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Utilizing an Evidence-Based Alcohol Screening Tool for Identification of Alcohol Misuse

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Abstract

Background: Alcohol misuse is prevalent among college students and negatively affects their health, relationships, and academics. Alcohol misuse screening for this age group is advised but often overlooked.

Objective: The aim of this study was to implement an evidence-based alcohol screening tool, the Alcohol Use Disorders Identification Test-Consumption, at a southern university health clinic.

Methods: This quality improvement project used a preintervention/postintervention, mixed-methods design. A survey containing the Alcohol Use Disorders Identification Test-Consumption screening tool is used to identify students with alcohol misuse who are then offered education and follow-up. Students who were found to misuse alcohol were retested 1 month later. Qualitative comments were also gathered about the success of the project.

Results: Alcohol misuse at this location is high and usually missed during the student health encounter. Screening and identification of alcohol misuse were increased. The follow-up survey showed a reduced number of students misusing alcohol.

Conclusion: Alcohol screening and treatment in a university health setting may result in decreased alcohol-related problems. The potential to improve student outcomes at other colleges and universities should be considered.

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INTRODUCTION

Excessive consumption of alcohol is a worldwide problem, especially among young adults, that can lead to a variety of consequences such as complications in relationships, work productivity, and health (World Health Organization, 2011). In fact, binge drinking is most common in the young adult age group (Centers for Disease Control and Prevention [CDC], 2014). Healthy People 2020 (2014) has set a national objective to reduce binge drinking in this population. The National Institutes of Health, National Institute of Alcohol Abuse and Alcoholism (2015b) reports that 50% of students who consume alcohol binge drink. Several large studies report a high prevalence of alcohol misuse among college students or young adults ranging from 20.5% to 67% (Castaño-Perez & Calderon-Vallejo, 2014; Davoren, Shiely, Byrne, & Perry, 2015; Kwon et al., 2013; Kypri & Vater, 2014; Foxcroft, Smith, Thomas, & Howcutt, 2015). A population survey found that alcohol misuse occurred at a rate of 17.7% but was more common among men and young adults (18–24 years old; Foulds, Wells, Lacey, Adamson, & Mulder, 2012). This source also estimates that 1,825 deaths and 599,000 injuries are caused by alcohol misuse among college students per year.

There are major problems directly associated with alcohol misuse among college students. One of the major purposes of a college education is to gain the knowledge and preparation needed for a future career (Wise, 2013). However, those students who regularly misuse alcohol report decreased attendance in their courses and poor grades (Castaño-Perez & Calderon-Vallejo, 2014; Davoren et al., 2015; Mekonen, Fekadu, Chane, & Bitew, 2017). Thus, alcohol misuse can have a potentially damaging effect on a student's ability to graduate and prepare for a future career. Alcohol misuse is also associated with unprotected sexual intercourse, sexual abuse, vandalism, property damage, suicide attempts, violence (Hingson, Zha, & Weitzman, 2009), and regretted sexual encounters (Osberg & Boyer, 2016). After the consumption of alcohol in excess, students report problems with their current health such as unintended pregnancy,

sexually transmitted infections, rape, assault, injuries, and accidents due to poor decision making and coordination (Caamaño-Isorna et al., 2017; Castaño-Perez & Calderon-Vallejo, 2014; Davoren et al., 2015; Hingson et al., 2009). The health consequences of alcohol misuse can cause significant morbidity including behavior and mood changes; damage to the heart, lungs, and pancreas; and a weakened immune system (National Institutes of Health, National Institute of Alcohol Abuse and Alcoholism, 2015a). Furthermore, studies suggest that there may be hazardous long-term effects after alcohol misuse such as liver damage and cancer (Chuang, Lee, Wu, Straif, & Hashibe, 2015) and the development of diabetes mellitus (Howard, Arnsten, & Gourevitch, 2004). Alcohol consumption is also widely associated with problems in relationships (Castaño-Perez & Calderon-Vallejo, 2014). In addition, there is a significant cost factor; the CDC estimated in 2006 that the total cost of alcohol misuse for that year was over $223 billion, with the highest amount from loss of productivity (CDC, 2014).

