Evaluating the Implementation of Two Required Online Alcohol Prevention Programs for First-Year College Students

by

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DISSERTATION ABSTRACT

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Title: Evaluating the Implementation of Two Required Online Alcohol Prevention Programs for First-Year College Students

There are several evidence-based online alcohol prevention programs that are geared towards United States (U.S.) college students, a population with high rates of alcohol misuse. Extensive prior research has demonstrated that online alcohol prevention programs are capable of changing students' alcohol-related attitudes and behaviors in the short term. While the effectiveness of these programs has been well-established, there has been little to no investigation into the strategies that U.S. colleges use to implement these programs among their first-year student populations. The University of Oregon (UO), like many other large institutions, used registration holds to enforce the completion of their required online alcohol prevention program up until Fall 2024. Simultaneously, UO began using a different online prevention program in Fall 2024. By analyzing de-identified student data collected through UO's online alcohol prevention programs between 2018–2025 (N = 42,665), I found that program completion rates tended to be higher when registration holds were used to implement the program. After registration holds were removed, first-year student retention rates at the university did not increase. Students who had historically completed an optional program component were demographically different from those who completed only the required portion of the program, indicating that when registration holds were removed, lower completion rates may have been driven by lower program completion by certain student demographics. The findings of this evaluation can help inform decision-making among college administrators and fill an existing

gap in the literature about how these programs are implemented and the effect of implementation on program success.

This dissertation includes previously unpublished coauthored material.

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CHAPTER I

GENERAL INTRODUCTION

Alcohol Use among First-Year College Students

Alcohol use is seen by many as a quintessential part of the college experience in the United States (U.S.; National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2024). Alcohol use is highly prevalent among college students; data from the 2024 National Survey on Drug Use and Health indicate that 43.6% of full-time college students report past-month alcohol use, 24.2% report binge drinking in the past month, and 11.4% meet the criteria for a past-year alcohol use disorder (Substance Abuse and Mental Health Services Administration [SAMHSA], 2025). Heavy alcohol use among college students contributes to suicide attempts, sexual violence, assault, unsafe sexual behavior, academic problems, and death among this population (NIAAA, 2024). Alcohol use is more prevalent among college students than their peers who do not attend college due to the availability of alcohol on college campuses, college students' more limited interactions with their parents, and their increased unstructured time (NIAAA, 2024; SAMHSA, 2025). The first six weeks of a student's college career is known as a high-risk period for alcohol misuse as students adjust to their new schedules and are exposed to social pressure and expectancies related to drinking in the college context (NIAAA, 2024).

The majority of incoming first-year students at public four-year colleges in the U.S. are 18 years old (National Student Clearinghouse Research Center, 2025). This age marks the beginning of emerging adulthood, the developmental period associated with the highest rate of heavy alcohol use across the lifespan (Centers for Disease Control and Prevention, 2022). While past-two-week binge drinking among 12th graders has declined significantly since 2000, falling from 30% to 9% in 2024 (Miech et al., 2024), binge drinking among full-time college students

has only declined from 44% to 27% over a similar time period (Substance Abuse and Mental Health Services Administration, 2024; Wechsler et al., 2002), demonstrating a continued need for alcohol misuse prevention among college students. Importantly, a longitudinal study found that students who drank heavily in college had higher odds of reporting alcohol use disorder symptoms at age 35, indicating that heavy drinking during college may have a lasting impact on drinking behavior throughout and beyond emerging adulthood (McCabe et al., 2018).

Demographic Differences in Alcohol Use among U.S. College Students

Alcohol use patterns and alcohol-related consequences vary across demographic groups, with some populations experiencing disproportionate harms. For example, Black college students experience more negative alcohol-related consequences than their White counterparts, despite using alcohol at lower rates (Williams et al., 2022). This disparity may be partially explained by racial discrimination, which has been linked to greater alcohol use in a sample of Black college students (Su et al., 2021). Native American students also experience elevated alcohol-related risk, including higher rates of alcohol use and related consequences (Albuja et al., 2021). Sex differences further shape alcohol-related risks in college; although female students use alcohol at a slightly higher rate than male students, male students still binge drink at a higher rate (SAMHSA, 2025). Students' alcohol use also tends to change as they age, with older college students drinking more frequently, but in lower quantities (Arria et al., 2016). As such, these demographic differences are important for understanding how students engage with alcohol prevention programs.

Alcohol Prevention Interventions for College Students

The seriousness of alcohol-related harms and the ubiquity of alcohol use in U.S. colleges make prevention of alcohol misuse imperative. As such, the Safe Drug-Free School and

Communities Act of 1989 requires all colleges that receive federal funding to offer alcohol prevention resources to students (Drug-Free Schools and Communities Act Amendments of 1989, 1989). Specifically, the law requires that all institutions of higher education annually distribute their standards of conduct related to alcohol and other drug use, a description of applicable legal sanctions with a statement that they will enforce sanctions, education about the health risks posed by alcohol and other drugs, and available resources to each student and employee. It additionally requires colleges to publicly post a biennial report that describes how the college complies with this statute.

In order to comply with the Drug-Free Schools and Communities Act of 1989, many colleges require their students to complete an alcohol prevention program early in their college career, which are increasingly delivered online (Calverley et al., 2021). The online format allows for personalization, self-pacing, improved intervention fidelity, and lower staff burden than in-person alternatives (Taylor, 2021). Preventive interventions also vary in terms of their intended target audiences, with some interventions targeting individual student behaviors or beliefs and others aiming to change the college campus climate or community climate more broadly (NIAAA, 2024).

Online alcohol prevention programs typically combine several evidence-based strategies to combat the effects of heavy alcohol use on college campuses. Two widely used online alcohol prevention programs, Alcohol-Wise and AlcoholEDU (later referred to as Program A and Program B), both use a combination of alcohol education, personalized feedback about the student's self-reported alcohol use, provide the student with resources on their campus, review protective behavioral strategies for safe drinking, among other strategies (see Figure 1). Protective behavioral strategies (PBS) include several evidenced-based strategies that mitigate

the harms associated with alcohol use (e.g. using a designated driver, setting a limit on the number of drinks you will consume). PBS use has been found to moderate the impact of students' perceived drinking norms on the quantity of alcohol they consumed and their alcohol use consequences, such that students who used PBS were less influenced by perceived drinking norms (Vera et al., 2025). Because these strategies have been shown to buffer peer influences on alcohol use and alcohol consequences, they are a promising approach to reduce the harms caused by college drinking. As such, many prevention programs focus on increasing students' use of PBS, making increased PBS use an important program outcome and measure of program effectiveness.

NIAAA College Alcohol Intervention Matrix

Because of the large number and diversity of alcohol prevention interventions available for college populations, NIAAA created a College Alcohol Intervention Matrix (CollegeAIM). This guide summarizes the existing research and organizes the available alcohol prevention interventions by effectiveness and cost, making it easier for college administration officials to compare programs (NIAAA, 2019). Alcohol prevention interventions are broadly divided into individual-level strategies and environmental-level strategies. Because most environmental-level strategies are policy-related (e.g., increase alcohol tax), they are beyond the scope of this program evaluation which aims to inform decision making at the college administration level rather than informing policy.

CollegeAIM rated 26 individual-level alcohol prevention strategies (NIAAA, 2019). Most of these are generic strategies such as "Personalized feedback intervention", while others are specific, proprietary programs. Generally, these interventions aim to change students' attitudes towards alcohol and/or alcohol-related risk-taking behaviors. These interventions are

organized by effectiveness: 8 programs were rated as having higher effectiveness, 8 had moderate effectiveness, 2 had lower effectiveness, 4 were not effective, and 4 had too few studies to rate effectiveness. CollegeAIM also rated strategies in terms of the costs to adopt, implement, and sustain them, noting that actual program costs depend on the institution size and other factors: 1 program had higher costs, 14 had mid-range costs, and 11 had lower costs. The primary modality for 14 of these strategies was online/computer. Two specific programs rated by CollegeAIM are summarized below, referred to as Program A and Program B for clarity because the program names are very similar.

Program A

Program A is an online alcohol prevention program created to reduce alcohol consumption, especially high-risk drinking behaviors, and increase alcohol knowledge among first-year college students (Croom et al., 2015). This program combines alcohol education with two pre-existing, evidence-based programs called eCHECKUP TO GO (Doumas et al., 2020) and the Alcohol Use Disorder Identification Test (AUDIT) (Saunders et al., 1993) that provides users with real-time feedback about their drinking habits. The initial course takes one to two hours to complete. To complete the course, students must pass a knowledge test with a score of at least 70% (pass rate set by the maker of the program).

An optional follow-up survey is provided to students 30 days after course completion and takes about 15–20 minutes to complete. The follow-up survey is identical to the baseline survey that students complete at the beginning of the program so that results can be compared. The baseline and follow-up surveys contain three main sections: the first contains questions about the student's attitudes towards alcohol, the second contains questions about how the student evaluates risks and makes decisions, and the third is eCHECKUP TO GO, which contains

demographic questions and questions about the student's alcohol use so that they can be provided with real-time feedback about their alcohol-related risk. At the end of each academic year, the maker of the program sends a report to UO containing an overview of aggregate student data.

CollegeAIM rates Program A as moderately effective and mid-range in terms of cost (NIAAA, 2019). Multiple evaluations of Program A have found that the program reduced alcohol consumption and high-risk drinking behaviors (e.g. playing drinking games and engaging in heavy episodic drinking), increased alcohol knowledge, resulted in more accurate estimates of drinking norms at their institution, and improved academic performance (Croom et al., 2015; Gilbertson et al., 2018; Strohman et al., 2016). All program effects were short-term, with no study evaluating the program effects beyond 6 months. Importantly, it appears that the program is most effective when delivered early in the student's college career, ideally before beginning their first term of enrollment (Gilbertson et al., 2018; Strohman et al., 2016).

Program B

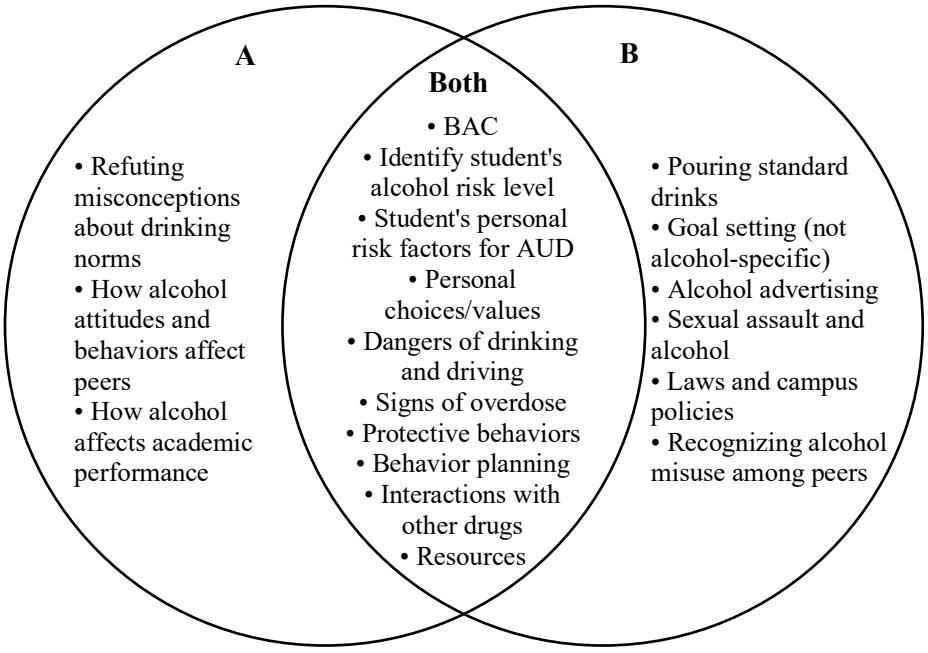
Program B is another online alcohol prevention program geared towards college students. This program is similar in format to Program A. The program is broken up into two parts, with Part 1 taking students approximately 1.5–2 hours to complete and Part 2 taking approximately 20–30 minutes. Part 1 consists of nine educational modules that engage students in prevention strategies such as alcohol education, drinking expectancies, and goal setting, and two surveys (Vector Solutions, 2023). The first survey is taken before the educational modules and assesses the student's alcohol risk level, while the second (post-test) is taken at the end of Part 1 and assesses the student's knowledge gained from the course. Students must score at least 80% on the post-test to complete the program (pass rate set by the university). Part 2 consists of a third

survey (referred to as the follow-up survey) which is administered at least 30 days after Part 1 is completed. The follow-up survey primarily assesses the student's alcohol use, their plans to engage in protective strategies related to alcohol use, their knowledge of resources on their campus, and their satisfaction with the program.

