Running head: ALCOHOL USE AND BULLYING INTERVENTION

The Efficacy of a Brief, School-Based Bystander Bullying Intervention on Alcohol Use Among

High School Students

Abstract

We examined the efficacy of a brief, bystander bullying intervention on reducing alcohol use among high school students ($n = 61$). As hypothesized, high-risk drinkers in the intervention group reported reduced drinking compared to control students at a 30-day follow-up.

Keywords: alcohol use, high-risk drinking, bullying intervention, STAC

The Efficacy of a Brief, School-Based Bystander Bullying Intervention on Alcohol Use Among

High School Students

Adolescent alcohol use is a significant public health concern in the United States.

Results of a national survey indicate that by their senior year, 61.5% of high school students

report having used alcohol and 45.3% report being drunk at least once in their lifetime (Johnston,

Miech, et al., 2018). Additionally, 16.6% of high school seniors report binge drinking at least

once in the past two weeks (Johnston, Miech, et al., 2018). Further, researchers have found that

adolescent alcohol use, particularly heavy drinking, has wide ranging consequences including

decreased neuropsychological functioning (Nguyen-Louie et al., 2015), changes in neural

development (Cservenka & Brumback, 2017), and increased risky health behaviors, including

suicide attempts, risky sexual behavior, and increased use of other substances (Miller, Naimi,

Brewer, & Jones, 2007). Problematic alcohol use patterns established in high school also extend

into adulthood (D'Amico, Elickson, Collins, Martino, & Klein, 2005; Kenney, LaBrie, &

Hummer, 2010; Patrick, Terry-McElrath, Schulenberg, & Bray, 2017).

Because high school drinking is associated with significant consequences both during

high school and later in life, it is important to target risk factors that may contribute to alcohol

use. From a socio-ecological perspective (Merrin, Espelage, & Hong, 2018), it is important to

not only consider individual risk factors (e.g., age of drinking onset, beliefs about alcohol,

alcohol expectancies, perceptions of peer use) but also environmental factors (e.g., substance

availability, opportunity for use, familial factors, and peer influences) that may contribute to high

school alcohol use. Researchers have also identified bullying as a peer-related environmental

factor that is associated with alcohol use among both targets (Authors, 2017a; Authors, 2017b;

Lee, Hong, Resko, & Tripodi, 2018; Radliff, Wheaton, Robinson, & Morris, 2012) and

perpetrators (Lee et al., 2018; Merrin et al., 2018; Rivers, Poteat, Noret, & Ashurst, 2009) of bullying in high school.

Within the bullying literature, there are relatively few studies on psychological consequences of being a bystander compared to studies that focus on targets or perpetrators of bullying. Examining the impact of bullying on bystanders is important because as many as 70.6% of students report witnessing bullying at school (Bradshaw, Sawyer, & O'Brennan, 2007). The few studies that have described socio-emotional consequences of being a bystander indicate that being a bystander is associated with feelings of isolation and guilt (Hutchinson, 2012), helplessness (Rivers & Noret, 2013), and suicidal ideation (Rivers & Noret, 2010; 2013). Researchers have also demonstrated that witnessing bullying is associated with a wide range of negative mental health outcomes, including anxiety and depression, over and above the effects of being a target or perpetrator of bullying (Authors, 2018c; Rivers et al., 2009). Additionally, students who witness bullying as bystanders are more likely to use substances, including alcohol, than students who are targets or perpetrators of bullying (Rivers et al, 2009).

One way adolescents may cope with negative feelings associated with witnessing bullying is by using substances, including alcohol (Authors, 2017a). For example, research indicates targets of bullying may use substances to cope with the negative emotional states associated with victimization (Topper, Casellanos-Ryab, Mackie, & Conrad, 2011). Similarly, bystanders also may develop a self-medicating coping style. In a national survey, high school seniors who used substances reported that they did so to relieve tension or relax, to escape from problems, and to deal with feelings of frustration or anger (Terry-McElrath, Stern, & Patrick, 2017). Further, the researchers reported that drinking to cope with negative emotions was significantly more likely among high school students who reported high-intensity drinking (i.e.,

consuming 10 or more drinks over a two-week period). These findings are consistent with previous research showing that drinking to cope with negative emotions is associated with rapid drinking escalation and heavy drinking, which are both patterns of alcohol use that tend to be more problematic (Cooper, 1994; Colder et al., 2002).

One way to address the issue of using alcohol to cope with negative emotions when witnessing bullying is to equip students with strategies to intervene in bullying situations. Researchers have identified four bystander roles that students assume when they witness bullying (i.e. "assistant," "reinforcer," "outsider," and "defender;" Salmivalli, Lagerspet, Björkqvist, Österman, & Kaukiainen, 1996). Students who assume the "assistant" and "reinforcer" roles support the bullying by actively joining in the bullying or providing positive feedback to the bully. "Outsiders" leave the situation or observe from a distance. Only "defenders" intervene on behalf of the target of bullying. Unfortunately, only 20% to 30% of students act as "defenders" (O'Connell, Pepler, & Craig, 1999; Salmivalli & Voeten, 2004), perhaps because bystanders do not know what to do to intervene effectively (Forsberg, Sammuelson, & Thornberg, 2014; Hutchinson, 2012). Research indicates when bystanders act as "defenders," they experience reductions in internalizing symptoms such as depression and anxiety (Williford et al., 2012). Thus, bystander interventions designed to train students to effectively intervene in bullying situations may represent a promising approach to reducing alcohol use related to coping with witnessing bullying but not having skills to intervene. The majority of bullying interventions, however, focus on reducing consequences for targets, not bystanders, and the intervention programs often place high demands on schools for implementation (Salmivalli & Poskiparta, 2012).