PROBLEM

At a state university with over 17,000 students, the student health clinic treats up to 120 graduate and undergraduate college students per day. Alcohol screening is currently very limited and performed only on the first visit within the medical history form. On this form, students write the number of drinks consumed in a day and a week in a fill-in-the-blank format under the social history section. There is currently no alcohol misuse protocol or formal screening tool. Many of these students who are misusing alcohol may go undetected in the healthcare setting until an injury or alcohol poisoning occurs. Other students abusing alcohol may fall behind in class or make poor decisions. To prevent consequences to school performance and well-being for the college student, early identification and management of alcohol misuse using existing knowledge in clinical practice are necessary.

SCREENING TOOLS

Several alcohol misuse screening tools are available to help identify those students who abuse alcohol. The screening tools with superior sensitivity and specificity are Alcohol Use Disorders Identification Test (AUDIT), AUDIT-Consumption (AUDIT-C), and single-question screening (Agency for Healthcare Research and Quality, 2012; Johnson, Seale, Shellenberger, Hamrick, & Lott, 2013; Kwon et al., 2013). Several large studies screening with the AUDIT, or its simplified form (AUDIT-C), found accurate identification of alcohol misuse in primary care settings (Agency for Healthcare Research and Quality, 2012; Fiellin, Reid, & O'Connor, 2000; Foxcroft et al., 2015). The AUDIT-C is in the public

AUDIT-C questions

1. How often did you have a drink containing alcohol in the past year?
   a. Never (0 points)
   b. Monthly or less (1 point)
   c. Two to four times a month (2 points)
   d. Two to three times per week (3 points)
   e. Four or more times a week (4 points)

2. How many drinks containing alcohol did you have on a typical day when you were drinking in the past year?
   a. 0-2 (0 points)
   b. 3-4 (1 point)
   c. 5-6 (2 points)
   d. 7-9 (3 points)
   e. 10 or more (4 points)

3. How often did you have six or more drinks on one occasion in the past year?
   a. Never (0 points)
   b. Less than monthly (1 point)
   c. Monthly (2 points)
   d. Weekly (3 points)
   e. Daily or almost daily (4 points)

Figure 1. AUDIT-C questions.

TABLE 1 Change in Screening and Identification of Alcohol Misuse After Implementation of AUDIT-C

	Before AUDIT-C Intervention	After AUDIT-C Intervention	McNemar
Screening incidence for alcohol misuse	6/60 (10%)	60/60 (100%)	N/A
Identification of alcohol misusers	2/60 (3.33%)	23/60 (38.33%)	$p = .000$ ($p < .05$)

AUDIT-C = Alcohol Use Disorders Identification Test-Consumption.

domain and asks three questions: "How often do you have a drink containing alcohol?", "How many standard drinks containing alcohol do you have in a typical day?", and "How often do you drink six or more drinks on one occasion?" The multiple-choice answers are scored, with each option having a different number of points. Option A is 0 point, Option B is 1 point, Option C is 2 points, Option D is 3 points, and Option E is 4 points per question. The total points are added, and a cutoff score for alcohol misuse is recommended by the tool based on male (4 or more out of 12 points) or female (3 or more out of 12 points) gender (see Figure 1). The patient is not considered high risk if all the points come from the first question; there must be some points from Questions 2 and/or 3.

In fact, Foulds et al. (2012) revealed that there is a considerable lack of detection occurring in primary care facilities compared with those identified by the intervention screening. Another study that searched a primary care database representing more than 500 facilities found that 76% of patients had alcohol consumption within the chart but only 9% of charts had recorded use of a screening tool (Khadjesari, Marston, Petersen, Nazareth, & Walters, 2013). One study by Winters et al. (2011) found that only 20% of the 40% of colleges that report screening are currently using a tool that is rated as best practice.

Screening for alcohol misuse leads to higher treatment, referral, and follow-up. Gifford, Paton, Cvitanovic, McMenamin, and Newton (2012) found that, after identification for alcohol misuse using the AUDIT-C screening tool, documented advice or referral occurred for at least 36% of the 492 primary care patients. An important study found that 87%–96% of patients in primary care clinics were willing to participate in screening by the AUDIT, intervention, and follow-up (Kypri et al., 2005). Therefore, screening using the AUDIT or AUDIT-C tools can lead to increased identification and treatment of those patients in primary care settings who are misusing alcohol. Screening for alcohol using the AUDIT-C in primary care clinics was found to be easy to implement and use (Gifford et al., 2012; Kypri et al., 2005). This is consistent with national guidelines from the United States Preventive Services Task Force (2013) and National Institute for Health and Clinical Excellence (2011) that recommend formal screening using an evidence-based tool followed by management.