CollegeAIM rates Program B as having higher effectiveness, but also higher cost (NIAAA, 2019). A randomized controlled trial of Program B found that the program reduced past-30-day alcohol use and binge drinking, though the effects did not persist beyond the Fall term (Paschall et al., 2011). Program B is the most widely adopted online alcohol prevention program, with over 11 million users to date (Vector Solutions, 2023).

Figure 1.

Summary of Content from Programs A and B



Implementation of Online Alcohol Prevention Programs

A review of alcohol prevention programs for emerging adults found that several of the available programs are effective at changing behavior, at least in the short term (Calverley et al.,

2021). This review also noted that the way the programs were implemented affected the observed outcomes, though they only assessed implementation based on specific criteria (e.g., whether the program was implemented by peers). Other effectiveness evaluations of online alcohol prevention programs have noted the importance of the implementation strategy used; Taylor et al. (2021) found that only 35% of students at a public university in the Midwest completed both parts of Program B when the second part was not required. The racial and gender makeup of the students who completed both parts of the program differed significantly from the full student body. This is important because program effectiveness is often measured by comparing students' responses on Part 1 and Part 2.

A randomized controlled trial that aimed to evaluate the effectiveness of Program B noted that of the 15 colleges in the intervention condition, 10 used an "implied mandate" to implement the course, wherein they told students it was required but did not penalize them for not completing it (Paschall et al., 2011). Four of the other colleges penalized students who did not complete the course by barring them from registering for classes. The other college was not able to fully implement the intervention because they lost their campus coordinator, so only one email was sent inviting first-year students to complete the program. Program completion rates across these colleges ranged from 4–100%, with all the colleges who enforced program completion with penalties achieving at least a 70% completion rate, compared to an average 36% completion rate among colleges that used an "implied mandate". Although this study reported the implementation strategies used by the included colleges and their corresponding completion rates, the primary aims of their study did not include an evaluation of the implementation strategies employed by each college.

Despite the clear importance of implementation on the effect of online alcohol prevention programs, my literature search did not yield any peer-reviewed studies that aimed to compare implementation strategies for these programs among college students. Considerable attention has been paid to the effectiveness of online alcohol prevention programs in recent years as their popularity has increased (Calverley et al., 2021). However, now that the effectiveness of these programs is well-established for at least changing short-term behaviors, researchers and college administrators must shift their focus to the strategies that are used to implement these programs. Without a thorough investigation of the implementation strategies used, these effective programs may be under-utilized or disproportionately benefit certain populations of students while leaving others at risk.

Context for the Current Study

Prior to Fall 2024, University of Oregon (UO) required that all first-year students complete Program A within their first seven weeks of enrollment. They enforced this requirement by placing registration holds on all students who did not complete the program by the specified deadline, thereby making it impossible for students who do not complete the program to maintain their enrollment at UO. The Program A follow-up survey (Part 2) was optional and made available to students 30 days after they completed the required portion of the program. Beginning in Fall 2024, UO discontinued their use of registration holds to enforce program completion and switched to Program B. These changes present the opportunity to investigate how effective registration holds were as an implementation strategy and compare two prevention programs.

Current Study

This program evaluation aims to (1) compare program completion rates and student retention rates before and after the change in program and the removal of registration holds, (2) identify whether demographic differences exist between students who completed Program A's optional follow-up survey and those who did not, (3) compare the effectiveness of Program A and Program B in changing students' reports of their use of protective strategies, and (4) compare alcohol-related conduct violations and hospitalizations among first-year students in academic year 2023–2024 and 2024–2025, when different programs and different implementation strategies were used. Parts of the introduction, methods, results, and conclusions pertaining to Aims 1 and 2 are included in a planned publication (manuscript submitted in March 2026) with coauthors Ashley Linden-Carmichael, Jimmy Howard, Kristin Perry, Alexis Drakatos, and Leslie D. Leve.

CHAPTER II

STUDY INTRODUCTION

Framing as a Program Evaluation

A program evaluation is a systematic assessment of the design, implementation, or outcomes of a program or policy to inform decision making and improve practice (Patton, 2012; Rossi et al., 2019). Program evaluations often focus on real-world settings and use observational or quasi-experimental methods to examine whether an intervention is being implemented as intended and whether it is associated with desired outcomes. A central goal of a program evaluation is to generate findings that are directly useful to stakeholders, rather than to produce broadly generalizable theory (Patton, 2012). A program evaluation framework was appropriate for this dissertation given the goal of assessing how two interventions (Programs A and B) and two policy conditions (registration holds versus no holds) functioned within a real-world setting. This study leverages population-level administrative data and a naturally occurring policy change to evaluate program participation and downstream outcomes, with the primary goal of informing institutional decision-making.

Although this dissertation was conducted within a single institution, it extends beyond a descriptive case study by leveraging a large, population-level sample and evaluating widely used prevention programs in a context that is comparable to other large public U.S. colleges. As a result, the findings have practical relevance beyond UO, making a case study framing overly restrictive for the aims of this dissertation. Implementation research focuses on understanding the processes and strategies that influence the adoption, delivery, and sustainability of interventions across contexts, often with the goal of generating generalizable knowledge about how to optimize implementation (Proctor et al., 2011). This dissertation is not best characterized as

implementation research either, as it does not test implementation strategies or mechanisms across multiple contexts to create generalizable knowledge about how implementation strategies operate across these different settings. Instead, it evaluates the implementation and impact of an existing program and policy change (Rossi et al., 2019), while generating insights that inform decision-making at UO and may be informative for other colleges implementing similar prevention programs (Patton, 2012). As such, a program evaluation framework is most appropriate for the aims of this dissertation.

Program Evaluation Context

To describe the circumstances that led to this program evaluation, I first provide context at the national, state, college, and department level while also naming the internal and external stakeholders who were directly and indirectly implicated by this evaluation, respectively. At the national level, a culmination of factors threatened college enrollment which in turn, increased pressure for colleges to recruit and maintain their student populations. Although Oregon colleges seemed to be spared from enrollment challenges up to the time of this evaluation, any declines would have been financially devastating given the lack of state funding for higher education. UO stopped using registration holds to enforce the completion of their online alcohol prevention program in Fall 2024 to reduce barriers to student enrollment and prevent potential inequities that may be perpetuated by the use of registration holds. Simultaneously, the Office of the Dean of Students noted technical difficulties that students were experiencing with Program A and decided to switch to Program B. The confluence of factors that created pressure for UO to achieve their enrollment goals while also promoting retention of historically underrepresented student groups in higher education ultimately led to the change in how alcohol prevention programs were implemented, and which program was used.

U.S. College Context

The COVID-19 pandemic greatly impacted college enrollment and had a sustained impact on colleges in the U.S. In the Fall of 2020, freshman enrollment dropped by 6.7% at public four-year colleges (National Student Clearinghouse Research Center, 2025). Although freshman enrollment at these institutions rose between 2021–2024, these increases only resulted in a total enrollment increase of about 200,000 students since 2019. Although this brought enrollment numbers back up to pre-pandemic levels, colleges that operated on student tuition were hit hard by decreased enrollment, which was coupled with decreases in federal funding for education (Dickler, 2022). These financial stressors increased the pressure on college administration to maintain student enrollment and reduce the barriers to enrolling in college.

In addition to enrollment difficulties related to the pandemic, colleges in the U.S. were also affected by delays in the rollout of the Free Application for Federal Student Aid (FAFSA) in 2023. The rollout of a new FAFSA form in late 2023 caused delays for many students to find out how much aid they would be able to access and, in some cases, forcing them to commit to a college before they knew how much it would cost (Mehta, 2024). Some colleges delayed their own enrollment deadlines to accommodate students who had not yet received their financial aid packages, limiting the amount of time they had to prepare for their incoming cohorts. In Fall 2024, the FAFSA rollout was again delayed. This context is relevant to this program evaluation because delays in the FAFSA rollout sparked concern among UO leadership that first-year enrollment could be lower than anticipated, specifically for out-of-state students who relied on financial aid more heavily due to their higher tuition costs.

State of Oregon

While the nation struggled with college enrollment in the years following the COVID-19 pandemic, state-level enrollment declines almost exclusively affected private colleges and public two-year colleges, while enrollment at public four-year colleges remained stable (National Student Clearinghouse Research Center, 2025). Public colleges in Oregon rely heavily on student tuition: Oregon currently ranks 44th in the nation for state funding allocated to public four-year colleges (State Higher Education Executive Officers Association, 2024). The lack of state funding increased the pressure for public colleges in Oregon to achieve their enrollment goals, as they would not have been able to operate without the funding they acquire through tuition.

Excessive alcohol use cost the state of Oregon approximately $4.8 billion annually (ECONorthwest, 2021), more than double what the state allocated to higher education each year (Higher Education Coordinating Commission, 2024). Alcohol use was the third leading cause of preventable death in the state (Oregon Health Authority, n.d.-a). In response to this ongoing public health threat, the Oregon Health Authority launched a media campaign called “Rethink the Drink”. This initiative encouraged Oregonians to re-evaluate their relationship with alcohol and called attention to norms around alcohol use via television commercials, social media ads, and their website (Oregon Health Authority, n.d.-b). Although this evaluation was specific to UO, students who attended UO continue to interact with the broader Oregon community which struggles with the negative effects of excessive alcohol use. Given the broad economic and health impacts of excessive alcohol use in Oregon, preventing alcohol misuse was critical.

University of Oregon

UO is a large public university located in Eugene, Oregon, United States. As of Fall 2024, 20,626 undergraduate students were enrolled at UO, along with an additional 3,836

graduate students (Office of the Registrar, 2024). Although no drug-related deaths among UO students made headlines in the years preceding this evaluation, a public alcohol-related injury or death in the student body could be damaging to UO's reputation and could impact enrollment and threaten UO's financial stability. For example, the university's response to an alcohol-related student death in 2018 sparked significant backlash, creating a tense situation for UO leadership when disseminating messages about safe drinking (Bever, 2018). The university has also enrolled larger-than-usual cohort sizes in recent years; UO welcomed 4,617 first-year students in 2021, its largest incoming class at that point, and then broke that record again in 2022 with 5,338 first-year students. The first-year cohort in 2023 took the title of second largest incoming class (5,057 students) until they were surpassed by the cohort welcomed in 2024, which held the title as the second largest incoming class at the time of this evaluation (5,103 students). These increased class sizes made an online alcohol prevention program more appealing because they reduced the logistical burden associated with in-person or individualized programs. The larger cohorts also increased the risks associated with failing to prevent alcohol misuse because high rates of alcohol misuse might have overrun the school's and community's capacity to handle these situations.

Internal Stakeholders. The Office of the Dean of Students was the department that was formally tasked with administering and monitoring the online alcohol prevention program at UO at the time of this evaluation. This department fell under the direction of the Vice President for Student Life; a new Vice President assumed this role in Fall 2024. Within the Office of the Dean of Students, the Assistant Director of Substance Abuse Prevention and Education served as the primary point of contact for this evaluation. Finally, UO undergraduate students were key internal stakeholders for this program evaluation because the program's success will reduce the

health and legal burden that high-risk drinking poses to this population. All the internal stakeholders in this evaluation had a vested interest in reducing high-risk drinking among first-year UO students, both for the protection of the students' wellbeing and the protection of the university.

External Stakeholders. The family members and friends of UO students were important external stakeholders because they influenced the student's drinking behaviors and had an interest in maintaining the student's safety. Parents may have become concerned about sending their child to UO if there was an uptick in alcohol-related injuries or fatalities among UO students. Eugene community members and first responders were also important stakeholders in this evaluation. Heavy alcohol use on or near campus may have increased the incidence of drunk driving, public intoxication, and alcohol-related medical emergencies. All these events may have burdened the local police and health care system, while also creating more potential danger for community members. These external stakeholders were motivated to prevent high-risk drinking among first-year students at UO, even though they were not directly involved in this program evaluation.

Office of the Dean of Students

As stated above, alcohol prevention programs were housed within the Office of the Dean of Students, however, this department contracted with third party vendors to provide their required online alcohol prevention program. Between Fall 2018–Spring 2024, the maker of Program A was contracted to provide all first-year students access to their online alcohol prevention program. The Office of the Dean of Students collaborated with two doctoral students from the Prevention Science program in 2023 to analyze the aggregate student data from Program A. They noted that their evaluation was limited by the use of aggregate data because the

maker of Program A was unable to provide disaggregate data at the time. The Office of the Dean of Students also received reports from students that they were encountering technical difficulties with Program A in the Fall of 2023. Because UO's contract with the maker of Program A ended in 2024, the Office of the Dean of Students decided to switch to Program B in an attempt to alleviate some of the difficulties students had noted.

Due to Program B's widespread use among other large, public colleges, and its well-established effectiveness, the Office of the Dean of Students began providing Program B to all incoming students in Fall 2024. The maker of Program B also provides UO students with required cannabis and other drug prevention programs, replacing the versions of these programs previously provided by the maker of Program A. In order to comply with an Oregon law passed in 2023 (Higher Education Coordinating Commission, n.d.), UO added an annual sexual misconduct prevention course that was required for all students and employees and was provided by the maker of Program B. The change in vendors, coupled with the addition of the sexual misconduct prevention course, led to a cost increase from $16,000 per academic year to $42,320.