The STAC Program

STAC is an acronym for the four strategies, "stealing the show," "turning it over," "accompanying others," and "coaching compassion," trainers teach students. The STAC program was developed specifically as a brief, bystander intervention designed to equip students with tools to intervene as "defenders" when they witness bullying (Authors, 2015). The STAC intervention is based on Bandura's social learning theory (Bandura, 1970) which suggests that individuals model behaviors when they perceive others as influential, similar in terms of personal characteristics, and rewarded for their behavior. When bystanders act as "reinforcers" or "assistants," they reward the perpetrator (Salmivalli, Voeten, & Poskiparta, 2011), providing reinforcement for bullying. In contrast, a single student of high status, or a group of students acting as "defenders" can shift power from the perpetrator (Salmivalli, 2014), discontinuing reinforcement of perpetrators and modeling pro-social behavior. Researchers have also demonstrated that adolescent prosocial behavior is influenced by peers, particularly those with high status (Choukas-Bradley, Giletta, Cohen, & Prinstein, 2015). Additionally, because the presence of peers enhances several areas of the brain associated with socialization, peer presence can positively impact prosocial behavior, especially when peers receive feedback from each other (Van Hoorn, Van Dijk, Guroglu, & Crone, 2016). Further, there is some evidence that peer influences may become internalized into prosocial norms (Choukas-Bradley et al., 2015).

The STAC intervention is a 90-minute program that includes a didactic and experiential training followed with bi-weekly, 15-minute booster sessions (Authors, 2017c). Following social learning theory principles and research on adolescent prosocial behavior, the intervention was designed to be implemented with leaders from a variety of peer groups. The authors originally developed STAC for the middle school level and then modified it to be appropriate for

the high school level (Authors, 2018a; Authors, 2018d; Authors, 2017d). Researchers have

found that the STAC program effectively increases high school students' knowledge, confidence,

and use of the STAC strategies to intervene in bullying situations (Authors 2018a; Authors,

2018d). Participation in the STAC program is also associated with a decrease in depressive

symptoms among high school students (Authors, 2018b; Authors, in press).

The Current Study

Although the literature demonstrates an association between bullying and alcohol use

among high school students (Authors, 2017a; Authors, 2017b; Lee et al., 2018; Merrin et al.,

2018; Radliff et al., 2012; Rivers et al., 2009), few researchers have examined alcohol use among

bystanders (Rivers et al., 2009). One explanation for the relationship between witnessing

bullying and alcohol use is that students may not know what to do when they observe bullying

(Forsberg et al., 2014). Bystanders may experience negative emotions, including feelings of

guilt (Hutchinson, 2012), hopelessness (Rivers & Noret, 2013), depression, and anxiety

(Authors, in press; Rivers et al., 2009), which may lead to coping through alcohol use (Topper et

al., 2011). Thus, training high school students to effectively intervene when they witness

bullying may reduce alcohol use among bystanders. To date, however, we could find no studies

examining the impact of a bystander intervention on alcohol use among high school students

who witness bullying.

The aim of the current study is to address this gap in the literature by evaluating the

efficacy of a brief, bystander bullying intervention, STAC, on reducing alcohol use among high

school students trained to intervene when witnessing bullying. We were also interested in

whether or not the intervention would be more effective among students who are high-risk

drinkers, as drinking to cope is more prevalent among high school students who reported high-

intensity drinking (Terry-McElrath et al., 2017). To achieve this aim, students were randomly

assigned to either an intervention group or control group. We hypothesized that (a) High school

students participating in a bullying bystander intervention will report greater reductions in

alcohol use relative to students in a control group and (b) Intervention effects will be moderated

by drinking risk-status, such that intervention effects will be larger for students classified as

high-risk drinkers relative to students classified as low-risk drinkers.

Method

Research Design

We utilized a randomized controlled trial design within one high school. We randomly

assigned students to either the bystander intervention ($n = 31$) or an assessment-only control

condition ($n = 34$). Participants completed baseline and 30-day follow-up assessments. All

study procedures were approved by the University Institutional Review Board and the School

District Research Board.

