

AWARE: A Personalized Normative Feedback–Based Group Intervention for Mandated College Students

Dogukan Ulupinar and So Rin Kim

AWARE is a brief group intervention that was built upon the principles of personalized normative feedback with novel components (Penn State Altoona, n.d.). The purpose of this study was to pilot test the intervention with mandated college students who were referred for alcohol-related violations ($N = 283$). Results showed significant postintervention changes. Significant interaction effects between time and race and between time and gender were found. Reduction in the consumption of alcohol use and perception of peer alcohol use were significantly different among non-White and female participants.

Keywords: personalized normative feedback, heavy episodic drinking, college students, group counseling, motivational interviewing

The most recent alcohol use figures among emerging adults in the United States suggest a steep increase in alcohol-related overdose deaths and hospitalizations despite a slight decline in heavy episodic drinking (HED; Hingson et al., 2017). The World Health Organization (n.d.) defines HED as consuming at least 60 grams of pure alcohol, which corresponds to approximately six standard drinks, in at least one occasion in the past 30 days. More than one third (39%) of full-time U.S. college students engage in HED (Lipari & Jean-Francois, 2016). Great emphasis has been placed on personalized normative feedback (PNF) interventions with a harm reduction approach to address risky drinking behaviors on college campuses (e.g., Jaffe et al., 2018; Lewis et al., 2007; Walters & Neighbors, 2005) during the past 2 decades.

PNF is a brief alcohol intervention, which was derived from social norms theory. It is based on the assumption that college students overestimate peer alcohol use, which results in an increase in their own alcohol consumption (Borsari & Carey, 2003). PNF interventions are commonly composed of a personalized feedback and a reference peer group assessment of alcohol consumption within a specific time period (Borsari & Carey, 2005). They include students working through the discrepancies between their alcohol use and perceptions of peer alcohol use. One expected outcome is a decrease in individual alcohol use and alcohol-related harm.

Patterns of posttreatment changes in response to PNF interventions have been found to vary across gender. College women are more responsive than

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college men to PNF (Murphy et al., 2004). Compared with women, men also reported higher normative discrepancy after PNF interventions (Murphy et al., 2010). Normative discrepancy occurs when there is a significant perceptual gap between actual drinking norms and individual alcohol use despite receiving normative feedback.

A few studies that have examined the patterns of posttreatment changes across different racial/ethnic groups were inconclusive. Researchers in one study found no differences in response to PNF and brief motivational interviewing (MI; Miller & Rollnick, 2013) in White versus racial/ethnic minority college students (Walters et al., 2009). Another study found that African American students reported no changes in their drinking behavior, whereas White students showed significant reductions in drinking following a stand-alone PNF intervention (Murphy et al., 2010). The same study found that African American students assigned to brief alcohol screening and intervention for college students (BASICS; Dimeff et al., 1999) exhibited greater normative discrepancy compared with White students (Murphy et al., 2010).

Recent research on PNF interventions has mainly focused on the delivery methods. PNF interventions have demonstrated effectiveness in addressing risky drinking through web-based (Prosser et al., 2018), text-messaging (Cadigan et al., 2018), mailing (Larimer et al., 2007), computerized (Dotson et al., 2015), and face-to-face (Borsari & Carey, 2005) delivery. Although contemporary methods include only the stand-alone PNF component, conventional face-to-face methods such as individual or group interventions typically combine PNF with MI, alcohol education, and protective behavioral strategies (PBS; Martens et al., 2005). The PBS component in PNF-based interventions promotes specific behaviors that aim to minimize alcohol-related harm. Individual interventions, such as the popular BASICS, provide an opportunity for participants to comment on the personalized feedback.

Research suggests that individual delivery of PNF produces better outcomes in reducing subsequent alcohol use and related harm (Alfonso et al., 2013; Borsari & Carey, 2005; Carey et al., 2016). One problem is that the high cost of delivering individual services in health care (Kaplan & Frosch, 2005) makes the delivery of PNF interventions in individual format less viable in most circumstances. Colleges are more financially burdened in today's higher education landscape because of insufficient funding after the 2007–2009 economic recession (Mitchell et al., 2014). College counseling centers need to find a balance between high demand and scarce human resources to best serve their campus community (Hardy et al., 2011). Many colleges are unable to afford the high cost of providing individually delivered alcohol interventions with less staff available.