Along with the change in prevention program, the Office of the Dean of Students discontinued their use of registration holds to enforce program completion at the start of academic year 2024–2025. The University of Oregon Senate passed a resolution in March 2024 which restricted the use of registration holds in response to reports from undergraduate advising leadership that registration holds were having adverse effects on students and the university's retention rates (The University of Oregon Senate, 2024). An internal report indicated that holds were being disproportionately applied to different student demographics, further motivating this change (Jimmy Howard, personal communication, July 31, 2025). The new policy required that any UO department planning to use registration holds needed to first gain approval from the

Registration Hold Governance Committee and demonstrate that (1) a registration hold was a reasonable consequence and (2) alternative options were not available. The policy additionally provided best practices for the use of registration holds, including guidance on communication and timing and the requirement that departments using holds demonstrate "equitable impact".

Simultaneously, Dean of Students staff had discussed removing registration holds to reduce barriers for students. They felt that an implementation strategy focused more on educating students who want to learn about alcohol use aligned better with their mission than one that encouraged students to click through the program solely to avoid receiving a registration hold. When the new registration hold policy went into effect, Dean of Students staff decided not to pursue approval to use registration holds for the online alcohol prevention program and instead viewed the 2024–2025 academic year as an opportunity to pilot a new implementation strategy: students were told that the program was "required", but they faced no consequences for not completing the program. Additionally, the new Vice President for Student Life advocated for minimal reminders to be sent to students to further minimize the burden placed on newly enrolled students. In prior years, weekly emails were sent to remind students to complete Program A and provide ample warnings that a registration hold may be placed on their student account if the program was not completed by the deadline.

Evaluation Aims, Objectives and Hypotheses

Aim 1

The first aim of this dissertation was to compare program completion rates and student academic retention rates before and after the removal of registration holds. The removal of registration holds presented an opportunity to investigate their effect on program completion rate, as well as their potential impact on student retention at the university. Registration holds

promoted participation by preventing students who did not complete the program from registering for their next academic term. Although this strategy may increase program completion, it may also decrease university student retention by creating an additional barrier to course registration. I expected that the rate of program completion would be significantly lower following the removal of registration holds (Paschall et al., 2011) and that student retention rates would not differ given that the vast majority of students completed the program while registration holds were in place, so they were not prohibited from continuing their enrollment by registration holds.

Aim 2

Second, this dissertation evaluated whether there were demographic differences between Program A follow-up survey (Part 2) completers and non-completers. Program effectiveness was measured using data from the follow-up survey, so this analysis was necessary to determine which students have been included in the historical effectiveness data for Program A. Furthermore, historical demographic differences on the optional follow-up survey may be predictive of the students who are most likely to complete the program once registration holds were removed. I hypothesized that students who reported drinking less or not at all at baseline would be more likely to complete the follow-up than students who reported drinking more at baseline, female students would be more likely to complete the follow-up survey than male students (Taylor, 2021), and that age and race would not differ for follow-up survey completers and non-completers given the relative homogeneity of the UO student population (Office of the Registrar, 2024).

Aim 3

Third, I compared the effectiveness of Program A to Program B. UO's transition to Program B allows for a comparison between the two programs within the same institution. Given the CollegeAIM's rating of Program B as highly effective (NIAAA, 2019), the internally noted technical difficulties with Program A, and the greater knowledge test score required to pass Program B, I hypothesized that Program B would have greater effectiveness, as measured by the change in students' report of their use of protective behavioral strategies.

Aim 4

The final aim of this study was to report the number of alcohol-related hospitalizations and conduct violations within on-campus housing from academic year 2023–2024 to 2024–2025. Because I anticipated a lower rate of program completion in 2024–2025 due to the removal of registration holds, I expected a greater number of alcohol-related hospitalizations and conduct violations among first-year students in academic year 2024–2025 relative to 2023–2024 as a consequence of having fewer students complete the alcohol prevention program. If students who drank more completed the optional program component at a lower rate (hypothesis for Aim 2), that would indicate that when consequences for not completing the program are removed, the students who need the program most may not receive it. Thus, even though Program B is expected to be more effective, this self-selection bias will wash out the benefits of the more effective program on conduct violations and hospitalizations. Additionally, a greater number of hospitalizations may indicate greater program effectiveness, as students who complete the program learn how to recognize signs of alcohol overdose and seek help.

CHAPTER III

METHODS

This chapter contains material that is included in a planned publication (manuscript submitted in March 2026) with coauthors Ashley Linden-Carmichael, Jimmy Howard, Kristin Perry, Alexis Drakatos, and Leslie D. Leve. I wrote the original draft of the planned publication and conducted the analyses, while coauthors provided feedback on drafts and supervision for the project.

Data Collection

At the beginning of a student's first term of enrollment at UO (including transfer students), or shortly before the start of the term if the student began in the fall, they receive an invitation to complete the required online alcohol prevention program. Between Fall 2017–Spring 2024, UO used Program A as their online alcohol prevention program. Weekly reminders to complete the program were sent via email throughout the student's first term if they had not done so already. In the weeks leading up to the course registration deadline for the following term, students who had not yet completed the program were warned that they would receive a registration hold. Those who did not complete the program by the deadline received a registration hold, thereby enforcing a 100% completion rate among students who continued at UO because they could not enroll for the next term without completing the program. In Fall 2024, UO transitioned to Program B, reduced the number of reminder emails students received to complete the program to two emails, and stopped placing registration holds on students who did not complete the program (see Table 1).

Table 1.

Implementation Timeline for Each Online Alcohol Prevention Program

	Academic Years beginning 2018–2023 (Program A)	**Academic Year 2024–2025 (Program B)**
Prior to the student's first term of enrollment	Invitation to complete the required portion (Part 1) of the program sent via email approximately one month prior to the start of fall term.	
Weeks 1–6 of the student's first term	Weekly reminders to fulfill the program requirement sent via email. Students were warned that they would receive a registration hold if they did not fulfill this requirement.	Invitation to complete the required portion (Part 1) of the program sent via email in Week 2 and one reminder email sent in Week 6 if requirement was not fulfilled.
Week 7 of the student's first term	Deadline for required program completion. Registration holds placed for students who did not fulfill the program requirement.	Deadline for required program completion. Second (and final) reminder email sent.
Week 8 and beyond	Registration holds remain in place until the student fulfilled the program requirement.	No punitive actions taken against students who did not fulfill the program requirement.

Note. These timelines are based on fall term schedules when most students were enrolled in the program. Winter and spring term invitations went out to first-time enrollees after the academic term started, typically at the start of Week 2.

Students reported demographic information about themselves, including their alcohol use, during Part 1 of both programs (see Table 2). Part 1 of both programs took students approximately 1–2 hours to complete and culminated in a knowledge test that students needed to pass (passing score for Program A was 70% or 80% for Program B). Students completed the knowledge test at the beginning of Part 1 as well so that knowledge pre- and post-program may be compared. Once the student had completed Part 1 of the required program, they fulfilled UO's requirements for alcohol prevention. Thirty days after they completed Part 1 of either program, students received an invitation to complete an optional follow-up survey which took between 15–30 minutes to complete. In both programs, the follow-up survey asks students to again report

on their alcohol use as they did in Part 1. UO had access to a data dashboard that summarized aggregate student data collected through each program.

Table 2.

Student Demographics as Reported at Baseline in each Program

Variable	2019–2020 N = 6,307	2020–2021 N = 5,157	2021–2022 N = 6,037	2022–2023 N = 6,279	2023–2024 N = 6,140	2024–2025 N = 3,915
Age						
Under 18	233 (4%)	217 (4%)	230 (4%)	302 (5%)	265 (4%)	86 (2%)
18	3,778 (65%)	3,238 (64%)	3,828 (65%)	4,453 (71%)	4,253 (69%)	2,867 (75%)
19	776 (13%)	708 (14%)	841 (14%)	754 (12%)	799 (13%)	808 (21%)
20+	1,038 (18%)	930 (18%)	1,016 (17%)	769 (12%)	823 (13%)	66 (2%)
Sex						
Male	2,568 (44%)	2,235 (44%)	2,583 (44%)	2,698 (43%)	2,642 (43%)	609 (42%)
Female	3,257 (56%)	2,858 (56%)	3,332 (56%)	3,363 (54%)	3,320 (54%)	843 (58%)
Non-binary	Not provided as an option			217 (4%)	178 (3%)	Not provided as an option
Lives on Campus	4,303 (74%)	3,087 (61%)	4,346 (73%)	5,141 (82%)	4,898 (80%)	3,646 (95%)
Current Alcohol Use	3,018 (52%)	2,414 (47%)	2,735 (46%)	3,058 (49%)	2,846 (46%)	2,128 (58%)
Any Binge Drinking	1,416 (43%)	1,122 (42%)	1,291 (43%)	1,391 (42%)	1,224 (40%)	763 (53%)
Race						
White	4,460 (71%)	3,980 (77%)	4,649 (77%)	Not collected		2,841 (76%)
Black or African American	300 (5%)	289 (6%)	345 (6%)			217 (6%)

Table 2 continued

Variable	2019–2020 N = 6,307	2020–2021 N = 5,157	2021–2022 N = 6,037	2022–2023 N = 6,279	2023–2024 N = 6,140	2024–2025 N = 3,915
Asian	875 (14%)	682 (13%)	809 (13%)			540 (15%)
Hispanic or Latino	798 (13%)	725 (14%)	857 (14%)			689 (19%)
American Indian or Alaska Native	142 (2%)	91 (2%)	127 (2%)			100 (3%)
Native Hawaiian or Pacific Islander	138 (2%)	117 (2%)	133 (2%)			64 (2%)
Middle Eastern / North African	Not provided as an option					71 (2%)
Other	147 (2%)	142 (3%)	154 (3%)			13 (0.3%)

Note. Student-level data from 2018–2019 could not be obtained so it is not included here. While non-binary is a gender and not a sex, students reported their non-binary identity in response to the question "What is your sex?" on Program A. Alcohol use was measured by asking how often the student has a drink containing alcohol between 2019–2023 under Program A (any response other than never was coded as "yes") whereas in 2024–2025 under Program B students were asked if they drank in the past year. Binge drinking was measured by asking students how many times in the past 60 days they consumed 5+ drinks in a row between 2019–2023, whereas in 2024–2025 students were asked how often in the past 2 weeks they had consumed 4+ drinks (for female students) or 5+ drinks (for male students) within a two-hour period. In both cases, any response greater than 0 was coded "yes". Students were able to select multiple race categories so the percentages for all categories sum to greater than 100%. The total Ns presented for each year represent the number of students who provided any demographic data.

The Office of the Dean of Students requested de-identified student-level data from the maker of Program A and the maker of Program B in Fall 2024, after I reached out to them and asked to conduct this program evaluation. The Office of the Dean of Students then shared these data with me. Additionally, they provided data on program cost, the timeline that they follow for administering the program each year, and context for the program evaluation at the college and department levels. They also worked with UO Housing to provide hospitalization and conduct violation data. De-identified aggregate student retention data were provided by UO Institutional Research.

Aim 1: Compare Program Completion Rates and Student Retention Rates Before and After Registration Hold Removal

Sample

Aim 1 analyses drew data from the academic years between Fall 2018 and Spring 2025. Each academic year, between 5,156–6,491 students were enrolled in an online alcohol prevention program. All students who enrolled in the university for the first time between Fall 2018–Spring 2025 were included in this analysis (n = 42,970). Because demographic information could only be collected from students who provided this information through the program, Table 2 does not contain data from students who were enrolled in the program but did not provide any demographic data (either because they skipped those questions or did not participate in the program at all). Student-level data could not be obtained from Program A in academic year 2018–2019, so student demographics from that year are not presented in Table 2. The 2018–2019 cohort was still included in this analysis because program completion rates and student retention rates were available for that year. Students who qualified for an exemption

from completing the program (e.g., students in recovery from substance use disorder) were removed from the count of total program enrollees.

While the program enrollment numbers were drawn from the full academic years, student retention rates were based on the number of first-time students who enrolled in fall and were retained to their first winter term at the university. A total of 32,634 first-time students were counted in the Week 4 of fall term census across 2018–2024. Of those, more than half were female (18,643; 57.1%). Most were 18 years old (26,829; 82.2%) and were enrolled full-time (32,182; 98.6%). A total of 7,430 (22.8%) were first-generation college students and 7,868 (24.1%) were eligible for a Pell grant. About two-thirds identified as White (60.2%), 16.5% as Hispanic/Latino, 9.2% as multiracial, 7.0% as Asian, 3.0% as Black/African American, 0.5% as American Indian/Alaskan Native, and 0.5% as Native Hawaiian or Other Pacific Islander. An additional 526 students' race was unknown. UO counts international students as a separate racial category, so the racial/ethnic percentages do not sum to 100% because an additional 1.5% of students in this sample were international students.