Participants

This study was completed as part of a larger study designed test the efficacy of the

adapted STAC intervention for high school students. We recruited students from one urban high

school with a total student population of approximately 1,300 students in the Northwest (see

Figure 1 for the participant flow diagram). The school was chosen because of school counselors

and administrators expressed interest in implementing and evaluating the STAC program at their

school. Demographic information is provided in Table 1. Overall, 93.9% ($n = 61$) of the 65

participants completed both the baseline and 30-day follow-up assessments. Chi-square analyses

revealed no differences for gender, $\chi^2(1) = .24$, $p = .62$, grade, $\chi^2(2) = 1.56$, $p = .46$, or ethnicity,

$\chi^2(5) = 1.28$, $p = .94$, between those who completed both assessments and those who did not.

Additionally, there were no differences in the rate of attrition across the two groups, $\chi^2(1) = 1.27$,

$p = .26$.

Procedures

      We used purposeful sampling to select students that teachers and school counselors

perceived as leaders among diverse peer groups. Students from different peer groups were

nominated by teachers based on perceived leadership. School counselors and the administration

team met to determine which students were eligible for the study based on a rubric with criteria

including qualities such as leadership and peer influence. A counselor education doctoral

graduate assistant met with students individually to explain the study and provided informed

parental informed consent and student assent forms to students who expressed interest ($n = 151$).

Students were reminded in person and via email to bring signed consent and assent back to the

school counselor. Students who agreed to participate were given a unique personal identification

number (PIN) to maintain confidentiality. Baseline data was collected near the end of the fall

semester. Students in the control group returned to class and students in the intervention group

stayed with the research team to attend the STAC training. Counselor education graduate and

doctoral research assistants visited the school twice for 15-minute check-ins every other week

post-training and then returned to collect 30-day follow up data. The researchers provided all

participants with a "pizza party" at the end of the study.

Measures

      Demographic Survey. Participants completed a brief demographic questionnaire with

questions about age, gender, grade, and race/ethnicity.

      Alcohol Use. Alcohol use was assessed using the Daily Drinking Questionnaire (DDQ;

Collins, Parks, & Marlatt, 1985) and the Quantity/Frequency/Peak Questionnaire (QFP; Dimeff

Baer, Kivlahan, & Marlatt, 1999; Marlatt et al., 1998). Weekly drinking was assessed with the

question "Given that it is a typical week, please write the number of drinks you probably would

have each day." A response scale was provided for each day of the week (e.g., Monday,

Tuesday, etc.). A drink was defined as "a 12-ounce can or bottle of beer, a 4-ounce glass of

wine, or a shot of distilled spirits in a mixed drink." Weekly drinking quantity was calculated by

combining the reports for the seven days of the week. Peak drinking quantity was assessed by

the question "What is the most number of drinks that you have consumed on any given night in

the past month?"

　　　　Classification of High-Risk vs Low-Risk Drinkers. We classified participants who

reported one or more episodes of heavy episodic drinking in the past 30 days as high-risk

drinkers. Heavy episodic drinking was defined as having 5 or more drinks in a two-hour period

for males and 3 or more drinks in a two-hour period for females (Donovan, 2009). Using this

definition, 16.9% of students were classified as high-risk drinkers and 83.1% were classified as

low-risk drinkers.

The STAC Intervention

　　　　The STAC intervention for high school includes a 90-minute training consisting of

didactic and experiential components (for details, see Authors, 2018d). Trainers provide

education about bullying and teach students the four STAC strategies. The intervention also

includes 15-minute follow up groups that occur twice during the month following the training.

These group meetings aim to reinforce students' use of the strategies and brainstorm ways to

intervene more effectively.

　　　　Didactic Component. The 90-minute didactic training includes ice-breaker activities, an

audiovisual presentation which includes a video about bullying, and group activities to engage

students in learning how to intervene. The presentation includes information about (a) the

complexities of high school bullying, including group bullying, (b) the different types of bullying

with an emphasis on covert, physical bullying and cyberbullying, (c) characteristics of students

who bully, including the probability they have been targets of bullying, (d) negative

consequences of bullying for students who are targets, perpetrate bullying, and are bystanders,

(e) various bystander roles and the importance of intervening as a "defender," and (f) the STAC

strategies used for intervening in bullying. The STAC strategies are described below.

"*Stealing the Show."* "Stealing the show" involves using humor or distraction to redirect

students' attention from the bullying. Bystanders are trained how to interrupt a bullying situation

to displace other students' attention away from the target and from the bullying situation so that

other students do not join in or reinforce bullying.

"*Turning it Over*." "Turning it over" involves informing a trusted adult about the

situation and asking for assistance or guidance. Specifically, in cases of overt physical bullying,

cyberbullying, or if students are unsure as to how to intervene, students are taught to "turn it

over" to ensure student safety. Trainers discuss the importance of documenting cyberbullying

and how to report it to school authorities such as a student resource officer (SRO) or principal.

"*Accompanying Others."* "Accompanying others" involves the bystander reaching out to

the targeted student to express that what happened is not acceptable, that the target is not alone,

and that the student bystander cares about them. Trainers teach students to approach a peer after

they were targeted to invite them to spend time together. "Defenders" are told they can either ask

peers who were targeted if they would like to talk about what happened or "defenders" can

implement this strategy indirectly by conveying empathy and support through spending time

with the targeted student.