Because of the disparity between student demand and available staffing for individually delivered PNF interventions, college campuses have looked for providing similar programs in group formats (Alfonso et al., 2013). Well-known programs in a group format, such as CHOICES (Calhoon et al., 2005), are similar to BASICS and are based on social norming through normative

feedback with some additional components, such as cognitive behavior skills training, interactive journaling, and psychoeducation (Parks & Woodford, 2005). CHOICES was found to be effective in improving descriptive drinking norms, but it did not demonstrate a significant improvement in either alcohol use or related harm (Alfonso et al., 2013).

The Present Study

Groups appear to be a cost-effective alternative to individual format in delivering PNF interventions on college campuses. Recent research is increasingly focused on electronic delivery methods (e.g., Cadigan et al., 2018; Dotson et al., 2015; Prosser et al., 2018) and thus has overlooked the potential therapeutic benefits of using groups to provide PNF interventions. In the extant literature, there is little depiction of PNF interventions in a group format with novel components, except for one published (Alfonso et al., 2013) and a few unpublished (e.g., Henry et al., 2004; Wilson et al., 2005) studies. The purpose of the present pilot study was to (a) introduce AWARE (Penn State Altoona, n.d.), a PNF-based group intervention program that has novel characteristics for mandated college students; (b) provide preliminary evidence for the effectiveness of the program using amount of drinking, perceptions of drinking, and PBS; and (c) examine the effectiveness of the intervention by race and gender. Our hypotheses were as follows:

Hypothesis 1: The amount of drinking and the perceptions of drinking among participants will decrease after the AWARE intervention.

Hypothesis 2: Participants' PBS will increase after the AWARE intervention.

Hypothesis 3: The outcomes of the AWARE intervention will be different by race and by gender.

Method

Participants and Procedure

Following institutional review board approval, the coded secondary data were obtained from the campus administrator in order to protect the clients' privacy. The data were collected by the health promotion office in a small public college in the northeastern region of the United States between 2014 and 2018. The study included 283 participants (56.9% male, 81.3% White) from a sample of undergraduate students. All participants in this study were previously cited for alcohol-related violations (e.g., underage drinking, excessive consumption of alcohol, possession of alcohol, driving under the influence, public drunkenness, purchasing alcohol with a fake ID) and were referred to the program by the office of student conduct, residence life, or the local district magistrate.

All students were interviewed in a brief intake session. They were screened for their alcohol and substance use and informed about the group intervention

procedures. After taking the online survey, mandated students participated in a 4-hour group intervention across 2 consecutive days (2 hours per day) facilitated by a master's-level counselor who had relevant trainings and experience in PNF interventions and MI. A typical group consisted of between six and eight students. Participants were asked to complete the follow-up survey, which contained the same questions as the initial survey, 6 weeks after the intervention.

Intervention

The AWARE group intervention is built upon the principles of PNF and is similar to the BASICS program in terms of its components (see Carey et al., 2016, for a full list of typical components). BASICS components in the current study included PNF, alcohol education, PBS, and goal setting. Novel components unique to this group intervention included the utilization of a drinking narrative activity, participant self-reflection, and the use of informal qualitative peer responses. Group facilitators were master's-level counselors who had relevant trainings in providing PNF interventions and MI.

Day 1: Icebreaker, alcohol education, and drinking narrative activity with self-reflection. In the first session, the group facilitator worked on establishing ground rules, such as listening actively and attentively, asking for clarification, and respecting the privacy of group members (Corey & Corey, 2016), which was followed by an icebreaker activity. Participants were asked to share the alcohol-related violation that had brought them to the program and reflect on one another's experience.

To ensure that students knew the fundamentals of alcohol intoxication and its effects on the body, the facilitator provided alcohol education based on the intervention procedures in previous studies (e.g., Alcohol 101; Donohue et al., 2004). Although alcohol education alone results in poorer outcomes than stand-alone PNF interventions (e.g., e-CHUG [electronic Check-Up to Go]; Ganz et al., 2018), it is an integrated component of the many programs for mandated college students (Carey et al., 2016; Larimer & Cronce, 2007). Carey et al. (2016) suggested that interventions are more effective when they have components that are more personalized. In the current study, in addition to learning about the blood alcohol concentration (BAC) levels and their respective consequences (e.g., throwing up, blacking out, passing out, coma), participants completed an activity and then reflected on their participation. In this activity, students developed a short narrative in which they considered their typical and heaviest drinking occasions. Students were also given BAC level pamphlets approved by the state health department and taught to estimate their BACs based on their typical and heaviest drinking occasions. The facilitator endorsed a BAC level of 0.06 as a safe limit for alcohol use. Students were then asked to self-reflect on their BAC levels in different drinking scenarios and share their honest thoughts and feelings about being part of this activity. The connection between the therapeutic goal—in this case, the moderation of alcohol use and harm reduction—and the raw feelings and thoughts in the moment helped participants clarify their attitude toward

change (Jacobs et al., 2016). In this way, the facilitator attempted to make the content on alcohol education more personalized for each participant.