Measures and Definitions

Academic year. All academic years with registration holds (academic years beginning in 2018–2023) were compared to the year without holds (2024–2025). Academic year served as the grouping variable in this analysis and was not directly included in the model.

Program completion rate. Students were counted as having completed the program if they clicked through all the educational materials in Part 1 and passed the final knowledge exam at a rate of 70% for Program A or 80% for Program B. The passing rate for Alcohol-Wise was set by the maker of the program, whereas the university selected the pass rate for AlcoholEDU.

Demographic variables. Demographic variables used in the retention analyses were collected via the student's application for admission. Students self-reported their sex assigned at birth (male or female), age, if they were a first-generation college student (yes/no), if they were eligible for a Pell grant (yes/no), and were prompted to select one or more of the following race categories: American Indian or Alaskan Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, or White. When students selected more than one race, they were placed into a "two or more races" category. As such, these racial categories are mutually exclusive.

Small cell sizes in the post-registration hold removal condition, which only included academic year 2024–2025, necessitated re-categorizing race. The small count of students identifying as American Indian/Alaskan Native and Native Hawaiian or Other Pacific Islander warranted the creation of a Black, Indigenous, and People of Color (BIPOC) category. This category combined students who identified as Black or African American, Hispanic/Latino, American Indian/Alaskan Native and Native Hawaiian or Other Pacific Islander. The decision to combine these races, as opposed to just the races with small sample sizes, was driven by the documented lower retention and graduation rates of BIPOC students relative to White and Asian students at predominantly White institutions (Banks & Dohy, 2019). Students whose race or ethnicity was unknown were excluded because differential retention rates for students with an unknown race would not have provided useful data for the institution to consider in terms of program implementation. Additionally, we were unable to compare retention rates across full-time and part-time students, given the small number of part-time students in the Fall 2024 cohort (n = 49). Both full- and part-time students were included in the analyses.

Student retention. Students who enrolled for the first time in fall term between 2018–2024 were considered retained when they maintained their enrollment at the university through the fourth week of their first winter term.

Analytic Approach

A series of chi-square tests were used to determine if the rate of Part 1 completion in 2024–2025 (when no registration holds were used) was significantly lower than the rate of Part 1 completion in each prior year (academic years beginning in 2018–2023). A Holm correction was applied to adjust for multiple comparisons. Two-sample proportion tests were used to compare retention rates between academic years beginning in 2018–2023 (when registration holds were in place) to the academic year beginning in 2024 (after removal). The overall student retention rate was compared over these two time periods, as well as the retention rates for each level of sex, age, race, first generation status, and Pell eligibility. A Holm correction was applied to adjust for multiple comparisons. No missingness was observed in these analyses because all first-time students were enrolled in the prevention program and UO tracks student retention for all students.

Aim 2: Student Demographics of Optional Program Component (Part 2) Completers

Sample

Because student-level data could only be obtained from Alcohol-Wise after Fall 2019 and race was not collected beyond Spring 2022, this sample was restricted to academic years 2019–2020, 2020–2021, and 2021–2022. Students who did not complete either part of the program (n = 724) were excluded from this analysis because the purpose of this aim was to identify demographic differences between students who complete only the required program component (Part 1) and those who additionally complete the optional follow-up component (Part 2). A total

of 16,777 students completed Part 1 of the program during these academic years. This is slightly higher than the total number of Part 1 completers in Aim 1 because some students completed the program even though they were later granted an exemption, which was likely pursued to avoid additional institutional requirements to complete the online cannabis and other drugs prevention programs. Because this analysis included students who enrolled at any point throughout the year, a sensitivity analysis was conducted with only students who started the program in fall term (n = 15,996) to check for differences between fall term enrollees and students who started in winter or spring term.

Measures and Definitions

Demographic variables. In Part 1 of Program A, students self-reported their age, sex assigned at birth (or gender, for students who identified as non-binary), and their race. Students could select multiple races from the options presented: White, Black or African American, Asian, Hispanic or Latino, American Indian or Alaskan Native, Native Hawaiian or Pacific Islander, or Other. Seven binary race variables were created to indicate that a student identified as that race (coded 1) or did not (coded 0). As such, the reference group for each race category was students who did not self-identify as that race. Finally, students were asked "How often do you have a drink containing alcohol?" and responded with one of the following options: "Never or N/A. I don’t drink alcohol.", "Monthly or less than monthly", "Two to four times a month", "Two to three times a week", or "Four or more times a week". The week in the term that students started Part 1 of the program was added to the model to adjust for differences in exposure to the university setting. The week in the term variable was coded such that 1 indicated the first week of the term, while 0 and negative numbers indicated that the student began the program before the term began. Additionally, a categorical academic year variable was added to the model to

adjust for cohort and history effects, which were particularly relevant given the onset of the COVID-19 pandemic during this period.

Part 2 completion. Any student who opened the link to Part 2 was considered a Part 2 completer, given that they may have reviewed the educational materials without providing any data. This generous measure of Part 2 participation also allows for the inclusion of students who opted not to provide personal information at the follow-up but still were willing to engage with this optional program component.

Analytic Approach

A single logistic regression model was fit to the data predicting Part 2 completion (coded 0 or 1). Predictors included all levels of age, sex, drinking frequency, and all seven dummy-coded race variables. Because race variables were dummy-coded, students who selected more than one race were counted across more than one race variable. While this is not ideal for modeling, it more accurately represents the student's identities and gives the results more clear implications (i.e., significantly lower Part 2 completion for students who were "more than one race" would not provide clear policy guidance). Pulling students into a "more than one race" category would have disproportionately reduced representation of smaller racial categories. However, such an approach may have better captured the experiences of multiracial students compared to disaggregating their identities across multiple race categories. Multiracial students face unique barriers to college enrollment and retention compared to monoracial students (Mitchell & Warren, 2022), indicating that their experiences may not be adequately reflected when their identities are parsed across multiple race variables. On the other hand, dummy coding race variables did not require selecting a reference group, whereas mutually exclusive categories would have forced all results to be relative to one race category.

Because demographic features were self-reported in Part 1 and completion of Part 1 was inclusion criteria for this analysis, only 15 cases were missing data on any of these demographic variables. There was no missingness on the outcome (Part 2 completion). Given that less than 1% of the data were missing, listwise deletion was used.

Aim 3: Compare Pre-to-Post Program Changes in Protective Behavioral Strategy Use Across Both Programs

Sample

Because this analysis aimed to compare pre-to-post program changes in protective behavioral strategy (PBS) use across Program A and Program B, students were only included in this analysis if they completed both parts of their assigned program. Additionally, students needed to report using alcohol at baseline, given that PBS are likely not relevant to students who do not use alcohol. We planned to compare two academic years in which Program A was in use (2022–2023 and 2023–2024) to the one year in which Program B was used (2024–2025), unless the groups were too imbalanced as a result of lower participation after registration holds were removed in 2024–2025. Because only 34 students completed both parts of Program B, reported drinking at baseline, and provided data about their use of PBS, the Program A sample was restricted to only academic year 2023–2024, as planned a priori in the event of imbalanced groups. However, the groups remained extremely imbalanced because 898 students had completed both parts of Program A, reported drinking at baseline, and provided data on their use of PBS in 2023–2024.

As an exploratory analysis, a subset of Program A completers was demographically matched to each Program B completer to artificially balance the two groups. Each of the 34 Program B completers was matched to a Program A completer from the prior year based on age,

sex, binge drinking at baseline (yes/no), the number of drinks they consumed on their highest drinking day, and the week in the term they started the program. Two participants matched exactly on all criteria, 31 were matched on all criteria except for week in the term they started the program, and one was matched on all criteria except for week in the term and number of drinks consumed on highest drinking day (though this was set to +/– 1 drink). When removing a criterion made more than one possible match available, Program B completers were matched to the Program A completer with the closest value on the dropped criterion (i.e., when week in the term was dropped, a student was matched to the student with the closest value on that variable). Students with a missing value on one of the matching criteria were matched to a student with any value on that variable. Program A completers could only be matched to one Program B completer, ensuring that each student in both programs were unique. See Table 3 for a demographic summary of the full Aim 3 sample and the matched pairs.

Table 3.

Demographics of Aim 3 Sample and Exploratory Matched Pairs Analysis

	Program A completers 2023–2024 (n=898)	**Matched subset of Program A completers 2023–2024 (n=34)**	**Program B completers 2024–2025 (n=34)**
Age			
Under 18	34 (3.8%)	1 (2.9%)	1 (3.0%)
18	641 (71.4%)	26 (76.5%)	26 (78.8%)
19	112 (12.5%)	6 (17.6%)	6 (18.2%)
20+	111 (12.4%)	1 (2.9%)	0
Missing	0	0	1
Sex			
Male	329 (36.6%)	16 (47.1%)	6 (33.3%)
Female	541 (60.2%)	17 (50.0%)	12 (66.7%)
Non-binary	28 (3.1%)	1 (2.9%)	-
Missing	0	0	16

Table 3 continued

	Program A completers 2023–2024 (n=898)	Matched subset of Program A completers 2023–2024 (n=34)	Program B completers 2024–2025 (n=34)
Binge Drinking at Baseline			
Yes	405 (45.2%)	17 (50.0%)	9 (52.9%)
No	491 (54.8%)	17 (50.0%)	8 (47.1%)
Missing	2	0	17
Mean number of drinks on highest drinking day at baseline	4.00 (2.85)	3.97 (2.53)	3.72 (2.27)

Note. Non-binary was not a response option on Program B. While non-binary is a gender and not a sex, students reported their non-binary identity in response to the question 'What is your sex?' in Program A. Students could indicate that they were intersex on Program B, though no students selected that option. Binge drinking was measured by asking students how many times in the past 60 days they consumed 5+ drinks in a row on Program A, whereas students were asked how often in the past 2 weeks they had consumed 4+ drinks (for female students) or 5+ drinks (for male students) within a two-hour period on Program B. In both cases, any response greater than 0 was coded as "yes".

Measures and Definitions

Matching variables. Age, sex, binge drinking, and the number of drinks on highest drinking day were collected through the baseline survey of both programs. Binge drinking was measured on Program A by asking students if they consumed five or more drinks in a row within the past 60 days. Program B asked if students had consumed five or more drinks for males or four or more drinks for females within two hours in the past two weeks. To measure the number of drinks on the highest drinking day on Program A, students were asked to report the number of

drinks they consumed on the occasion in the past month that they drank the most. Free responses to this question were rounded up when a fraction of a drink was reported (i.e. 4.5 was recoded to 5) and any number of drinks greater than 10 was recoded to 10 to match the coding of Program B, which asked students to report the number of drinks consumed on the day of highest alcohol use within the past two weeks up to 10 drinks (with only whole numbers of drinks as options).

Protective Behavioral Strategies. Students' use of eight PBS was measured on Parts 1 and 2 of both programs: alternate alcoholic and non-alcoholic drinks, eat before/during drinking, keep track of drinks, limit money spent, limit the number of drinks, pace drinks to 1 per hour, have a friend tell you when you have had enough, and use a designated driver. Program A asked students if they use each strategy (yes/no) and Program B asked how frequently they used the strategy (1 = never, 2 = infrequently, 3 = sometimes, 4 = frequently, 5 = always), but those were recoded so that no or never was coded 0 and all other responses were coded 1. For having a friend let you know when you have had enough and using designated driver in Program A and pacing drinks to one per hour in Program B, students were asked about their intention to use that PBS in the future. In those cases, students could respond "maybe" or "probably not" on Program A or the frequency they intended to use the strategy (same as other PBS questions in Program B). The "maybe" responses were recoded to 1 and "probably not" responses were recoded to 0 on Program A and the frequency responses on Program B were recoded the same as they were for all other PBS questions.

Analytic Approach

A difference-in-differences approach was implemented using generalized estimating equations (GEE) with a logit link to account for the binary PBS outcomes. Models included program (A or B), timepoint (pre vs. post), and their interaction. The program × timepoint

interaction tested whether the magnitude of change in PBS use from pre to post differed between programs. The program × timepoint interaction was tested for each of the eight PBS. These models were first run on the full sample as originally planned and then run on a subset of matched pairs so that the number of students who completed each program was balanced. Because the matched pairs sample was smaller, we also conducted a power analysis assuming a small effect size (0.2), power of 0.8, and a high correlation of within-student pre-to-post agreement on each PBS (0.9) to see if the necessary sample size to detect a small effect was achieved. Although baseline differences in PBS use across the two programs is already accounted for in the interaction model, I also explicitly tested for baseline differences in rates of students' use of PBS across the two programs. Initially, age, sex, and the week in the term that the student started the program were planned to be added to the interaction model as covariates but given the small sample size of Program B completers, the model was simplified to avoid overfitting and instability. Additionally, although I had originally planned to compare student satisfaction across programs to elaborate on why students may have changed their behaviors more after one program when compared to the other, the two programs did not have any overlapping content related to student satisfaction which precluded me from conducting that analysis.

