapted from Cahalan & Cisin, 1968 and reported in Dimeff et al., 1999), alcohol-related problems (Rutgers Alcohol Problem Index; White & Labouvie, 1989), alcohol dependence (Alcohol Dependence Scale; Skinner & Horn, 1984), perceptions of drinking norms (Drinking Norms Rating Form; Baer, Stacy, & Larimer, 1991), psychological distress (Behavioral Health Screener; Zygowicz & Saunders, 2003), and motivation for change (Readiness to Change Questionnaire; Rollnick, Heather, Gold, & Hall, 1992). Following the assessment phase, the DrAFT-CS video interviewer appears adjacent to the feedback information presented on the computer screen and interprets computer-generated graphs that compare the participant's drinking behavior to that of a normative college sample and personal risk associated with current use (e.g., risk of alcohol use disorder, estimated blood alcohol concentration and associated risk, money spent, calories consumed). The video interviewer is a 25-year-old Caucasian male graduate student with extensive training in MI. Assessment instructions and feedback information provided by the video interviewer are pre-recorded and all instruction and information provided by the interviewer is the same for every participant. The data presented in the feedback is personalized to the participant; however, all instructions and information provided by the video interviewer is the same for every participant. The script for the pre-recorded responses was developed by a member of the Motivational Interviewing Network of Trainers (MINT) and was designed to be non-confrontational and empathic and emphasized the autonomy of the participant in regard to decisions about any necessary behavior changes. Participant ratings in earlier trials confirmed that this is how participants perceived the intervention (Leffingwell et al., 2007; Wagener et al., 2012).

There has been one unpublished trial (Leffingwell et al., 2007) and one published trial (Wagener et al., 2012) of the DrAFT-CS program. Leffingwell and colleagues (2007) found DrAFT-CS to produce significantly greater reductions in alcohol outcomes than assessment only control. In contrast, Wagener and colleagues (2012) compared DrAFT-CS to in-person feedback, assessment plus DrAFT-CS assessment without feedback, and assessment only conditions. Results indicated that in-person feedback produced significantly greater reductions in alcohol outcomes than assessment only and significantly greater reductions in peak estimated blood alcohol levels (eBAC) than those in the DrAFT-CS and assessment only conditions. While DrAFT-CS produced greater reductions in alcohol use than assessment only conditions, these differences were not significant. Given the inconsistent findings of the two aforementioned studies, more work examining the efficacy of the DrAFT-CS as a stand-alone intervention is necessary.

1.2. Moderation Skills Modules

Another issue associated with evaluating the efficacy of FOIs is that there is variability in content areas covered (Miller et al., 2012). One such area is the use of moderation skills components (MSCs) where students are provided with specific skills designed to decrease risky drinking and subsequent alcohol-related harms (e.g., using a designated driver, alternating between alcoholic and non-alcoholic drinks, how to calculate eBAC). Several FOIs have utilized MSCs (e.g., Butler & Correia, 2009; Hester, Squires, & Delaney, 2005; Murphy et al., 2004; Walters et al., 2007), but these components are not universal (e.g., Juarez et al., 2006; Kypri et al., 2004; Leffingwell et al., 2007; Walters et al., 2009). MSCs may add incrementally to the efficacy of FOIs. FOIs without instruction on moderation focus on developing motivation to change one's alcohol use behavior. Some participants may be sufficiently motivated to change their behavior as a result of an FOI but lack sufficient knowledge or skills to implement that change. For these individuals, adding an MSC could address this deficiency and improve the efficacy of the FOI alone. To date, no one study has systematically examined the unique contribution of MSC to these interventions using a dismantling design.

1.3. The Present Study

The purpose of the present study was to examine the efficacy of a novel computer-based FOI, the DrAFT-CS. We hypothesized that participants in the DrAFT-CS conditions would experience greater reductions in alcohol use than those in an assessment only (AO) control condition. A second goal of the current investigation was to examine the unique effect of adding an MSC to an FOI. Since previous research has found FOIs to be effective in reducing alcohol use compared to control conditions regardless of the use of MSC, we hypothesized that participants in both the DrAFT-CS and DrAFT-CS plus a computer-based MSC module (DrAFT-CS+) condition would experience greater reduction in alcohol use than those in the AO and the moderation skills only (MSO) conditions. Given the possible incremental additive effect of an MSC, we also hypothesized that participants in the DrAFT-CS+ condition would experience greater reduction in alcohol use than those in the DrAFT-CS condition.

2. Methods

2.1. Participants

2.1.1. Initial screening

Participants were recruited from undergraduate psychology courses at a large midwestern university. Potentially eligible participants were initially identified by their response to a question on a

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