Day 2: PNF, informal qualitative peer responses, PBS, and goal setting. On the 2nd day of the intervention, students were given the opportunity to review their PNF report, which included an individualized and a campus-specific peer group assessment of alcohol consumption. The same report also included specific protective behaviors (e.g., eating before drinking, avoiding drinking games, spacing out drinking) students frequently used and did not use at all in their drinking occasions. Then, students were invited to comment on their personalized feedback assessment in an interactive group process enhanced by MI techniques. These procedures were identical in the PNF interventions described in previous studies (e.g., Alfonso et al., 2013; Borsari & Carey, 2005; Carey et al., 2011). Kuerbis et al. (2016) claimed that disbelieving the accuracy of normative feedback interferes with the effectiveness of PNF-based interventions. In the current program, the facilitator used informally obtained qualitative responses to strengthen the accuracy of the quantitative data on the PNF report related to the campus norms. The facilitator shared answers of anonymous students to the question “How do you sober up when you are drunk?” which were collected during a public event during Alcohol Awareness Week on campus. Typical responses given by the students who did not use alcohol included “I don’t drink,” “I am focused on my studies,” “I am a nursing student, I can’t afford drinking,” “I don’t drink because I don’t like the taste,” and “Taste is gross, I don’t drink.” Some students also indicated that they had drank, but infrequently and moderately. These peer responses helped the facilitator challenge potential student disbelief on the accuracy of the normative feedback.

In the PBS component, students were encouraged to contemplate ways that their decision-making process regarding alcohol use could be enhanced. Specific protective behaviors (Martens et al., 2005) were reviewed and discussed. Students shared what protective behaviors they had already been implementing (e.g., eating before drinking) and what else they would be willing to do (e.g., avoiding drinking games). The group concluded with a goal-setting activity. Goal setting is a way of self-management to facilitate behavior change (Locke & Latham, 2002). The facilitator ensured that goals were specific, measurable, achievable, and time limited to promote likelihood of attaining them. Students were reminded to complete the follow-up survey before the group was terminated.

Measures

Participants responded to three questionnaires, which assessed amount of drinking, perceptions of drinking, and PBS. The questionnaires were asked twice: before the intervention and 6 weeks after the intervention. The Daily Drinking Questionnaire (DDQ; Collins et al., 1985) was used to estimate the total number of standard drinks that the participants consumed each day during a typical week in the past 30 days. The DDQ has been used frequently with college students and is a reliable measure that is highly correlated with self-monitored drinking reports (Kivlahan et al., 1990). Students also reported their heaviest drinking occasion in the past 3 months in addition to their typical drinking occasion.

The Drinking Norms Rating Form (DNRF; Baer et al., 1991) was used to assess perceived drinking among other college students. The structure of the DNRF is similar to that of the DDQ. Students reported back on the same items 6 weeks after the treatment (see details that follow in tables). They were provided with the description of one standard drink endorsed by the National Institute on Alcohol Abuse and Alcoholism (n.d.): 12 fluid ounces of regular beer, 8 to 9 fluid ounces of malt liquor, 5 fluid ounces of table wine, or 1.5 fluid ounce shot of distilled spirits.

Questions from the National College Health Assessment (American College Health Association [ACHA], 2018) were used to assess PBS that participants utilize while they drink before and 6 weeks after the intervention. We used 17 items from the ACHA survey. Sample items include “used a designated driver” and “kept track of number of drinks.” Unlike in the original ACHA survey (which uses a Likert scale), the developers of the on-campus alcohol intervention program structured the PBS survey in a more simplistic way. The items in our data were binary and were coded accordingly: yes (1) and no (0). The mean of all 17 items was used in this study, with higher means indicating a greater likelihood of using PBS when drinking. Pearson et al. (2012) reported that there are at least 11 different PBS measures that exist in the literature, and some authors (e.g., Frank et al., 2012; Lewis et al., 2012; Neighbors et al., 2009; Pearson et al., 2012) have chosen, as we did, to use binary items in the response scale. Pearson et al. also noted that more research is needed to strengthen the measurement of PBS, given the lack of consensus in the scaling of PBS.