Aim 4: Compare the Number of Alcohol-related Hospitalizations and Conduct Violations within On-Campus Housing from Academic Year 2023–2024 to 2024–2025

Sample

All first-year students are required to live in on-campus housing at UO, so first-year students make up approximately 86% of UO Housing residents. A total of 5,513 students lived in

UO Housing in academic year 2023–2024 and 5,699 students lived in UO Housing in academic year 2024–2025.

Measures and Definitions

Alcohol-related Medical Emergencies and Conduct Violations. Hospitalizations and conduct violations among first-year students who lived on campus were reported to UO Housing by Resident Assistants and/or UO Police in the form of incident reports. A hospitalization was considered alcohol-related if alcohol was mentioned in the incident description. Conduct violations were considered alcohol-related when a student was found in violation of at least one of the following charges: (1) prohibited use or possession of alcohol and/or (2) rapid alcohol consumption and group drinking activities. Students were not considered "in violation" when they were seeking medical help for themselves or someone else. Students were only counted once in the conduct violation data, even when they had multiple conduct violations. The cumulative total counts of alcohol-related hospitalizations were reported by UO Housing for academic years 2023–2024 and 2024–2025.

Analytic Approach

Because the count of conduct violations and hospitalizations was expected to be small, no significance testing was planned. Counts of these events were reported for descriptive comparison across the two academic years.

CHAPTER IV

RESULTS

This chapter contains material that is included in a planned publication (manuscript submitted in March 2026) with coauthors Ashley Linden-Carmichael, Jimmy Howard, Kristin Perry, Alexis Drakatos, and Leslie D. Leve. I wrote the original draft of the planned publication and conducted the analyses, while coauthors provided feedback on drafts and supervision for the project.

Aim 1: Compare Program Completion Rates and Student Retention Rates Before and After Registration Hold Removal

In the first year after registration holds were removed (academic year 2024–2025), 81.2% of students completed the required portion of the online alcohol prevention program (Part 1), which is the lowest rate in the time period observed (prior year rates ranged from 87.9%–98.6%; see Figure 2 and Table 4). A series of chi-square tests with a Holm correction revealed that the Part 1 completion rate in 2024–2025 was significantly lower than all prior years (adjusted *p*s < .01). Cohen's *h* values ranged from 0.19–0.66. A sharp decline in Part 2 completions in 2024–2025 was also observed, with only 6.4% of enrolled students completing both parts of Program B. About half of students had completed both parts of Program A in academic years beginning 2019–2023 (range = 41.7%–61.5%).

Table 4.

Program Completion Counts by Academic Year

Academic Year	Total enrolled in program	Part 1 completers	Part 2 completers
2018–2019	6461	5679	3872
2019–2020	6308	5788	3431
2020–2021	5156	5086	2563

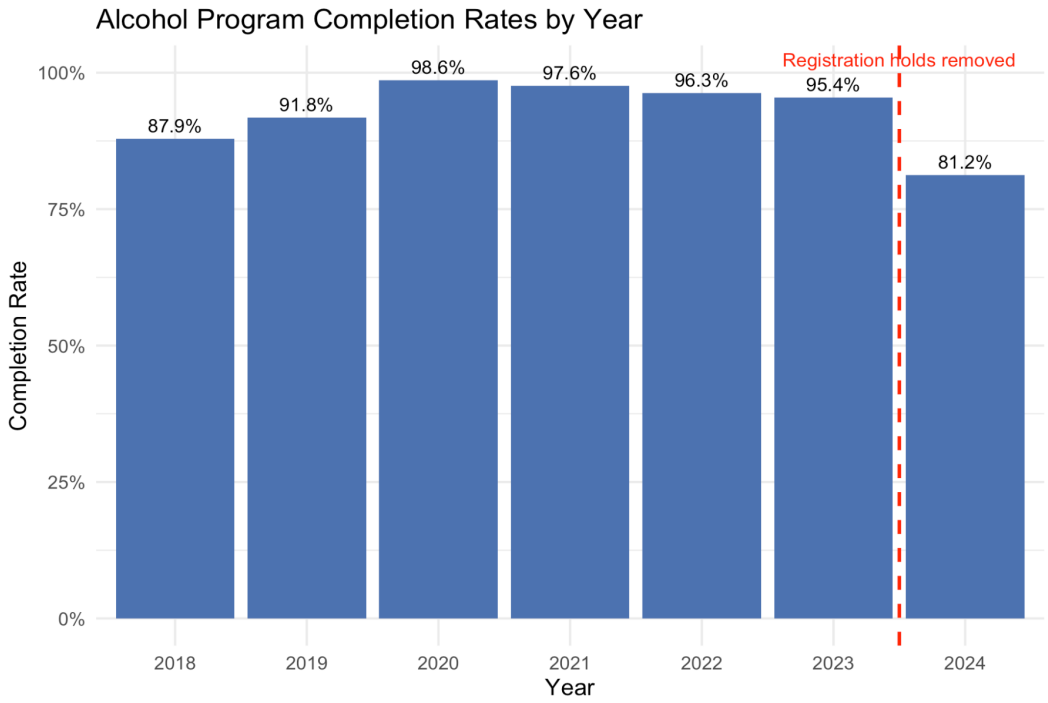
Table 4 continued

Academic Year	Total enrolled in program	Part 1 completers	Part 2 completers
2021–2022	5938	5795	3652
2022–2023	6491	6250	3523
2023–2024	6337	6047	2643
2024–2025	6279	5101	404

Note. Students who qualified for an exemption from the program were removed from these counts.

Figure 2.

Part 1 Completion Rates by Academic Year



Two-sample proportion tests with Holm correction showed no significant change in student retention overall, nor across any tested demographic category, when overall retention rates and retention rates within each tested demographic category were compared pre-2024 to rates in academic year 2024–2025 (see Table 5). Although no significant changes were observed,

the retention rates overall and across nearly every demographic category improved. If the overall retention rate in 2024 was the same as the rate between 2018-2023, I would have only expected approximately 4,889 students to be retained. Because 4,907 were retained in 2024, the small (0.4%) increase in retention resulted in about 18 additional students retained beyond what was expected based on prior years. Across all tested demographics, retention rates were relatively high to begin with so a ceiling effect may have limited our ability to achieve a statistically significant increase in retention (see Figure 3).

Table 5.

Retention Rates to First Winter by Demographic Group Before and After the Removal of Registration Holds

	Registration Holds in Use (2018–2023)	**No Registration Holds (2024)**
Overall	26,459 (96.1%)	4,907 (96.5%)
Sex		
Female	15,101 (96.0%)	2,811 (96.4%)
Male	11,358 (96.1%)	2,096 (96.6%)
Age		
<18	1,134 (95.1%)	171 (95.5%)
18	21,771 (96.2%)	4,056 (96.7%)
19	3,324 (95.8%)	630 (95.5%)
20+	217 (91.2%)	50 (94.3%)
Race/ethnicity		
BIPOC	5,127 (94.0%)	1,175 (94.8%)
Asian	1,874 (97.9%)	360 (98.6%)
White	16,142 (96.5%)	2,819 (96.8%)
Two or more races	2,412 (95.8%)	471 (96.9%)
First Generation Status		

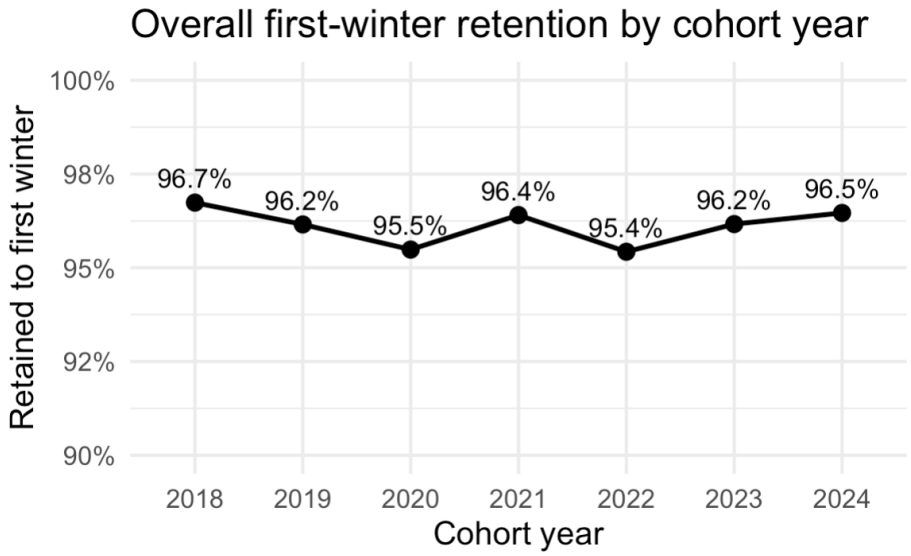
Table 5 continued

	Registration Holds in Use (2018–2023)	No Registration Holds (2024)
Yes	5,862 (93.3%)	1,074 (93.9%)
No	20,597 (96.9%)	3,833 (97.2%)
Pell Eligibility		
Eligible	6,063 (93.7%)	1,315 (94.0%)
Not Eligible	20,392 (96.8%)	3,592 (97.4%)

Note. BIPOC combined students who identified as Black or African American, Hispanic/Latino, American Indian/Alaskan Native and Native Hawaiian or Other Pacific Islander.

Figure 3.

First-year student retention rates to first winter term by academic year



Aim 2: Student Demographics of Optional Program Component (Part 2) Completers

After adjusting for all other demographic characteristics and academic year, several demographic characteristics were associated with completion of the optional follow-up component (Part 2; see Tables 6 and 7). Students who reported drinking monthly or less were more likely to complete Part 2 than students who reported never drinking. White and Asian

students were more likely to complete Part 2 than students who did not identify as those races, and female students were more likely to complete Part 2 than male students. In contrast, students who began Part 1 later in the term were less likely to complete Part 2 than students who began earlier in the term. Students who reported drinking 2–4 times per month and 2–3 times per week were less likely to complete Part 2 than students who reported never drinking. Students aged 19 or older were less likely to complete Part 2 than students aged 18. Black students and American Indian or Alaskan Native students were less likely to complete Part 2 than students who did not identify as those races. There also appeared to be cohort-specific trends in Part 2 completion rates with more students completing Part 2 in 2021–2022 and fewer completing it in 2020–2021, when compared with 2019–2020. When the sample was restricted to only students who started the program in fall term, the model output was nearly identical, indicating that students who enrolled in later terms were not unduly influencing the model estimates.

Table 6.

Student Demographics by Program Parts Completed

	Part 1 only N = 7,070	**Part 1 + Part 2 N = 9,707**
Week in term prevention program was started	-2.19 (2.19)	-2.73 (1.21)
Age		
Under 18	232 (3.3%)	444 (4.6%)
18	4,126 (58%)	6,705 (69%)
19	1,092 (15%)	1,211 (12%)
20+	1,612 (23%)	1,341 (14%)
Sex		
Female	3,448 (49%)	5,970 (62%)
Male	3,614 (51%)	3,731 (38%)
Race/ethnicity		
White	5,331 (75%)	7,707 (79%)

Table 6 continued

	Part 1 only N = 7,070	Part 1 + Part 2 N = 9,707
Asian	896 (13.0%)	1,467 (15%)
Black or African American	494 (7.0%)	431 (4.4%)
Hispanic or Latino	1,078 (15%)	1,286 (13%)
American Indian or Alaska Native	177 (2.5%)	180 (1.9%)
Native Hawaiian or Pacific Islander	179 (2.5%)	207 (2.1%)
Other Race	376 (5.3%)	426 (4.4%)
Baseline Alcohol Use		
Never or N/A, I don't drink alcohol	3,603 (51%)	5,032 (52%)
Monthly or less than monthly	1,697 (24%)	2,758 (28%)
Two to four times a month	1,206 (17%)	1,442 (15%)
Two to three times a week	490 (6.9%)	418 (4.3%)
Four or more times a week	69 (1.0%)	53 (0.5%)

Note. This only includes academic years beginning in 2019, 2020, and 2021. Week in the term was computed such that students who began the program during the first week of the academic term were coded 1. Students who began the program prior to the start of the term were assigned values of 0 or negative integers corresponding to the number of weeks before Week 1 that the program was initiated. Race variables were dummy-coded so multiracial students are represented in multiple categories.

Table 7.