"*Coaching Compassion.*" "Coaching compassion" involves the bystander using gentle confrontation with the perpetrator(s) of bullying, either during or after a bullying incident. "Defenders" convey that bullying behavior is unacceptable. In addition, the bystander encourages the perpetrator to have empathy for the target. Trainers teach bystanders to implement this strategy when they have a relationship established with the perpetrator or if the bystander believes they will be viewed as a higher-status peer, relative to the student who bullied.

Role-Plays. Students form small groups to practice the STAC strategies. Role-plays include hypothetical bullying scenarios. Example scenarios include: "Your friends are hanging out at your house after school, looking through Twitter. One friend decided to follow someone from school that they do not like, and then repost one of their posts to make fun of them. This is not the first time your friend has done something like this."

Training Conclusion. The training ends with the small groups coming together and each student sharing his or her preferred STAC strategy, signing a petition indicating "bullying stops with me," and receiving a certificate of participation.

Post-Training Booster Sessions. Two bi-weekly, 15-minute group meetings take place during the month after the training. Trainers facilitate discussion about the STAC strategies students have used and how effective they seemed. Trainers help students brainstorm ways to use the strategies more effectively and in different ways.

Intervention Fidelity

The researchers created a video for all graduate student trainers to watch prior to involvement in the STAC program. The third author and a school counseling internship student were present at the 90-minute training to ensure it was accurately delivered and they rated the

training on a dichotomous scale, *Yes* or *No,* to evaluate whether presenters accurately taught the definition and types of bullying, the STAC strategies, and whether they deviated from training materials. Furthermore, researchers assessed whether student trainers conducted all role-plays in the training. Both the third author and internship student agreed that the presenters and student helpers involved in the training had 100% adherence to the training materials. Additionally, the researchers followed a standard set of scripted questions for the booster sessions.

For an additional measure of intervention fidelity, we examined changes in knowledge and confidence from pre-training to immediate post-training to determine if students in the intervention group learned the material in the STAC intervention. To assess this information, we administered the Student-Advocates Pre- and Post-Scale (SAPPS; see Authors, 2015). The measure includes 11 items that assess student knowledge of bullying behaviors, knowledge of the STAC strategies, and confidence intervening in bullying situations. Examples of items include: "I know what verbal bullying looks like" and "I feel confident in my ability to do something helpful to decrease bullying at my school." Items are rated on a 4-point Likert Scale ranging from 1 (*Totally Disagree*) to 4 (*Totally Agree*) and summed to create a Total Scale score. The SAPPS has established content validity and adequate internal consistency (Authors, 2015) with Cronbach's alpha of .83 for high school students (Authors, 2018a). For this study, Cronbach's alpha was .81. Results indicated a significant increase in the Total Scale from baseline ($M = 35.09$, $SD = 4.75$) to immediate post-training, ($M = 42.00$, $SD = 2.75$), $t(30) = -8.78$, $p < .001$, Cohen's $d = -1.81$.

Power Analysis

We conducted an a priori power analysis using the G*Power 3.1.3 program (Faul, Erdfelder, Lang, & Buchner, 2007) for a repeated measures mixed-model analysis (ANOVA)

with two time points (baseline; 30-day). Results of the power analysis indicated a sample size of 48 is needed for power of 0.80 to detect a medium effect size of .25 for the 3-way interaction effect of Time x Group x Risk-Status with an alpha level of .05. Thus, our final sample size of 59 is greater than the needed size to provide adequate power for our analyses.

Statistical Analyses

Prior to analysis, we examined the outcome variable for outliers at baseline and follow-up assessments and we adjusted outliers to 3.3 SD above the mean before conducting analyses (Tabachnik & Fidell, 2007). We confirmed that students in the intervention and control groups were equivalent with respect to demographics and the baseline outcome with *t*-tests for continuous variables and chi-square tests for categorical variables. We used general linear model (GLM) repeated measures analysis of variance (ANOVA) to examine the intervention effects across time and risk status as a moderator of intervention effects across time for the outcome variable. The three fixed effects were Time (baseline; follow-up), Group (intervention; control), and Risk Status (high-risk; low-risk). Post-hoc GLM repeated measures ANOVAs were conducted separately for high-risk and low-risk students to determine the nature of the significant 3-way interactions. Due to the small sample size in the high-risk group, we used effect size calculations, rather than significance testing, to examine post-hoc comparisons. Simple slopes were also plotted to examine the direction and degree of significant interactions testing moderator effects (Aiken & West, 1991). We calculated effect size using partial eta squared (η^2_p) for ANOVA analyses, with .01 considered small, .06 considered medium, and .14 considered large (Cohen, 1969; Richardson, 2011). Analyses were considered significant at *p* < .05 and were conducted in SPSS version 24. We controlled for Type 1 error by using the Holm-Bonferroni procedure (Holm, 1979). We selected this method as it corrects for Type I error as

effectively as the traditional Bonferroni procedure, but retains more statistical power (Bender &

Lange, 2001; Eichstaedt, Kovatch, & Maroof, 2013; Wright, 1992). Means for each of the

dependent variables by group and risk-status are shown in Table 2.