Data Analysis

SPSS (Version 21.0) was used to conduct all data analyses in this study. We first performed a repeated measures multivariate analysis of variance (MANOVA) to examine whether the participants’ amount and perception of drinking were significantly changed. Dependent variables included five questions about drinking behaviors and perceptions of drinking as well as PBS that the participants reported before and after the PNF. Each question regarding drinking behaviors and perceived drinking behaviors of others was treated as a dependent variable. Next, a set of mixed MANOVAs, in which the within-subjects variable was time (before and 6 weeks after the intervention) and the between-subjects variable was race or gender, was conducted twice to examine whether treatment effects were different based on race or gender. Drinking behaviors, perceptions of drinking, and PBS were dependent variables in the two mixed MANOVAs. Missing variables were not found because participants were mandated to answer all questions because of the program requirements.

Results

The purpose of this pilot study was to examine the effectiveness of the AWARE group intervention for mandated college students and investigate whether the effectiveness of the program is different by race or gender. We

conducted a repeated measures MANOVA to explore the changes of drinking behaviors, perceptions of drinking, and PBS that participants reported. Differences across five questions about drinking behaviors and perceptions of drinking were examined. The main effect of time was found to be significant, Wilks's $\Lambda = .58$, $F(1, 281) = 33.93$, $p < .001$, $\eta_p^2 = .42$. As shown in Table 1, the scores on the dependent variables, including Question 1, the total number of standard drinks on a typical drinking occasion in the past 30 days ($F = 49.70$, $p < .001$, $\eta_p^2 = .15$); Question 2, the largest number of standard drinks consumed on a single day ($F = 138.53$, $p < .001$, $\eta_p^2 = .33$); Question 3, the perceived number of standard drinks for peer alcohol use on a typical drinking occasion ($F = 91.59$, $p < .001$, $\eta_p^2 = .25$); Question 4, the perceived largest number of standard drinks for peer alcohol use ($F = 51.92$, $p < .001$, $\eta_p^2 = .16$); and Question 5, the perceived number of times that other college students had five or more drinks in a 2-hour period over the last 2 weeks ($F =$

TABLE 1
Repeated Measures Multivariate Analysis of Variance Results
for Drinking Behaviors, Perceptions of Drinking, and
Protective Behavioral Strategies

Variable and Time	<i>M</i>	<i>SD</i>	<i>F</i> (1, 282)
Question 1			49.70***
Total number of standard drinks on a typical drinking occasion in the past 30 days			
Preintervention	4.10	3.99	
Postintervention	2.41	3.31	
Question 2			138.53***
Largest number of standard drinks consumed on a single day			
Preintervention ^a	6.97	4.80	
Postintervention ^b	3.50	4.27	
Question 3			91.59***
Perceived number of standard drinks for peer alcohol use on a typical drinking occasion			
Preintervention	5.93	3.20	
Postintervention	3.88	2.38	
Question 4			51.92***
Perceived largest number of standard drinks for peer alcohol use			
Preintervention	4.30	1.89	
Postintervention	3.21	1.97	
Question 5			66.81***
Perceived number of times that other college students had five or more drinks in a 2-hour period over the last 2 weeks			
Preintervention	3.09	1.91	
Postintervention	1.91	1.73	
Protective behavioral strategies			23.49***
Preintervention	0.43	0.31	
Postintervention	0.32	0.36	

^aIn 3 months. ^bIn 6 weeks.

*** $p < .001$.

66.81, $p < .001$, $\eta_p^2 = .19$), significantly decreased between postintervention and preintervention. In addition, the number of PBS significantly decreased ($F = 23.49$, $p < .001$, $\eta_p^2 = .08$), meaning that students used protective behaviors less frequently 6 weeks after the PNF intervention.

We conducted mixed MANOVAs to compare the effectiveness of the PNF by race and gender. Table 2 presents the results of the mixed MANOVA with race as a between-subjects variable. The main effect of race was significant, Wilks's $\Lambda = .92$, $F(1, 281) = 4.03$, $p < .001$, $\eta_p^2 = .08$, as well as the interaction effect between time and race, Wilks's $\Lambda = .94$, $F(1, 281) = 3.02$, $p < .01$, $\eta_p^2 = .06$.