Student Demographics Predicting Optional Program Component (Part 2) Completion Logistic Regression Results

Predictor	***OR***	***95% CI***	***p***
Intercept	0.68	[0.59, 0.78]	<.001
Baseline alcohol use (ref: Never or N/A)			
Monthly or less than monthly	1.10	[1.02, 1.18]	.018
Two to four times a month	0.85	[0.77, 0.93]	<.001

Table 7 continued

Predictor	*OR*	*95% CI*	*p*
Two to three times a week	0.69	[0.60, 0.80]	<.001
Four or more times a week	0.79	[0.54, 1.15]	.219
Week in term prevention program was started	0.85	[0.83, 0.87]	<.001
Age (ref: 18)			
<18	1.16	[0.98, 1.37]	.085
19	0.78	[0.71, 0.86]	<.001
20+	0.69	[0.63, 0.76]	<.001
Race (not mutually exclusive)			
White	1.27	[1.15, 1.41]	<.001
Asian	1.34	[1.20, 1.50]	<.001
Black or African American	0.70	[0.60, 0.80]	<.001
Hispanic or Latino	0.93	[0.83, 1.03]	.146
American Indian or Alaskan Native	0.74	[0.60, 0.92]	.007
Native Hawaiian or Pacific Islander	0.88	[0.65, 1.18]	.387
Other race	0.99	[0.80, 1.22]	.894
Sex (ref: Male)			
Female	1.58	[1.49, 1.69]	<.001
Academic year (ref: 2019–2020)			
2020–2021	0.72	[0.67, 0.78]	<.001
2021–2022	1.18	[1.10, 1.28]	<.001

Note. Race variables were dummy-coded so odds ratios should be interpreted as odds of completing part 2 for a student who selects that race compared to students who did not select that race.

Aim 3: Compare Pre-to-Post Program Changes in Protective Behavioral Strategy Use Across Both Programs

Self-reported Alcohol Use on each Program

Measures of alcohol use varied greatly across the two programs, preventing me from comparing pre-to-post program changes in alcohol use. Table 8 shows the rates of binge drinking

and Table 9 shows the average number of drinks consumed on the day the student reported drinking the most before and after each program. Very few students completed Part 2 of Program B and provided data on either of those measures. Due to small sample size, outcomes of Program B should be interpreted with caution, though both programs showed a decline in self-reported binge drinking and the maximum number of drinks consumed on the highest drinking day. The lower overall binge drinking rates in Program A are likely attributed to the lower binge drinking criteria set for females in Program B (only needed to consume four drinks to be considered a binge drinker as opposed to five in Program A) and the more vague language about timeframe in Program A; Program A asked students if they consumed five or more drinks in a row within the past 60 days, whereas Program B asked if students had consumed five or more drinks for males or four of more drinks for females within two hours in the past two weeks. Students who consume five or more drinks over the course of two hours may not consider those drinks to be "in a row", thereby resulting in slight underreporting of binge drinking on Program A. It is not clear why the highest number of drinks reported at baseline and follow-up would be higher in Program B, although it may be that students who drink more self-select to participate, given the lower rate of participation in Program B.

Table 8.

Students' Self-Reported Binge Drinking Before and After Each Program

	Program A (2023–2024) Pre *n* = 3079	**Program A (2023–2024) Post *n* = 1053**	**Program B (2024–2025) Pre *n* = 1441**	**Program B (2024–2025) Post *n* = 21**
Binge Drinking	1224 (39.8%)	348 (33.0%)	763 (52.9%)	10 (47.6%)

Note. Students who drank 5+ drinks in a row within the past 60 days were counted as students who binge drink in Alcohol-Wise, whereas binge drinking was stratified by sex (4+ drinks for females and 5+ for males) within 2 hours in the past 2 weeks.

Table 9.

Students' Self-Reported Highest Number of Drinks Consumed Before and After Each Program

	Program A (2023–2024) Pre ***n* = 3082**	**Program A (2023–2024) Post** ***n* = 1053**	**Program B (2024–2025) Pre** ***n* = 1472**	**Program B (2024–2025) Post** ***n* = 19**
Average number of drinks on highest drinking day	3.61	3.37	4.37	3.63

Note. Students were asked to report the number of drinks they consumed on the occasion in the past month that they drank the most on Program A. Free responses to this question were rounded up when a fraction of a drink was reported (i.e. 4.5 was recoded to 5) and any number of drinks greater than 10 was recoded to 10 to match the coding of Program B, which asked students to report the number of drinks consumed on the day of highest alcohol use within the past two weeks up to 10 drinks (with only whole numbers of drinks as options).

Protective Behavioral Strategy Use

Students reported high rates of protective behavioral strategy (PBS) use across all included PBS, both timepoints, and both programs (see Table 10). Because PBS are not as relevant to students who do not drink, only students who reported using alcohol at baseline were included in this analysis.

Table 10.

Use of Protective Behavioral Strategies by Timepoint and Program

	Program A (2023–2024) Pre	**Program A (2023–2024) Post**	**Program B (2024–2025) Pre**	**Program B (2024–2025) Post**
Alternate alcoholic & non-alcoholic drinks	2619 (92.4%)	830 (92.4%)	1867 (90.7%)	30 (88.2%)

Table 10 continued

	Program A (2023–2024) Pre	Program A (2023–2024) Post	Program B (2024–2025) Pre	Program B (2024–2025) Post
Eat before/during drinking	2801 (98.8%)	876 (97.6%)	1982 (96.2%)	32 (94.1%)
Keep track of drinks	2768 (97.7%)	861 (95.9%)	1932 (93.8%)	32 (94.1%)
Limit money spent	2613 (92.2%)	820 (91.3%)	1782 (86.6%)	31 (91.2%)
Set a limit on the # of drinks you'll have	2655 (93.7%)	843 (93.9%)	1832 (89.0%)	31 (91.2%)
Pace drinks to 1/hr	2396 (84.5%)	758 (84.4%)	1604 (78.3%)	25 (73.5%)
Have a friend tell you when you've had enough	2686 (94.8%)	833 (92.9%)	1855 (90.1%)	32 (94.1%)
Use a designated driver	2792 (98.6%)	874 (97.4%)	1896 (92.7%)	29 (85.3%)

Note. Values are n (%). Percentages are calculated using the number of students with a valid response for each protective behavioral strategy at each timepoint as the denominator. Sample restricted to currently drinking students who completed Part 1 and Part 2, respectively, of either Program A (2023–2024) or Program B (2024–2025).

Baseline Differences in PBS Use. Chi square tests revealed that there were significant differences in baseline use of PBS across the two programs, with Program A having higher rates of use of all tested PBS ($p < .05$ for all PBS). Because this analysis relied only on data collected in Part 1, this test was well powered and balanced (2832–2834 participants in Program A and 2045–2061 participants in Program B). The sample sizes varied slightly across the tested PBS due to differential missingness across PBS questions.

Pre-to-post Program Change in PBS Use Across the Two Programs. As noted in the methods section, the low Part 2 completion rate of Program B required exploratory model testing to assess interaction effects of timepoint and program. Results of the planned model are presented in Table 12 and results of the exploratory matched pair analysis are presented in Table 13.

Full sample results. Only pacing drinks to one per hour and eating before/during drinking showed a significant interaction effect. In the pacing drinks model, the interaction odds ratio was 0.57 ($p < .001$), indicating that Program B participants showed a significantly greater decrease in their use of that PBS relative to Program A participants from pre to post. In the eating model, the interaction odds ratio was 2.48 ($p = .019$), indicating that Program B participants showed a significantly smaller decrease in eating before/during drinking relative to Program A participants. Although the prevalence of PBS use in Table 10 suggested larger declines in eating before/during drinking among Program B participants, the models only included students who completed both parts of their respective programs. When excluding students who only completed Part 1 of Program A, there is an overall decline in the proportion of students using this strategy pre-to-post program and no change pre-to-post Program B completion (see Table 11). For interaction estimates for all PBS models, see Table 12.

Table 11.

Percent Change Pre-to-Post Program Completion in use of Protective Behavioral Strategies

	Program A (All Completers)	**Program A (Matched Completers)**	**Program B (All Completers; same as Matched Completers)**
Alternate alcoholic & non-alcoholic drinks	No change	−2.9%	No change

Table 11 continued

	Program A (All Completers)	Program A (Matched Completers)	Program B (All Completers; same as Matched Completers)
Eat before/during drinking	−1.4%	−2.9%	No change
Keep track of drinks	−2.2%	+2.9%	−2.9%
Limit money spent	−0.3%	+5.9%	No change
Set a limit on the # of drinks you'll have	+1.2%	No change	No change
Pace drinks to 1/hr	+3.5%	+5.9%	−5.9%
Have a friend tell you when you've had enough	−2.6%	+2.9%	−2.9%
Use a designated driver	−1.7%	No change	−11.8%

Table 12.

Interaction Effect of Timepoint and Program for each Protective Behavioral Strategy on Full Aim 3 Sample

	Interaction OR	95% CI	*p*
Alternate alcoholic & non-alcoholic drinks	1.00	[0.73, 1.37]	1.000
Eat before/during drinking	2.48	[1.16, 5.31]	0.019
Keep track of drinks	1.08	[0.60, 1.92]	0.806
Limit money spent	1.04	[0.77, 1.42]	0.787
Set a limit on the # of drinks you'll have	0.82	[0.59, 1.15]	0.249
Pace drinks to 1/hr	0.57	[0.47, 0.70]	<.001
Have a friend tell you when you've had enough	0.82	[0.58, 1.16]	0.254

Table 12 continued

	Interaction OR	95% CI	*p*
Use a designated driver	0.52	[0.23, 1.14]	0.100

Note. Interaction odds ratios (OR) are from generalized estimating equation difference-in-differences models testing whether pre-to-post change in protective behavioral strategy use differed between programs. Exchangeable working correlation structure specified to account for within-student repeated measures.

Matched pair results. Having a friend tell you when you've had enough was the only PBS that showed a significant interaction effect in the matched pairs analysis. The interaction odds ratio was 0.31 (p = .007), indicating that Program B participants demonstrated a greater decrease in this strategy relative to Program A participants from pre to post. Although overall prevalence estimates suggested slightly higher post-intervention endorsement among Program B completers (see Table 10), when the sample was limited to the matched pairs, Program A completers showed an increase in their use of this PBS. This was one of six PBS that flipped signs of proportion change endorsing the PBS from pre-to-post program (e.g. went from negative to positive or positive to no change) when the sample was limited to the matched pairs. Additionally, three of the PBS models could not be estimated due to complete or quasi-complete separation wherein all or nearly all students endorsed using the PBS, limiting the amount of movement that occurred pre-to-post program.

Table 13.

Interaction Effect of Timepoint and Program for each Protective Behavioral Strategy on Subset of Aim 3 Sample (Matched Pairs)

	Interaction OR	95% CI	*p*
Alternate alcoholic & non-alcoholic drinks	2.06	[0.17, 25.11]	0.570
Eat before/during drinking	—	Unstable	—
Keep track of drinks	—	Unstable	—
Limit money spent	0.47	[0.10, 2.10]	0.322
Set a limit on the # of drinks you'll have	0.40	[0.13, 1.25]	0.116
Pace drinks to 1/hr	2.06	[0.17, 25.11]	0.570
Have a friend tell you when you've had enough	0.31	[0.13, 0.73]	0.007
Use a designated driver	—	Unstable	—

Note. Interaction odds ratios (OR) are from generalized estimating equation difference-in-differences models testing whether pre-to-post change in protective behavioral strategy use differed between programs. Some models were not estimated due to complete or quasi-complete separation, which was expected given the small sample size and high rate of endorsement of all PBS.

The lack of consistency of findings between the full sample and matched pairs, the flip in the direction of students' use of six PBS from pre-to-post program when narrowed to the matched pairs, and the instability of multiple models indicates that these exploratory models should be interpreted with caution.

Power analysis. The power analysis showed that only 32 students would be needed to detect a small effect size, which was achieved in both the full sample and matched pairs analyses. However, the imbalance across the two groups in the full sample analysis and the ceiling effect in baseline PBS use may have influenced model estimates.

Aim 4: Compare the Number of Alcohol-related Hospitalizations and Conduct Violations within On-Campus Housing from Academic Year 2023–2024 to 2024–2025

The incidence rate of conduct violations very slightly increased in academic year 2024–2025 (5.6% in 2023–2024 to 5.7%). The number and rate of hospitalizations decreased in 2024–2025 relative to the prior academic year (15 reported in 2023–2024 to 12 in 2024–2025) but remained very low in both years.

Table 14.

Conduct Violations and Hospitalizations by Academic Year

	Registration Holds in Use 2023–2024			**No Registration Holds 2024–2025**		
Students residing in UO Housing	5513			5699		
	Fall	Winter	Spring	Fall	Winter	Spring
Conduct Violations	154	121	33	172	95	58
Hospitalizations	9	2	4*	6	4	2

**two additional drug-related hospitalizations occurred during this term but it was not known what substances were involved*

CHAPTER V

CONCLUSION

This chapter contains material that is included in a planned publication (manuscript submitted in March 2026) with coauthors Ashley Linden-Carmichael, Jimmy Howard, Kristin Perry, Alexis Drakatos, and Leslie D. Leve. I wrote the original draft of the planned publication and conducted the analyses, while coauthors provided feedback on drafts and supervision for the project.