Results

Hypothesis One

Our first hypothesis was that students participating in the intervention would report

greater reductions in alcohol use relative to students in the control group. We tested group

effects on alcohol use over time by examining the Time x Group interaction. We found

significant effects for both weekly drinking, Wilks' Lambda = .92, $F(1, 57) = 4.95$, $p < .05$, $\eta^2_p =$

.08, and peak drinking, Wilks' Lambda = .88, $F(1, 57) = 7.70$, $p < .01$, $\eta^2_p = .12$. As seen in

Table 2, means for the total sample indicate that students in the intervention group reduced their

weekly drinking and peak drinking significantly more than those in the control group.

Hypothesis Two

Our second hypothesis was that intervention effects would be moderated by drinking

risk-status, such that intervention effects would be larger for students classified as high-risk

drinkers relative to students classified as low-risk drinkers. We tested moderation effects by

examining the Time x Group x Risk-Status interaction. We found significant effects for both

weekly drinking, Wilks' Lambda = .92, $F(1, 57) = 4.95$, $p < .05$, $\eta^2_p = .08$, and peak drinking,

Wilks' Lambda = .89, $F(1, 57) = 7.07$, $p < .001$, $\eta^2_p = .11$. Follow-up analyses indicated a

medium to large effect size for the Time x Group interaction for high-risk students for weekly

drinking, $\eta^2_p = .10$, and a large effect size for peak drinking, $\eta^2_p = .17$. In contrast, for low-risk

students, the effect size for the Time x Group interaction was small for both weekly drinking, η^2_p

= .00, and for peak drinking, $\eta^2_p = .00$. As seen in Figure 2, findings indicate that high-risk

students in the intervention group reduced their weekly drinking and peak drinking more than those in the control group.

Discussion

The purpose of this study was to evaluate the efficacy of a brief, bystander bullying intervention on reducing alcohol use among high school students. This study also tested the moderating effect of drinking risk-status on intervention effects. To our knowledge, this is the first study to examine the impact of a bystander bulling intervention on reducing alcohol use among high school students who witness bullying. Overall, our findings demonstrated a significant difference in reductions in alcohol use between the intervention and control group. Further, intervention effects were moderated by drinking risk-status such that students classified as high-risk drinkers in the intervention group reported greater reductions in alcohol use relative to high-risk drinkers in the control group. Findings suggest that training students who witness bullying to intervene as "defenders" is effective in reducing alcohol use among students who report heavy episodic drinking.

Consistent with our first hypothesis, results indicated a significant difference in reduction of alcohol use between the intervention and control groups. Specifically, students in the intervention group reported greater reductions in both weekly drinking and peak drinking quantity relative to students in the control group. This finding extends the limited research on the positive impact of bystander interventions on students who witness bullying. Specifically, literature shows that when bystanders intervene as "defenders" in bullying situations, they experience a decrease in depression and anxiety (Williford et al., 2012). Further, in a study evaluating the efficacy of the STAC program in reducing symptoms of depression among high school who witness bullying, students in the intervention group demonstrated a reduction in

symptoms of depression relative to students in the group (Authors, in press). Because one way bystanders may cope with negative emotions associated with observing bullying is to use substances (Authors, 2017a), it is possible that participation in the STAC program led to a decrease in negative emotional states, thereby reducing alcohol use.

Our second hypothesis was that intervention effects would be moderated by drinking risk-status. As predicted, group differences in reductions in weekly drinking and peak drinking quantity were medium to large for students classified as high-risk drinkers ($\eta^2{}_p = .10 - .17$) and were small for students classified as low-risk drinkers ($\eta^2{}_p = .00$). This finding is consistent with a review of literature on adolescent drinking motives which demonstrated that heavy drinkers are more likely to drink to cope with negative affect than other categories of alcohol users, including moderate drinkers (Kuntsche et al., 2005). Thus, it is possible that learning to act as "defenders" lessened high-risk drinkers' negative emotions associated with witnessing bullying, resulting in a decrease in alcohol use among this group. The finding that there were no group differences in changes in alcohol use among low-risk drinkers may be because students who do not drink or drink less have other coping skills and do not turn to alcohol to deal with the distress they may experience when witnessing bullying.

Limitations and Directions for Future Research

Although this study adds to the literature examining the impact of a bystander bullying intervention on alcohol use, there are limitations. First, the sample was small and recruited from one school with a primarily White student body, limiting the generalizability of the results. Further, although we found significant group differences in the reduction in alcohol use in the high-risk group, the sample size of in the high-risk group was quite small ($n = 11$), limiting our examination of post-hoc comparisons to effect sizes. The percentage of participants in the high-

risk group (16.9%), however, reflects the national percentage of high school seniors who report heavy episodic drinking (16.6%; Johnston, Miech, et al., 2018). Additionally, because the STAC intervention was designed to train students identified as leaders from diverse peer groups, the sample was comprised of student leaders, further limiting generalizability. Therefore, the authors recommend future research with larger, more ethnically and racially diverse samples and school-wide implementation of the STAC program to strengthen the external validity of the findings.