TABLE 2

Interaction Effects of Preintervention and Postintervention Outcomes of Personalized Normative Feedback and Race by Using a Mixed Multivariate Analysis of Variance

Variable and Time	White		Non-White		$F(1, 281)$	η_p^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Question 1					1.61	.01
Total number of standard drinks on a typical drinking occasion in the past 30 days						
Preintervention	4.44	4.24	2.62	2.12		
Postintervention	2.62	3.51	1.57	2.06		
Question 2					4.27*	.02
Largest number of standard drinks consumed on a single day						
Preintervention ^a	7.46	4.97	4.87	3.25		
Postintervention ^b	3.70	4.35	2.66	3.81		
Question 3					8.18***	.03
Perceived number of standard drinks for peer alcohol use on a typical drinking occasion						
Preintervention	6.14	3.09	5.06	3.56		
Postintervention	3.79	2.26	4.26	2.80		
Question 4					9.92**	.03
Perceived largest number of standard drinks for peer alcohol use						
Preintervention	4.34	1.86	4.13	2.02		
Postintervention	3.02	1.87	4.02	2.21		
Question 5					10.82***	.04
Perceived number of times that other college students had five or more drinks in a 2-hour period over the last 2 weeks						
Preintervention	3.18	1.98	2.70	1.53		
Postintervention	1.78	1.69	2.49	1.78		
Protective behavioral strategies					0.06	.00
Preintervention	0.45	0.31	0.36	0.31		
Postintervention	0.34	0.36	0.27	0.35		

^aIn 3 months. ^bIn 6 weeks.

* $p < .05$. ** $p < .01$. *** $p < .001$.

According to the tests of the within-subjects variable, four questions about drinking behaviors and perceptions of drinking were found to have significant interaction effects. Question 2, the largest number of standard drinks consumed on a single day, showed a significant interaction effect between time and race, $F(1, 281) = 4.27, p < .05$. Questions about perceptions of drinking, which included the perceived number of standard drinks for peer alcohol use on a typical drinking occasion (Question 3), the perceived largest number of standard drinks for peer alcohol use (Question 4), and the perceived number of times that other college students had five or more drinks in a 2-hour period over the last 2 weeks (Question 5), were also found to have significant interactions, $F(1, 281) = 8.18$ to $10.82, p < .01$. See Figure 1 for the interaction effects.

We conducted a second mixed MANOVA to examine the interaction effects of time and gender. The main effect of gender was found to be significant,