Brief interventions after screening led to decreased alcohol misuse, and brief multicontact behavioral counseling interventions were also effective in decreasing alcohol misuse (Kaner et al., 2013; United States Preventive Services Task Force, 2013). Healthcare interventions by educational leaflet, 5 minutes of advice, or 20 minutes of lifestyle counseling all resulted in a reduction in alcohol misuse by the patients, with no intervention being more statistically significant than the other (Kaner et al., 2013).

Evidence-based screening and treatment for alcohol misuse in primary care and student health clinics can be added to provider visits as means for decreasing the prevalence and dangers related to alcohol misuse. Current evidence suggests that such measures lead to positive patient outcomes related to alcohol misuse in this population. Therefore, practice change is necessary at the target university because there is currently underutilization of these strategies.

METHODS

This quality improvement project used a preintervention/postintervention, mixed-methods design. Students who arrived to the clinic for any reason were asked to participate in the alcohol misuse screening. The first questionnaire included the AUDIT-C questions as well as information about previous screening. Students identified as alcohol misusers by scores on the AUDIT-C were recommended for follow-up through free campus counseling or clinic follow-up appointment and received immediate education about the consequences of alcohol misuse from the investigator. The educational leaflet was used to guide the conversation. An email was sent about 1 month later to those patients identified as misusing alcohol

TABLE 2 Descriptive Statistics of All Participants Compared With Those Who Have Low Versus High AUDIT-C Scores

	Total Participants	Male	Female	Age Range (Years)	Mean Age (Years)	Median Age (Years)
All participants (high and low risks)	60 (18 declined to participate)	18/60 (30%)	42/60 (70%)	18–40	21.60	20
High-risk AUDIT-C	23/60	9/23 (39.1%)	14/23 (60.9%)	18–29	21.48	21
Low-risk AUDIT-C	37/60	9/37 (24.3%)	28/37 (75.7%)	18–40	21.68	20

AUDIT-C = Alcohol Use Disorders Identification Test-Consumption.

TABLE 3 Change in High-Risk Alcohol Misuse 1 Month After Interventions

Intervention	Alcohol Misuse at Screening for the High-Risk Group	Alcohol Misuse 1 Month Later
Education only	11/11 (100%)	3/11 (27.27%)
Education and follow-up	1/1 (100%)	0/1 (0%)
Education and follow-up declined	1/1 (100%)	1/1 (100%)

with a link to a survey containing the AUDIT-C and questions about counseling use and change in awareness of alcohol misuse. Finally, the project leader recorded notes on the success of the project, and the chief administrative officer was interviewed about incorporating the change long term.

SETTING

The student health clinic serves the health needs of students from both graduate and undergraduate programs. There are one medical director, one chief administrative officer, seven nurses, and four nurse practitioners working in the facility.

PARTICIPANTS

Participants who received the intervention were students at the university over the age of 18 years seeking medical care for any reason. This patient population is generally considered healthy with little to no chronic illnesses. Most patients in this group are seen for preventative visits and vaccination, physical injuries, disease screening, or acute sickness. Every patient was asked to participate after being seen by a health provider on the days that the project director (L. M.) was present until 60 patients were reached within a 1-month period.

RESULTS

Previous alcohol misuse screening occurrence was reported as 6 of 60 (10%) before the introduction of the AUDIT-C and increased to 60 of 60 (100%) after introduction of the screening tool. Previous identification of those misusing alcohol went from 2 of 60 (3.33%) to 23 of 60 (38.33%) after introduction of the screening tool. McNemar test showed a significant change ($p = .000$, $p < .05$; see Table 1). Twenty-three of 60 had high-risk alcohol drinking behaviors (38.33%). Male percentage was higher in the high-risk population, and female percentage was higher in the low-risk population ($p < .05$, $p = .034$). Greater use of alcohol by men versus women is consistent with the literature (Erol & Karpyak, 2015; Slade et al., 2016; Wilsnack, Wilsnack, Kristjanson, Vogeltanz-Holm, & Gmel, 2009). Mean and median ages of both groups were similar. There was no significant age difference ($p > .05$, $p = .864$; see Table 2).