Second, although research indicates bystanders experience negative emotions as a result of witnessing bullying (Authors, 2018c; Hutchinson, 2012; Rivers et al., 2009; Rivers & Noret, 2013) and that students may use alcohol to cope with negative feelings (Authors, 2017a; Topper et al., 2011), we did not measure negative emotional states related to witnessing bullying or drinking to cope with negative emotional states. Because data collection occurred during class time, we were limited in terms of survey length and were unable to include these measures. We suggest examining these variables as mediators of the relationship between the intervention and alcohol use in future research. For example, researchers may consider including measures that assess students emotional response to witnessing a bullying incident (e.g., Social and Emotional Maladjustment Scale [SeMS]; Swearer, 2001) and drinking motives, including drinking to cope (e.g., Drinking Motives Questionnaire Revised[DMQ-R]; Cooper, 1994) to gain a greater understanding of the process by which the STAC intervention impacted alcohol use. Additionally, because witnessing bullying as a bystander may lead to use of other substances such as marijuana (Rivers et al., 2009), further research could evaluate the impact of the STAC program on reducing use of other substances in addition to alcohol.

Next, the relatively short follow-up of 30 days is also a limitation of the study. Future studies should include longer follow-up times (e.g., 3-months, 6-months, 12-months) to evaluate whether results are sustained beyond 30 days. Finally, study results were obtained through self-report which may lead to response bias. Self-reported alcohol use, however, is a common practice in research with demonstrated reliability and validity in studies examining alcohol use among adolescents (Flisher, Evans, Muller, & Lombard, 2004; Lintonen, Ahlstrom, & Metso, 2004).

Counseling Implications

Findings from this study have important implications for both school counselors and counselors working in other settings. First, results suggest that school-based bullying intervention programs have positive outcomes that extend beyond reducing bullying and the negative effects on targets of bullying. Specifically, results of this study demonstrate that bullying interventions focusing on training bystanders to act as "defenders" may buffer students from the negative effects of witnessing bullying, including coping by using alcohol. Thus, implementing school-wide bullying programs that include a bystander component (e.g., Kiva; Salmivalli, Voeten, & Poskiparta, 2011) or stand-alone bystander programs such as the program used in this study, may be promising approaches not only to reduce bullying, but to address alcohol use associated with witnessing bullying as a bystander.

Next, school counselors and counselors working outside of the school setting should screen for both alcohol use and witnessing bullying and understand that these two issues might be related. That is, if a counselor becomes aware that a student or client is witnesses bullying, screening for alcohol use may be warranted, particularly if the teen does not know how to respond to bullying. Similarly, if a counselor learns that a student or client is using alcohol,

inquiring about witnessed bullying could also be helpful, particularly for those who report heavy

drinking. Screening, Brief Intervention, and Referral to Treatment (SBIRT; SAMHSA, 2012) is

an evidence-based practice that counselors working with adolescents can use to screen for

alcohol use. To screen for bystander status, we encourage counselors to foster ongoing, open

communication with students so they are more likely to report instances of observing bullying to

counselors. In addition, counselors should also ask students directly if they witness bullying and

how they react to bullying situations. A passive response from students could indicate that they

need more tools to recognize and respond to witnessing bullying. Providing bystander training

to these students could be particularly helpful in order to prevent or reduce coping with alcohol.

Empowering students with tools to use when they witness bullying may alleviate negative

feelings that come from not knowing what to do (Williford et al., 2012), thereby reducing coping

with alcohol use.

Finally, findings from this study indicate 16.9% of students identified as leaders among a

diverse range of peer groups reported heavy episodic drinking. Counselors may be aware that a

significant percentage of high school students engage in risky drinking practices, but may not

anticipate high-risk drinking from students identified as leaders who may be perceived as lower-

risk. Additionally, counselors might assume that student leaders know what to do when

witnessing bullying. Thus, counselors should direct efforts to reduce alcohol use and screen for

bystander status to all high school students, including those identified as leaders, who may

otherwise be overlooked.

Conclusion

The aim of this study was to evaluate the efficacy of a brief, bystander intervention on

alcohol use among high school students. Findings indicated that students in the intervention

group significantly decreased both weekly drinking and peak drinking quantity at the 30-day

follow up. We also found that drinking risk-status moderated intervention effects such that

reductions in drinking were limited to students classified as high-risk drinkers. This study

extends the literature supporting the efficacy of a bystander bullying intervention in reducing the

negative impact of witnessing bullying among high school students.

References

Authors. (In press).

Authors. (2018a).

Authors. (2018b).

Authors. (2018c).

Authors. (2018d).

Authors. (2017a).

Authors. (2017b).

Authors. (2017c).

Authors. (2017d).

Authors. (2015).

Aiken, L. S. & West, S. G. (1991). *Multiple Regression: Testing and Interpreting Interactions.*

    Thousand Oaks, CA: Sage Publications, Inc.

Bradshaw, C.P., Sawyer, A.L., & O'Brennan, L.M. (2007). Bullying and peer victimization at school:

    Perceptual differences between students and school staff. *School Psychology Review, 36*, 361-

    382.