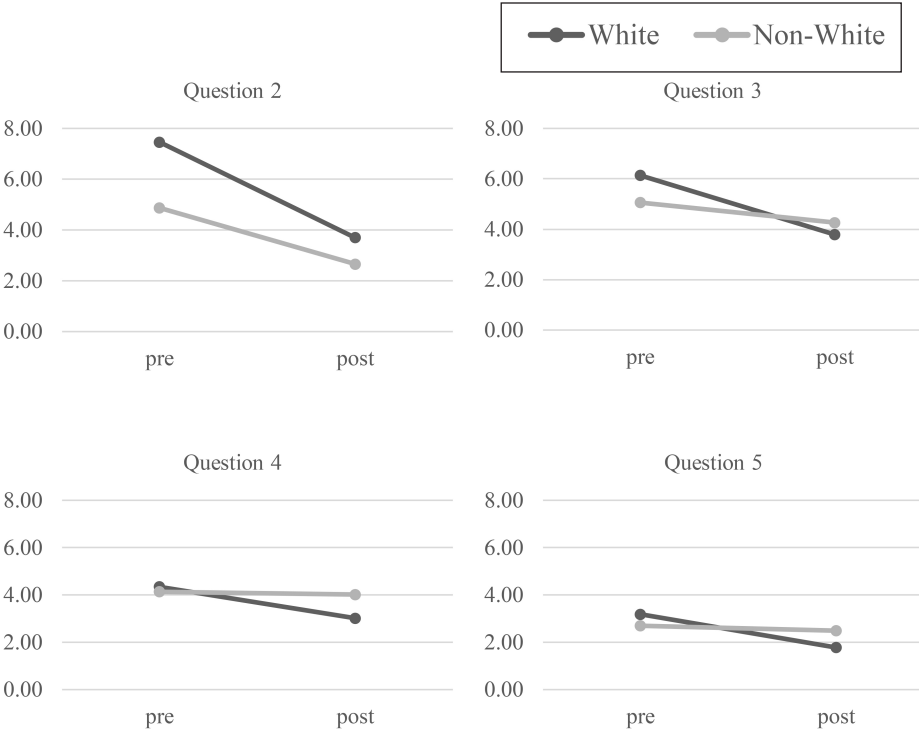


FIGURE 1

Changes in Mean Scores of Mandated College Students' Drinking Behaviors and Perceptions of Drinking: Time by Race

Note. Values on the vertical axis refer to mean scores. Question 2 = largest number of standard drinks consumed on a single day; Question 3 = perceived number of standard drinks for peer alcohol use on a typical drinking occasion; Question 4 = perceived largest number of standard drinks for peer alcohol use; Question 5 = perceived number of times that other college students had five or more drinks in a 2-hour period over the last 2 weeks; pre = preintervention; post = postintervention.

Wilks's $\Lambda = .83$, $F(1, 281) = 9.75$, $p < .001$, $\eta_p^2 = .18$, and the interaction effect between time and gender was also found to be significant, Wilks's $\Lambda = .93$, $F(1, 281) = 3.73$, $p < .01$, $\eta_p^2 = .08$. Two of the six outcome items were found to have significant interaction effects according to univariate tests. Question 2, the largest number of standard drinks consumed on a single day, $F(1, 281) = 16.06$, $p < .001$, $\eta_p^2 = .05$, and Question 3, the perceived number of standard drinks for peer alcohol use on a typical drinking occasion, $F(1, 281) = 4.71$, $p < .05$, $\eta_p^2 = .02$, showed significant interaction effects between time and gender. The interaction effects are shown in Figure 2.

Discussion

We aimed to provide preliminary evidence for the effectiveness of the AWARE group intervention. As previously discussed, this intervention has novel components, such as the utilization of a drinking narrative activity, participant self-reflection, and the use of informal qualitative peer responses, in addition to PNF. The findings of this study relate to (a) the effectiveness of the AWARE program in reducing alcohol use and drinking norms, (b) racial and gender differences, and (c) utilization of PBS.

The results of this study provide evidence to support the effectiveness of the AWARE program. Most of our mandated participants in the alcohol intervention program were White male college students; existing literature has described individuals with these demographics as the most vulnerable population for HED (Substance Abuse and Mental Health Services Administration, 2012). In line with previous research (LaBrie et al., 2013; Lewis & Neighbors, 2007; Lewis et al., 2007; Neighbors et al., 2004, 2010) and as

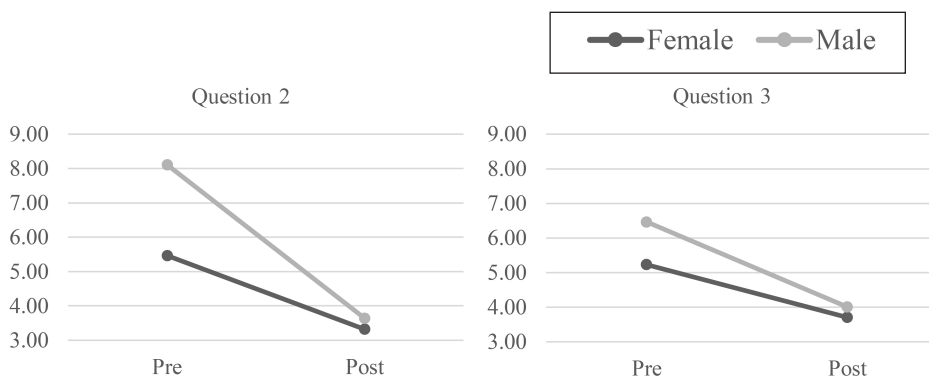


FIGURE 2

Changes in Mean Scores of Mandated College Students' Drinking Behaviors and Perceptions of Drinking: Time by Gender

Note. Values on the vertical axis refer to mean scores. Question 2 = largest number of standard drinks consumed on a single day; Question 3 = perceived number of standard drinks for peer alcohol use on a typical drinking occasion; Pre = preintervention; Post = postintervention.

we hypothesized, the AWARE group intervention was effective in reducing alcohol use. According to Cohen (1988), the effect size (η_p^2) of the AWARE group intervention was large ($\eta_p^2 > .14$). Additionally, the intervention was largely effective in helping the participants become more realistic about estimating peer alcohol use on campus ($\eta_p^2 > .14$).