Thirteen of 23 high-risk students returned the follow-up survey (56%). Current AUDIT-C compared with 1 month later for the results and education-only group (follow-up declined) for high risk went from 11 of 11 (100% high risk) to 3 of 11 (27.27% high risk; see Table 3). Two of the three students who remained of high risk did report reduced alcohol intake by decreasing consumption of six or more drinks on one occasion from monthly to less than monthly. Intervention groups for those receiving results, education, and follow-up and for those receiving no education or follow-up were small. However, they reflect that more interventions contributed to better outcomes (see Table 3). Of the 12 receiving education, five (41.67%) found it helpful, five (41.67%) found it somewhat helpful, and two (16.67%) found it not helpful (see Table 4). No one attended counseling at the 1-month mark; however, 8 of 13 (61.53%) said they would consider counseling in the future, and 5 of 13 (38.46%) will not seek counseling (see Table 5). Only 1 of 23 (4.35%) high-risk drinkers agreed to follow-up referral at the clinic and/or the counseling center.

There were several qualitative results. The project director (L. M.) reported that the project was easy to implement. All staff assisted in encouraging student participation. The students were receptive to educational teaching as an intervention. However, most students declined follow-up. The students said that the education was enough and they did not feel they wanted or needed further encounters. Students were attentive to learning about campus resources, and no student refused a counseling center brochure. The chief administrative officer reported that screening will be incorporated into future visits at the clinic.

DISCUSSION

Alcohol misuse and consequent negative outcomes for college students are noted in the literature (Caamaño-Isorna et al., 2017; Castaño-Perez & Calderon-Vallejo, 2014; Davoren et al., 2015; Hingson et al., 2009; Rinker, Diamond, Walters, Wyatt, & DeJong, 2016). Alcohol misuse at this location was high and usually overlooked during the student health encounter. Implementing the AUDIT-C screening tool into the student clinic visit resulted in higher screening for alcohol misuse and

TABLE 4 Degree of Helpfulness Perceived by Education Received After High-Risk Results

Total Participants of Follow-Up Survey for High Risk Who Received Education 1 Month Earlier	Found the Education Was Helpful	Found the Education Was Somewhat Helpful	Found the Education Was not Helpful
12	5/12 (41.67%)	5/12 (41.67%)	2/12 (16.67%)

TABLE 5 Participant Use of Counseling After High-Risk Results			
Total Participants of Follow-Up Survey for High Risk	Attended Counseling Within 1 Month	Will Use Counseling in the Future if Needed	Will not Consider Use of Counseling
13	0/13 (0%)	8/13 (61.53%)	5/13 (38.46%)

identification of those who were misusing alcohol. Participation was very good, with only a few students per day refusing to participate. Therefore, alcohol misuse screening was well received in this population. Standard health information intake forms may not be enough for screening purposes in this population, not only because it is often overlooked but also because this population is more likely to participate in binge drinking over regular drinking. Referral and education after identification were high. Thus, when a health provider was aware that a student was of high risk, it increased the likeliness of intervention. The students had a high willingness to participate in the interventions. Results from the follow-up survey had good return and showed a significant decrease in alcohol misuse after intervention. These findings are consistent with the literature review that increased screening would lead to increased intervention and that implementing screening is ideal in the primary care setting.

LIMITATIONS

The main limitation of this project was that it was implemented at only one clinic. Because of the use of a convenience sample, this study is not generalizable, but the findings remain consistent with what is reported in the literature. Although the main basis of questions of both surveys came from a validated instrument, some questions relied on self-report outside an instrument. Furthermore, a convenience sample was used by selecting implementation days based on the availability of the project team. Finally, follow-up counseling could not be evaluated because of low participation.

CONCLUSION

Implementing alcohol misuse screening and treatment using evidence-based guidelines successfully increased the number of students being screened and identified for alcohol misuse, while decreasing the number of students reporting the misuse of alcohol after treatment intervention. Staff participation was high, and the interventions were easy to implement. Student participation and willingness to receive education suggest that the intervention has the potential to work well in other university health clinics. The quality improvement project led to future incorporation of the tool into the screening of students. Similar quality improvement projects need to be replicated at other university-based clinics to increase identification and subsequent follow-up of students misusing alcohol, which may help to reduce alcohol-related problems in this population. The authors believe that evidence-based alcohol screening programs should be implemented in more primary care clinics nationwide.

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