Choukas-Bradley, S., Giletta, M., Cohen, G. L., & Prinstein, M. J. (2015). Peer influence, peer

    status, and prosocial behavior: An experimental investigation of peer socialization of

    adolescents' intentions to volunteer. *Journal of Youth and Adolescence, 44*, 2197-2210.

    doi:10.1007/s10964-015-0373-2

Colder, C. R., Campbell, R. T., Ruel, E., Richardson, J. L., & Flay, B. R. (2002). A finite

    mixture model of growth trajectories of adolescent alcohol use: Predictors and

    consequences. *Journal of Consulting and Clinical Psychology, 70*, 976-985.

Collins, R. L., Parks, G. A., & Marlatt, G. A. (1985). Social determinants of alcohol

      consumption: The effects of social interaction and model status on the self-administration

      of alcohol. *Journal of Consulting and Clinical Psychology, 53*, 189–200.

      doi:10.1037/0022-006X.53.2.189

Cooper, M. L. (1994). Motivations for alcohol use among adolescents: Development and

      validation of a four-factor model. *Psychological Assessment, 6*, 117-128.

      doi:10.1037/1040-3590.6.2.117

Cservenka, A., & Brumback, T. (2017). The burden of binge and heavy drinking on the brain:

      effects on adolescent and young adult neural structure and function. *Frontiers in

      Psychology, 8*, 1111. doi:10.3389/fpsyg.2017.01111

D'Amico, E. J., Elickson, P. L., Collings, R. L., Martino, S. K., & Klein, D. J. (2005). Processes

      linking adolescent problems to substance-abuse problems in late young adulthood. *Journal

      of Studies on Alcohol, 66*, 766-775. doi:http://dx.doi.org/10.15288/jsa.2005.66.766

Dimeff, L. A., Baer, J. S., Kivlahan, D. R., & Marlatt, G. A. (1999). Brief alcohol screening and

      intervention for college students (BASICS): A harm reduction approach. New York, NY:

      Guilford Press.

Donovan, J. E. (2009). Estimated blood alcohol concentrations for child and adolescent drinking

      and their implications for screening instruments. *Pediatrics*, 123, e975–e981.

      doi:10.1542/peds.2008-0027

Flisher, A. J., Evans, J., Muller, M., & Lombard, C. (2004). Brief report: Test-retest reliability of

self-reported adolescent risk behaviour. *Journal of Adolescence, 27*, 207-212.

doi:10.1016/j.adolescence.2001.10.001

Forsberg, C., Samuelsson, M., & Thornberg, R. (2014). Bystanders to bullying: Fourth- to

seventh-grade students' perspectives on their reactions. *Research Papers in Education,*

29, 557-576. doi:10.1080/02671522.2013.878375

Hutchinson, M. (2012). Exploring the impact of bullying on young bystanders. *Educational*

Psychology in Practice, 28, 425-442. doi:10.1080/02667363.2012.727785

Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick,

M. E. (2018). *Monitoring the Future national survey results on drug use, 1975-2017:*

2017 overview, key findings on adolescent drug use. Ann Arbor: Institute for Social

Research, The University of Michigan.

Kenney, S., LaBrie, J., & Hummer, J. (2010). An examination of prepartying and drinking game

playing during high school and their impact on alcohol-related risk upon entrance into

college. *Journal of Youth and Adolescence, 39,* 999-1011. doi:10.1007/s10964-009-

9473-1

Kuntsche, E., Knibbe, R., Gmel, G., & Engels, R. (2005). Why do young people drink? A review

of drinking motives. *Clinical Psychology Review, 25*, 841-861.

doi:10.1016/j.cpr.2005.06.002

Lee, J., Hong, J. S., Resko, S. M., & Tripodi, S. J. (2018). Face-to-face bullying, cyberbullying,

and multiple forms of substance use among school-age adolescents in the USA. *School*

Mental Health, 10, 12-25. doi:10.1007/s12310-017-9231-6

Lintonen, T., Ahlstrom, S., & Metso, L. (2004). The reliability of self-reported drinking in

adolescence. *Alcohol & Alcoholism, 39,* 362–368. doi:10.1093/alcalc/agh071.

Marlatt, G. A., Baer, J. S., Kivlahan, D. R., Dimeff, L. A., Larimer, M. E., Quigley, L. A.…

 Williams, E. (1998). Screening and brief intervention for high-risk college student

 drinkers: Results from a 2-year follow-up assessment. *Journal of Consulting and Clinical*

 Psychology, 66, 604–615. doi:10.1037/0022-006X.66.4.604

Merrin, G. J., Espelage, D. L., & Hong, J. S. (2018). Applying the social-ecological framework

 to understand the associations of bullying perpetration among high school students: A

 multilevel analysis. *Psychology of Violence*, *8*, 43-56. doi:10.1037/vio0000084

Miller, J. W., Naimi, T. S., Brewer, R. D., & Jones, S. E. (2007). Binge drinking and associated

 health risk behaviors among high school students. *Pediatrics, 119*, 176-85.

 doi:http://dx.doi.org/10.1542/peds.2006-1517

Nguyen-Louie, T. T., Norma Castro, M. S., Matt, G. E., Squeglia, L. M., Brumback, T., & Tapert, S.