The most important finding of this study was that non-White students did not change their perception of campus drinking norms even though their alcohol use was significantly reduced. As shown in Figure 1, the slopes of the White students' mean scores are steeper than those of the non-White students. Indeed, the slopes of the non-White students are gradual or flat. Following the intervention, the non-White students reported greater normative discrepancy than the White students when asked about their alcohol use. The effect size of racial differences in drinking behaviors and perceptions of drinking was medium ($\eta_p^2 > .06$). Similar results were found in another study examining African American students' postintervention normative discrepancy compared with White students (Murphy et al., 2010). Kuerbis et al. (2016) argued that postintervention severity of discrepancy in subsequent alcohol use along with perception about peer behavior is mediated by belief in the accuracy of feedback. Closeness to peer reference group is also an important aspect in assessing the relationship between perceived peer norms and individual behavior (Reed et al., 2007). The normative data used in the intervention in the current study were obtained in a predominantly White institution (PWI). Therefore, non-White students in the intervention program may not have felt close to the dominant reference group on this campus, and as a result, the perceived norm of the reference group may be less meaningful for students with diverse backgrounds.

Gender differences in the reduction of alcohol use were notable in our study. As shown in Figure 2, male students had steeper decreasing slopes than the female students, although the slopes of the female students were still statistically significant. Previous research has suggested that males are more resistant than females to changing their alcohol use (Carey & DeMartini, 2010; Henson et al., 2015). Our study found the opposite to be true in that men showed greater reduction in alcohol use than women after the PNF-based group intervention. The effect size of gender difference in the reduction of alcohol use was medium ($\eta_p^2 > .06$).

Contrary to our hypothesis, the utilization of PBS significantly decreased after the intervention. Our findings suggest that PBS and perceived drinking norms may affect alcohol use in distinct manners (Arterberry et al., 2014). Pearson et al. (2012) asserted that PBS norm-based interventions may be more effective in increasing PBS use. The AWARE program emphasizes alcohol use norms (e.g., number of drinks, frequency of drinks) rather than PBS norms (e.g., using a designated driver, spacing out drinks). In addition, MI-based techniques focused on reducing alcohol use could have limited the facilitators in engaging in conversations aimed at eliciting intrinsic motivation to increase the use of PBS. The intended purpose of MI-based techniques (i.e., reduce alcohol use or increase PBS) is significant for the elicitations of

target behavioral change (Walthers et al., 2019). It can be argued that MI in combination with PBS norm-based cognitive therapy could produce results that are more favorable to the use of PBS (Barnett et al., 2007). It is also possible that some participants in the program may be in abstinence; therefore, they did not need to use PBS, such as using a designated driver and avoiding drinking games, at all following the intervention.

Limitations and Directions for Future Research

The lack of randomized groups as a result of secondary data use was a major limitation in this study. Nevertheless, assigning mandated students to a control group would have been problematic for ethical reasons. Several previous studies did not use a true no-treatment group in PNF research with mandated students (e.g., Barnett et al., 2007; Doumas et al., 2011). Consequently, it is possible that some of the observed treatment outcomes may be attributable to factors that were not controlled in our study.

The imbalance in our sample between White (81.3%) and non-White students is an important limitation for drawing conclusions about group differences. There could also be an imbalance among racial and ethnic groups in the non-White sample. Therefore, specific implications regarding each racial/ethnic minority group are not possible. A major threat to the external validity of this study is that our data were collected at a PWI. For this reason, readers should exercise caution when making conclusions about other settings from these results.

Self-initiated reduction of alcohol use or abstinence among mandated students after facing the legal consequences of their alcohol-related violations could not be ruled out, which constitutes another major limitation. Some treatment outcomes in the intervention may be attributable to the extrinsic motivation related to different disciplinary actions. Many studies on mandated students note the same limitation (e.g., Carey et al., 2009; White et al., 2008). Previous studies attempting to investigate the impact of the disciplinary actions found modest effects on subsequent alcohol use following the citation (Hustad et al., 2011; White et al., 2008).