While online alcohol prevention programs are effective for reducing alcohol use among college students, there has been little investigation into how these programs are implemented and the downstream effects of specific implementation strategies. The goal of this program evaluation was to examine the effect of using registration holds to promote participation in a required online alcohol prevention program on program completion and university student retention in one university. Additionally, we examined which demographic groups were more likely to complete optional program components to identify which students might be missed when participation is not enforced. Our findings indicate that student completion rates of required online alcohol prevention programs tended to be greater when registration holds were used to prevent students from continuing their enrollment at the university if they did not complete the program. Removing registration holds did not improve student retention overall, nor across any tested demographic subgroup. Students who opted to complete an optional follow-up portion of the program were demographically different from the population who only completed the required portion of the program, indicating that program follow-up data may not be representative, and, importantly, that students who are historically underrepresented in college (e.g. Black or Native American students and older students) tend to complete fewer program

components when completion is not enforced with registration holds. This finding suggests that when registration holds were removed, the lower rate of completion may have been driven by decreased participation by historically underrepresented university students. Results related to protective behavioral strategy (PBS) use were unreliable due to very low Part 2 completion on Program B, indicating that implementing the program without registration holds may reduce completion of the follow-up component, limiting this measure of program effectiveness. Alcohol-related conduct violations and hospitalizations stayed consistent after registration holds were removed and program completion rates dropped.

The findings of this program evaluation were consistent with prior work in this area finding that students participate at higher rates when registration holds are used (Paschall et al., 2011) and students who complete optional program components are not representative of the student body (Taylor, 2021). Unlike prior research, this evaluation examined different implementation strategies within the same university and explicitly tested for completion rate differences across different implementation strategies, mitigating the between-university variation that confounded prior research and allowing me to conduct significance testing on program completion rates across different implementation strategies.

Although academic year 2024–2025 had the lowest completion rate of any year tested, the Part 1 completion rate remained much higher than the Part 2 completion rate in prior years. This discrepancy may be the result of the university describing Part 1 as “required” even after registration holds were removed, whereas the Part 2 follow-up has always been presented to students as optional. Additionally, the lower Part 2 completion rate in 2024–2025 relative to prior years indicates that there may be a downstream effect of lower Part 1 completion, which is problematic because program effectiveness is often measured by comparing self-reported alcohol

use on Parts 1 and 2. Registration holds may operate to improve program completion by increasing the perceived cost of non-completion and signaling to students that alcohol prevention is an institutional priority. The finding that retention rates did not improve (nor worsen) after registration holds were removed implies that registration holds may have relatively little cost to students in terms of their ability to maintain their enrollment at the university, though receiving a registration hold is stressful for students and burdensome for staff to administer.

The Western Interstate Commission for Higher Education conducted focus groups with 50 students from 10 institutions to understand how students navigated registration holds (Western Interstate Commission for Higher Education, 2023). Students reported that receiving a hold made them feel as though their institution did not care about them and they wished that the communication from their institution regarding the hold was clearer. An analysis of administrative data at a large public university indicated that students who had high financial need, identified as Black or African American, and were first-generation college students were more likely to receive a registration hold in their first two years of enrollment than students who did not have financial need, identified as another race, and were not the first in their family to attend college (Curs et al., 2024). These findings indicate that receiving a hold may be disheartening and confusing for students, and that the inequitable application of holds could contribute to existing barriers to college enrollment for historically underrepresented college students. In both studies, registration holds for financial reasons (e.g. past-due balance) were included, so the effect of the hold may have been compounded by the student's financial stress and be substantively different from receiving a hold for other reasons, such as not completing a required online alcohol prevention program. My results suggest that student retention did not

change after registration holds were removed, but the effects of receiving a registration hold on the student mental well-being and mental health was not measured in this analysis.

Although prior research suggests that registration holds have been applied inequitably, their removal in this context may have resulted in inequities in participation in alcohol prevention programming. The finding that students who drank 2–4 times per month and 2–3 times per week were less likely to complete the optional follow-up program component (Part 2) than students who never drink indicates that as the program completion rate declines, students who are drinking frequently may be missed because they are opting out of participation. Equally concerning are the lower completion rates observed among American Indian or Alaskan Native and Black or African American students. Interventions for alcohol use may be particularly impactful for these populations because American Indians have the highest rates of alcohol use of any racial group (Albuja et al., 2021) and racial discrimination against Black college students has been linked to increased alcohol use (Su et al., 2021). National trends show slightly higher rates of alcohol use among female college students, though males still outpace females in binge drinking and heavy alcohol use (Substance Abuse and Mental Health Services Administration, 2025), making the lower completion rates for male students concerning. These findings demonstrate that the students who might benefit most from alcohol prevention programs may be missed when registration holds are removed.

Limitations

Consistent with its framing as a program evaluation, this dissertation focuses on a single institutional context, limiting the generalizability of findings to colleges with different student populations, institutional characteristics, or norms around alcohol use. Additionally, the change in program type (from Program A to Program B) makes it more difficult to assess the effect of

the removal of registration holds. While a change in program completion rate could be attributed to the removal of registration holds, it is also possible that one program was more engaging than the other or had fewer glitches, making it easier for students to complete. Unfortunately, those factors could not be assessed in this evaluation because the two programs measured student satisfaction differently. However, students did have the option to provide comments within both programs, so a qualitative analysis may be possible in the future to assess students' satisfaction with the programs. The effect of program change was mitigated by the relative similarity between the two programs in structure.

In addition to the change in programs, the schedule for implementing the two programs changed in Fall 2024. Invitations to complete Program B went out much later in Fall term than in previous years and with far fewer reminder emails. Because invitations went out approximately six weeks later than usual in Fall 2024, many students who would have discontinued their enrollment early in fall term or just before the start of the term were never enrolled in Program B, thereby inflating completion rates in Fall 2024. This may have resulted in an underestimation of the effect of removing registration holds on completion rates.

Follow-up data from Program B was much more limited than anticipated, limiting my ability to compare the two programs as planned. Because such a small percentage of students completed Part 2 of Program B, there was likely a strong self-selection bias in this sample. This analysis was also impacted by a ceiling effect, wherein nearly all students reported using all protective behavioral strategies (PBS) at both timepoints. Students' use of PBS across both timepoints was also confounded by their differential exposure to the college context: most students began Part 1 of Program A about 3 weeks prior to the start of the term and then completed Part 2 at least 30 days afterwards, when most students had moved onto campus.

Under Program B, the earliest students could report their PBS use was Week 2 of the term, when initial program invites went out and then reported PBS use on Part 2 at least 30 days later. In both cases, students' exposure to the college context was greater in Part 2, which may have influenced their willingness to use PBS and the applicability of the strategies measured (i.e., using a designated driver may not apply after students have moved onto a walkable college campus). Additionally, it is possible that students' responses to the PBS questions were influenced by social desirability, inflating the rates of self-reported PBS use. A ceiling effect may have also impacted the retention analyses, given that overall and demographic-specific retention rates were very high throughout the entire evaluation period.

In addition to having limited follow-up data from Program B, my comparison of the two programs was also limited by measurement differences in how the two programs captured students' self-reported alcohol use. Recall periods and types of questions asked about alcohol use varied so much between the two programs that I was unable to statistically compare them, although overall counts of students endorsing alcohol use, binge drinking, and the maximum number of drinks students reported consuming across the two programs appear in tables 2, 8, and 9 (with measurement differences explained in the table notes). Another important difference between the two programs is the final knowledge exam passing rates—Program A set the pass rate to 70%, whereas UO was able to select a pass rate for the knowledge exam in Program B (80%). Because students needed to pass this knowledge exam to complete Part 1 of the program, this higher passing rate may have partially contributed to the lower Part 1 completion rate observed in Program B. When selecting an online alcohol prevention program, it may be important for college administrators to think about which measures of alcohol use that would be

most helpful for them and the amount of control they want in setting the knowledge pass rates or otherwise tailoring the program.

While multiple academic years under registration holds were included, I only analyzed one year post-registration hold removal. It may take several years to observe changes in student behavior after a policy change is implemented; in a review of smoke and tobacco-free policies at universities in the U.S., many studies had a follow-up period of multiple years after the policy change and noted changes over that time such as increases in acceptability of the policy in the four years following implementation (Geindreau et al., 2024). Relatedly, de-implementing programs that are harmful or not effective takes time, evidenced by the continued use of the drug abuse resistance education (D.A.R.E.) program decades after it was found to be ineffective for preventing youth substance use (Rock & Lea, 2025). Thus, the one-year follow-up period after registration holds were removed may not be sufficient for observing the full effects of this change on program completion rates and student retention rates.

Finally, this study is unable to analyze which students historically received registration holds based on demographic and alcohol-related features. The maker of Program A was unable to share this information because their student progress reports, which track program completion, contain identifiable student information that cannot be linked to the rest of their survey data without violating the students' anonymity. Although this program evaluation elucidated the change in program completion rates and student retention rates post-registration hold removal, which student demographics tend to complete optional program components, and potential downstream effects of lower program completion, it remains unknown if registration holds caused disproportionate harm to certain groups of students while they were in place. This limitation also presents an important future direction.

Future Directions

Although it was a strength of this study that two implementation strategies were tested within the same university setting, replication across multiple universities would provide insight into whether the effects of removing registration holds are context specific. The current study did not explore indicators of program engagement beyond completion, which may be relevant for determining whether students are engaging differently when they face penalties for not completing the program (i.e., students may be clicking through content but not meaningfully engaging when they are just trying to avoid a registration hold). Future research should also cover a longer post-registration hold removal period to assess the long-term impacts on program completion rates and student retention rates. The significant cohort effect also indicates that multilevel modeling may be helpful for better understanding how the same implementation strategy has differential effects on different cohorts of students within this institution.

A punitive strategy was implemented and removed in this study, but incentive-based strategies for promoting program engagement should also be explored. Incentive-based strategies are highly effective for improving engagement in substance use treatment and treatment outcomes (Bolívar et al., 2021; Stanger & Budney, 2019). A study examining the role of incentives in an alcohol prevention program randomized college students who reported past-month binge drinking to receive a personalized normative feedback intervention either remotely or in-person, with or without a $30 incentive; students randomized to the remote delivery format were more likely to complete the intervention (Neighbors et al., 2018), aligning with the increased popularity of online alcohol prevention programs relative to in-person options. Among students in the remote condition, those offered an incentive had higher completion rates than those who were not. Although incentive-based strategies may promote completion rates without

the potential downsides of using registration holds, they may not be financially feasible. Further research is needed to determine if non-monetary incentives may be an effective implementation strategy (e.g. allowing student who complete the program to register for courses early or providing students with extra meal points for use in university dining). Universities may also consider opting for a lower cost program to be able to provide incentives, though this may result in a higher completion rate of a less effective program.

Qualitative work in this field would add depth and richness to these findings to better understand how students are engaging (or not engaging) with the online alcohol prevention program and the effects of the implementation strategy used. Students in the current study had the opportunity to provide comments within both programs regarding their satisfaction with the program which are ripe for future qualitative analysis. Additionally, student advising staff who led the charge to reduce the use of registration holds may have student quotes or professional insights into how registration holds for the online alcohol prevention program were affecting students. These insights, in combination with interviews or written reflections from students who received a hold, could help the university better understand the drawbacks of using registration holds and how negative effects could be mitigated if registration holds are reinstated in the future.

Finally, I was unable to find a review paper that summarized the implementation strategies currently in use by universities to implement online alcohol prevention programs, which would be helpful for understanding the universe of implementation strategies that exist and their relative popularity. Makers of online alcohol prevention programs have access to data spanning multiple institutions and may be able to summarize the strategies used by the colleges that implement their programs, allowing them to provide guidance about the most suitable

implementation strategies for colleges that use their program. Similar to the CollegeAIM tool which allows colleges to make informed decisions about which alcohol prevention programs to select (NIAAA, 2019), a tool that guides college administrators in their implementation policy decisions could be useful as research in this area accumulates across different institutional contexts. All these tools could guide policy decisions at both the institutional and national level and would be very helpful for ensuring that prevention programs are implemented using evidence-based strategies.