 F. (2015) Effects of emerging alcohol and marijuana use behaviors on adolescents'

 neuropsychological functioning over four years. *Journal of Studies on Alcohol and Drugs, 76*,

 738-748. doi:http://dx.doi.org/10.15288/jsad.2015.76.738

Patrick, M. E., Terry-McElrath, Y. M., Schulenberg, J. E., & Bray, B. C. (2017). Patterns of high-

 intensity drinking among young adults in the United States: A repeated measures latent class

 analysis. *Addictive Behaviors, 74*, 134-139. doi:10.1016/j.addbeh.2017.06.004

Radliff, K., Wheaton, J., Robinson, K., & Morris, J. (2012). Illuminating the relationship

 between bullying and substance use among middle and high school youth. *Addictive*

 Behaviors, 37, 569-572. doi: 10.1016/j.addbeh.2012.01.001

Reynolds, C. R., Kamphaus, R. W., & Vannest, K. J. (2015). BASC3: Behavior Assessment

 System for Children. PscyhCorp.

Rivers, I., & Noret, N. (2013). Potential suicide ideation and its association with observing

      bullying at school. *Journal of Adolescent Health, 53*, 32-36.

      doi:10.1016/j.jadohealth.2012.10.279

Rivers, I., Poteat, V. P., Noret, N., & Ashurst, N. (2009). Observing bullying at school: The

      mental health implications of witness status. *School Psychology Quarterly, 24*, 211-223.

      doi:10.1037/a0018164

Salmivalli, C., Voeten, M., & Poskiparta, E. (2011). Bystanders matter: Associations between

      reinforcing, defending, and the frequency of bullying behavior in classrooms. *Journal of*

      Clinical Child & Adolescent Psychology, *40*, 668–676. doi:10.1080/15374416.

      2011.597090

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston: Allyn

      and Bacon.

Terry-McElrath, Y. M., Stern, S. A., & Patrick, M. E. (2017). Do alcohol use reasons and

      contexts differentiate adolescent high-intensity drinking? Data from US high school

      seniors, 2005–2016. *Psychology of Addictive Behaviors, 31*, 775-785.

      doi:10.1037/adb0000314

Topper, L. R., Castellanos-Ryan, N., Mackie, C., & Conrod, P. J. (2011). Adolescent bullying

      victimization and alcohol-related problem behaviour mediated by coping drinking

      motives over a 12 month period. *Addictive Behaviors, 36*, 6-13.

      doi:10.1016/j.addbeh.2010.08.016

Van Hoorn, J., Van Dijk, E., Güroğlu, B., & Crone, E. A. (2016). Neural correlates of prosocial

      peer influence on public goods game donations during adolescence. *Social Cognitive and*

      Affective Neuroscience, 11, 923-933. doi:10.1093/scan/nsw013

Table 1

Sample Characteristics by Study Group

Characteristics	Control Group (n = 34)	Intervention Group (n = 31)	Total Sample (n = 65)
Age in years, *M* (*SD*)	16.29 (0.97)	16.29 (0.82)	16.29 (0.95)
Gender			
Male	47.1%	29.0%	38.5%
Female	52.9%	71.0%	61.5%
Race/Ethnicity			
White	76.5%	77.4%	76.9%
Hispanic	11.8%	9.7%	10.8%
Asian-American	0.0%	6.5%	3.1%
African-American	5.9%	3.2%	4.6%
Pacific Islander	2.9%	3.2%	3.1%
Other	2.9%	0.0%	1.5%

Table 2

Means and Standard Deviations for Alcohol Use by Study Condition and Risk-Status

		Risk-Status		
		Low-Risk[a]	High-Risk[b]	Total Sample[c]
Outcomes		*M (SD)*	*M (SD)*	*M(SD)*
Weekly Drinking Quantity				
Control	Baseline	0.00 (0.00)	2.38 (1.19)	0.58 (1.17)
	Follow-Up	0.00 (0.00)	2.50 (1.85)	0.60 (1.39)
Intervention	Baseline	0.04 (0.20)	3.67 (2.31)	0.43 (1.32)
	Follow-Up	0.04 (0.20)	2.33 (3.21)	0.29 (1.15)
Peak Drinking Quantity				
Control	Baseline	0.08 (0.40)	3.50 (1.60)	0.91 (1.70)
	Follow-Up	0.00 (0.01)	3.13 (1.46)	0.76 (1.52)
Intervention	Baseline	0.24 (0.66)	4.00 (3.46)	0.64 (1.64)
	Follow-Up	0.12 (0.33)	1.67 (2.89)	0.29 (0.98)

[a] Control Group $n = 25$; Intervention Group $n = 25$.
[b] Control Group $n = 8$; Intervention Group $n = 3$.
[c] Control Group $n = 33$; Intervention Group $n = 28$.