Because of the participants' mandated status, missing data were not an issue; students had to respond to all of the questions. Nevertheless, this could have affected how questions were answered. Some questions may have been answered involuntarily and favorably. Also, we did not take full consideration of the amount of the time spent drinking, instead focusing on the reduction in the number of drinks. This study captured the alcohol-related outcomes only through the 6-week follow-up survey. Nonresponse bias was another concern in this study given that only 24.4% of the participants ($n = 283$) completed the 6-week follow up survey. All of these factors constitute a threat to internal validity.

Given the limitations of this study, future researchers may consider creating a no-treatment group using students on a waiting list to further investigate the effectiveness of the AWARE program with the same novel components. In replicating the study, researchers should focus on the different components of the intervention to determine which component(s), other than PNF,

help non-White students reduce their alcohol use, given that in our study the normative campus data were less meaningful for them. It is important to understand which peer groups and what social norms are meaningful to students of color. Future research may also focus on replicating the study with randomized groups of students who are not mandated.

Another important area to explore would be the individual roles of the novel components in this intervention—that is, the drinking narrative activity with self-reflection and the use of informal qualitative peer responses—in the treatment outcomes. Also, postintervention follow-ups at two or more time points would help capture the treatment outcomes in the long term. More postintervention follow-ups would particularly help with understanding the role of PBS in association with alcohol-related outcomes. Contextual factors within campus communities, such as living arrangements and campus involvement, may also be associated with the treatment outcomes of PNF interventions. Thus, future research focused on student variability nested in these smaller units within campus communities is warranted.

Implications for Practice

Campus drinking norms at PWIs may create larger alcohol use discrepancies for students from more diverse backgrounds. In this study, the campus reference norms may not have been as meaningful for the non-White participants despite the reduction in their subsequent alcohol use after the intervention. Counselors working with college students may consider using culturally appropriate interventions for individuals coming from diverse backgrounds to make the campus drinking norms more meaningful for them. The PNF report used in this study did not specify different peer groups based on race and student activities; therefore, the normative data may reflect only the behaviors of the majority group. Drinking-specific norms among different peer groups based on race and student activities (e.g., diversity-based organizations, honor societies, fraternities/sororities, recreational clubs) may also be included in the normative feedback.

Given that the use of PBS decreased after the intervention, more emphasis on PBS may be needed in the face-to-face group interventions. Mandated students come to alcohol intervention programs with varying degrees of alcohol-related incidents. The severity of drinking issues among students may need different treatment approaches within the scope of PNF interventions. Students with more severe alcohol-related incidents (e.g., driving under the influence, public drunkenness, hospitalizations) may be placed in separate intervention groups in which PBS use is emphasized. For instance, in setting their treatment goals, these students can be encouraged to adopt a specific protective behavior that they were not using before the intervention. This approach could help reduce alcohol-related harm and behavior problems among the heaviest drinkers.

Alcohol intervention programs on college campuses could consider developing systematic ways to evaluate short-term and long-term treatment outcomes. These

systematic ways may include evaluating programs through objective measures (pre-post change) at different time points, asking feedback from student participants about the components that helped the most in changing their alcohol use behaviors, and staying in touch with the current research findings to evaluate the program components. This would create a feedback loop that constantly informs the practice and helps modify the intervention programs when necessary.

The intervention in the current study used informal qualitative peer responses collected during an on-campus event regarding alcohol use. The use of peer responses in the intervention aimed to add a qualitative layer to the normative feedback to strengthen the reliability of campus-specific data in the PNF report. College counselors facilitating similar group interventions for mandated students may consider collecting qualitative data on their campus in a more formal and organized way (e.g., focus groups) after obtaining appropriate approvals from their institutions. For some students, qualitative responses from peers may be more meaningful and convincing than quantitative normative feedback in assimilating campus drinking norms.

Conclusion

This pilot study is important for two main reasons. First, we argued that recent research on PNF interventions has placed much emphasis on electronic delivery methods while overlooking the cost-effectiveness of group interventions. This neglect has created a knowledge gap regarding the effectiveness of group-based PNF interventions with novel components. Second, we provided a description and the procedures of a group-based PNF intervention program with novel components, including a drinking narrative activity with self-reflection and informal qualitative peer responses. This pilot investigation suggests the feasibility of the AWARE group intervention for reducing alcohol use among mandated college students. Future randomized clinical trials with long-term follow-up assessment are needed to further support the effectiveness and sustained benefits of the program.

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