Implications for UO

Because I found that registration holds were associated with a higher completion rate of the alcohol prevention program and were not associated with lower student retention, UO may consider reinstating registration holds. However, new university restrictions on the use of registration holds adds barriers to reinstating them, which may not be worthwhile since telling students that the program was required (without holds) resulted in an 81.2% completion rate. Although changes in retention were not statistically significant, there was an overall increase in first-year student retention after registration holds were removed. However, because the 2024 retention rate was compared to the aggregate retention rate across 2018–2023, these analyses were likely impacted by the COVID-19 pandemic. When first-year student retention rates were plotted across all included academic years, it appeared that the increase in retention in 2024 represented a recovery from pandemic-related retention declines as opposed to a true increase beyond pre-pandemic rates. As an alcohol misuse prevention researcher, I am biased towards policies that increase the uptake of alcohol prevention programs and may not have the same goals as UO leadership. Given that clinical significance may be different in this context from statistical significance, UO leadership may consider my positionality in this recommendation.

If reinstating holds is not possible, exploring other implementation strategies (e.g. increasing reminder frequency or providing incentives for program completion) could be helpful for boosting student participation, particularly if used to boost follow-up participation. Extremely low follow-up (Part 2) completion rates inhibited my ability to compare the two prevention programs as planned in this evaluation, and it will likely continue to affect UO's ability to interpret program effectiveness and alcohol use trends among their student population if not corrected. My finding that students who complete Part 2 are demographically different from those who do not highlights a disparity that may persist or become more prominent as Part 2 completion rates drop, making the program effectiveness data less representative of the student body. Finally, because it was time-consuming and difficult to get student-level data from each of these programs, I suggest that UO put in a standing order with the program maker for all student-level data at the end of each academic year and assemble a repository of this data for further investigation.

Significance for Alcohol and Higher Education Researchers

Effective prevention programs cannot yield population-level benefits if students do not engage with them, underscoring the importance of implementation science in college health research. My findings indicate that implementation strategy affects program reach and point to a potential issue with effectiveness research for online alcohol prevention programs; students who completed both parts of the program differed demographically from those who completed only the required component, suggesting that self-selection into follow-up participation may bias estimates of program effectiveness. As a result, effectiveness studies that rely on voluntary follow-up data may disproportionately reflect the experiences of certain student demographics, particularly when differential attrition is not explicitly addressed.

This natural experiment provided a rare opportunity to evaluate the effects of an implementation strategy within a single university context, reducing institutional variation that has limited prior comparisons of alcohol prevention program implementation. Future research should build on these findings by systematically comparing implementation strategies to identify methods that maximize participation and promote equitable program reach across various institutional contexts. This evaluation fills a critical gap in the literature about how an implementation strategy (registration holds) affects online alcohol prevention program reach among first-year college students and lays the groundwork for additional research in this area.

APPENDIX: COMPARING PREVENTION PROGRAM DATA TO INTERNALLY COLLECTED ALCOHOL DATA

Purpose

Because measures of students' alcohol use differed across the two programs and the follow-up completion rate for Program B was very low, I was unable to compare student alcohol use across the two programs and implementation strategies. Instead, I obtained aggregate student data from University Health Services, which collects health-related student data each spring term. The following analysis allowed me to compare students' self-reported alcohol use across academic years 2023–2024 and 2024–2025 to analyze overall trends in student alcohol use across the two years. Additionally, I compare students' self-reported alcohol use on Program A's baseline survey (Part 1) with an internally collected University Health Services survey to see how reports differ across the two surveys.

Data Collection Procedures

Each year, University Health Services collects self-reported health data from students via their Student Wellbeing and Success Initiative (SWaSI) survey. All undergraduate and graduate students are emailed an invitation to complete this survey from the Vice President of Student Life, followed by one reminder email. A global Canvas announcement notifies all enrolled students about the survey and various campus partners also share the link to the survey through their email communications and newsletters. Data are collected in Spring term, which typically runs from late March to mid-June.

Sample

In Spring 2024, 2,748 students participated: 44.9% identified as a woman, 25.4% identified as a man, and 29.7% identified as non-binary. Nearly two-thirds of participants were White

(61.5%), 14.5% were Hispanic/Latino, 9% were two or more races, 7.9% were Asian, 2.1% were Black/African American, 1.1% did not report their race/ethnicity, and less than 1% of participants were Native Hawaiian/Other Pacific Islander or Native American/Alaskan Native. UO counts international students as a separate racial category, so the racial/ethnic percentages do not sum to 100% because an additional 3.1% of students in this sample were international students. Only 254 graduate students participated (9.2%), so the sample was predominately undergraduate students. In Spring 2025, 2,027 students participated and they were demographically similar to the prior year: 43.8% identified as a woman, 21.3% identified as a man, and 34.8% identified as non-binary. Nearly two-thirds of participants were White (60%), 15.9% were Hispanic/Latino, 9.6% were two or more races, 8.1% were Asian, 1.5% were Black/African American, and less than 1% of participants did not report their race/ethnicity or were Native Hawaiian/Other Pacific Islander or Native American/Alaskan Native. UO counts international students as a separate racial category, so the racial/ethnic percentages do not sum to 100% because an additional 3.5% of students in this sample were international students. This sample was also predominately undergraduate students (91%).

Measures

A limited number of measures could be harmonized across SWaSI and Program A. Procedures for harmonizing these measures are presented in Table A1.

Table A1.

Harmonizing Program A and Student Wellbeing and Success Initiative questions

	Program A	**SWaSI**	**Harmonized measure**
Alcohol Use	"How often do you have a drink containing alcohol?" (Never = no; any other response = yes)	Lifetime alcohol use (yes/no)	Yes/no

Table A1 continued

	Program A	SWaSI	Harmonized measure
Alcohol Use Frequency	Same question as above, but non-never responses were not consolidated. Response options: "Never or N/A. I don't drink alcohol."; "Monthly or less than monthly"; "Two to four times a month"; "Two to three times a week"; "Four or more times a week"	Past 3-month use frequency. Response options included: Never; Once or twice; Monthly; Weekly; Daily or almost daily.	Never Monthly or less 2-4 times per month More than once a week
Has your use of alcohol led to health, social, legal, or financial problems?	How often during the last 60 days have you [13 consequence items]* Non-never response to any of the alcohol consequence items = yes; Never to all = no	In the past three months, how often has your use of the following substances led to health, social, legal, or financial problems? Response options: Never = no ; any other response = yes	Yes/no
How often have you failed to do what was normally expected of you because of your use of alcohol?	How often during the last 60 days have you failed to do what was normally expected from you because of drinking? Response options: Never; Less than monthly; Monthly; Weekly; Daily or almost daily	In the past three months, how often have you failed to do what was normally expected of you because of your use of alcohol? Response options: Never; Once or twice; Monthly; Weekly; Daily or almost daily	Never Less than monthly Monthly Weekly Daily or almost daily
Friend or relative or anyone else expressed concern about your use of alcohol	Has a relative, friend, doctor or other health worker been concerned about your drinking, or suggested you cut down? Response options: No; Yes, but not in the last 60 days; Yes, during the last 60 days	Has a friend or relative or anyone else expressed concern about your use of alcohol? Response options: Never; Yes, but not in past 3mo; Yes, in the past 3mo	Never Yes, but not recently Yes, recently

Note. Consequences assessed in Alcohol-Wise were: had a hangover or felt sick because you had been drinking, had difficulty sleeping because you had been drinking, felt tired, groggy, or unmotivated because you had been drinking, done poorly on a test or school project because you had been drinking, procrastinated or not gotten things done because you had been drinking,

missed classes/work because you had been drinking, gotten into trouble with the police, campus security or authorities because you had been drinking, disappointed or hurt someone because you had been drinking, done things you later regretted because you had been drinking, spent more money than you had planned because you had been drinking, had relationship problems (i.e. partner, friends, family) because you had been drinking, had unwanted sexual experience(s) while under the influence of alcohol, and gotten into a fight or argument because you had been drinking.

Analytic Strategy

Significance testing was not possible to compare Program A data to SWaSI data given measurement differences (see Table A1). They were compared descriptively as an external check on student alcohol use rates, but observed differences may be the result of being drawn from different populations (SWaSI included non-first year students). Two-sample proportion tests were used to compare SWaSI alcohol use measures across 2023–2024 and 2024–2025 to assess external influences on program effectiveness (i.e., if rates of alcohol use reported on SWaSI change significantly, it may represent an overall shift in alcohol use on campus that is separate from the effect of first-year programming changes).

Results

Comparing Self-report Program A data to SWaSI. Data from the Spring 2024 and Spring 2025 SWaSI surveys are presented in Table A2 to compare student reports of alcohol use in the SWaSI to rates reported via Program A's pre-course survey (Part 1). These data show higher rates of alcohol use on the SWaSI, which can be explained by the inclusion of non-first year students, the later term that this survey was administered (students have more time to start

drinking by spring term), and the fact that SWaSI asked about lifetime alcohol use while Program A asked about current drinking frequency.

Change in Alcohol Use Reported on the SWaSI. Two-sample tests of proportions were conducted to compare SWaSI outcomes between the 2023–2024 and 2024–2025 academic years. The proportion of students endorsing lifetime alcohol use decreased from 77.6% to 71.5% ($p < .001$). No statistically significant differences were observed for alcohol-related problems, failure to meet expected responsibilities, or expressions of concern from others (all ps > .05). The decrease in drinking was consistent with national trends (Substance Abuse and Mental Health Services Administration, 2025), but showed the opposite pattern observed in the online alcohol prevention course data; in 2024–2025, 58% of students reported drinking (see Table 2) on the online alcohol prevention program, up from 46.6% in 2023–2024. However, alcohol use was measured by asking students if they had consumed alcohol in the past year in 2024–2025, which could cover a broader recall period than in 2023–2024 (when drinking was measured by asking "How often do you have a drink containing alcohol?"). Furthermore, Aim 2 results suggest that students who drink occasionally may be more likely to complete optional program components than students who never drink, so the higher rates of drinking observed in 2024–2025 could be the result of selection bias (i.e. students who chose to participate when the program was no longer enforced with registration holds may have drank at a higher rate). This also aligned with several student comments within the programs about how the programs were not perceived as useful for students who do not drink.

Table A2.

Comparing Program A Data to Student Wellbeing and Success Initiative Data Over Two Academic Years (Before and After Registration Hold Removal)

	Program A 2023–2024 (Pre-course survey) n=6140	SWaSI 2023–2024 (Valid %) n= 2748	SWaSI 2024–2025 (Valid %) n= 2027
Alcohol Use			
Yes	2846 (46.4)	1139 (77.6)	643 (71.5)
No	3294 (53.6)	329 (22.4)	256 (28.5)
NA	0	1279	946
Alcohol use frequency			
Never	3294 (53.6)	78 (6.9)	40 (6.3)
Monthly or less	1615 (26.3)	500 (44.2)	299 (46.9)
2-4 times per month	1204 (19.6)	530 (46.9)	285 (44.7)
More than once a week	27 (0.4)	23 (2.0)	13 (2.0)
NA	0	1616	1208
Has your use of alcohol led to health, social, legal, or financial problems?			
No	1644 (26.8)	846 (80.7)	482 (81.6)
Yes	4496 (73.2)	202 (19.3)	109 (18.4)
NA	0	1699	1254
How often have you failed to do what was normally expected of you because of your use of alcohol?			
Never	2772 (89.9)	861 (82.5)	504 (85.4)
Less than monthly	263 (8.5)	121 (11.6)	62 (10.5)
Monthly	37 (1.2)	24 (2.3)	16 (2.7)
Weekly	8 (0.3)	33 (3.2)	7 (1.2)
Daily or almost daily	2 (0.1)	5 (0.5)	1 (0.2)
NA	3058	1703	1255
Friend or relative or anyone else expressed concern about your use of alcohol			
Never	2946 (95.6)	1001 (89.6)	573 (90.8)
Yes, but not recently	112 (3.6)	82 (7.3)	21 (3.3)
Yes, recently	24 (0.8)	34 (3.0)	37 (5.9)
NA	3058	1630	1214

Note. SWaSI items (except the initial alcohol use question) were administered only to students who endorsed ever having consumed alcohol. Program A and SWaSI items differed slightly in wording and reference periods. Alcohol use in Program A was defined as any current drinking (i.e., selecting a response other than *never* to "How often do you have a drink containing alcohol?"), whereas SWaSI assessed lifetime alcohol use. Drinking frequency was assessed

using the same item in Program A and a past 3-month reference period in SWaSI. Items assessing alcohol-related problems, failure to meet expected responsibilities, and expressions of concern from others referred to the past 60 days in Program A and the past 3 months in SWaSI. The alcohol-related problems variable for Program A was computed by combining 14 questions about alcohol-related consequences; students who indicated that they had experienced any of the consequences were counted as "yes".

Limitations

Measurement and sample differences prevented significance testing and limited my ability to check whether self-reported alcohol use on the prevention program was consistent with other student reports of alcohol use. SWaSI data comparisons across academic years are limited by self-selection bias because they only include students who opted to complete the SWaSI survey. While this analysis sheds light on overall trends in student drinking, the inclusion of non-first year students precluded me from drawing conclusions about the impact of the prevention program change, and the removal registration holds.

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