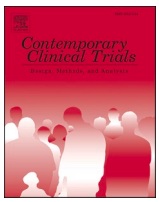
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A two-stage social network intervention for reducing alcohol and other drug use in residential colleges: Protocol for a feasibility trial

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ABSTRACT

Background: In many countries, the rate of binge drinking and alcohol-related harms among students living in residential colleges exceeds that observed among young people in the general population. Peer influence plays a key role in driving alcohol and other drug (AOD) use in colleges. This highlights the potential role of peer influence AOD-interventions in college student-networks. This protocol paper outlines the design of a two-stage social network intervention (SNI) for reducing AOD-use in four Australian first-year residential college networks.
Methods: In Stage 1, a peer-led workshop will provide education about AOD-use and harm-minimisation strategies to four first-year cohorts in the first week of semester one ($N \sim 500$). In Stage 2, a targeted SNI will be delivered to the largest co-educational, first-year cohort ($N \sim 160$), wherein heavy drinking 'Strategic Players' (influential students) will be identified and offered a brief, telephone-delivered motivational interviewing intervention for AOD-use (QuikFix). Participants will complete online surveys at baseline and 12-, 26-, and 52-weeks follow-up.
Results: Recruitment occurred in February 2021 and is now closed. Results are expected to be submitted for publication in late 2022.
Conclusions: This protocol paper outlines the design of a feasibility trial exploring the impact of applied SNIs for reducing AOD-use and related consequences in residential college student networks. If effective, the two-stage SNI proposed could (i) reduce AOD-use and risk of harm across first-year student networks and (ii) provide an effective brief intervention (QuikFix) to high-risk drinkers who have greatest potential to spread the intervention effects to other risky drinkers in their network.
Trial registration: Australian New Zealand Clinical Trials Registry (ACTRN12621000494831).

1. Background

Binge drinking is a systemic cultural problem in residential colleges in Australia and abroad [1,2]. Research from the United States has shown that past-month binge drinking (5+ drinks per occasion for men, 4+ for women) [3] is more common among college students than the general population of 18–29 year-olds (24% versus 20%) [4]. Australian research confirms high rates of binge drinking and associated harms among college students, compared to young-adults living off-campus [1–5]. There have been calls for more effective alcohol and other drug (AOD) interventions in colleges, particularly during the first week of semester one (orientation-week) when binge drinking is highest and predictive of year-round drinking [6–8].

Among college students, social processes play a key role in driving alcohol-use [9]. Therefore, social network interventions (SNIs), which use social network processes to accelerate behaviour change, may be well suited to changing AOD-use within colleges [10]. Single SNI studies have shown intervention effects for reducing alcohol-misuse and drug-risk in various social networks of substance-users at <6 months, 6–12 months, and > 12 months [11]. SNI designs vary widely; however, a

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recent systematic review of SNIs for health behaviours [11] found most support for SNIs using the 'individuals approach' [12]. In the 'individuals approach', influential network-members are identified as targets for intervention, based on their advantageous position in the network (e.g. holding a central network position or being nominated as an opinion-leader) [11]. According to Diffusion of Innovation Theory [13], intervention effects among these influential people (e.g., reductions in alcohol use) can then spread to other people in the network they have a close, credibility enhancing relationship with [14,15]. Of the fifteen SNIs with AOD-outcomes identified in two recent systematic reviews [11,16], six utilised this 'individuals approach' [17–22]. Hunter et al., [11] conducted a subgroup analyses on two studies using an 'individuals approach' [21,22] finding intervention effects for drug-risk outcomes among the target group and broader social network at up to 6 months follow up (4.68 [2.20, 9.96]). However, all six studies reported primary drug-use and drug-risk, but not alcohol outcomes, and most were conducted with community samples of substance-using adults [17–22].

Due to the potential of using peer-influence AOD interventions in college settings to promote healthy behaviours, several applied SNI studies have been conducted in these settings. One such study that utilised an 'individuals approach' was conducted by Barnett and colleagues [10]. The study enrolled a large portion of first-year college students and provides a template for SNI recruitment and identification of 'strategic players'. The procedure identifies the optimal, or key, individuals to recruit to maximise the diffusion of the intervention content [10]. Selected students successively received a brief motivational interviewing (MI) intervention, which aimed to reduce alcohol-use [10]. The outcomes of this study are not yet published; however, enrolment rates were excellent (81%; 1342/1660) and strategic players were successfully identified and recruited. Our SNI study utilised an 'individuals approach' by applying the 'Strategic Players' social-network-analysis method [10,14,15].

This paper describes the protocol of a clinical trial that will test the feasibility and outcomes of a two-stage SNI aimed at reducing AOD-use (emphasis on reducing alcohol-use) among first-year residential college students at an Australian university. Stage 1 entails delivering a 2-hour, network-wide AOD workshop to each participating college, facilitated by peer-elected student-leaders during orientation week (week prior to the start date of university classes). One large college will also receive the Stage 2 targeted SNI, in which socially influential network members will be identified using the 'Strategic Players' method [14,15] and offered a brief telephone-delivered MI intervention called QuikFix [23,24]. We recently demonstrated that QuikFix was more effective for reducing alcohol-use in young people than usual MI (used in Barnett et al.) [10] or assessment feedback, at 12 months [used in Barnett et al.; 24]. However, QuikFix is yet to be delivered as part of a SNI.

2. Study aims

The aim of the study is to determine if the first-year students in the residential college that receives both the Stage 1 workshop and Stage 2 targeted SNI report larger reductions in alcohol use, compared to students in residential colleges who receive the Stage 1 workshop only. We expect the cohort receiving both Stage 1 + Stage 2 will show greater reductions in alcohol use at 12-weeks (primary timepoint), 24-weeks and 52-weeks follow up, compared to participants receiving only Stage 1. Secondary outcomes will also be examined, including: other drug use, alcohol-related consequences, the severity of problem drinking, depression and anxiety symptoms.

3. Methods

3.1. Recruitment procedures

The Stage 1, 'Good Night Out' (GNO) Workshop, was offered (via email) to all ten residential colleges at a large, urban university in Australia. Four colleges expressed interest and were recruited into the study (2 co-educational, 2 female-only). The first-year students at participating colleges will receive the workshop as a group (one workshop per college) during the first week of university. Workshop attendees will be invited to participate in the research component. Consenting participants will complete a 20–30-minute online baseline survey immediately before the workshop commences. Those who complete the survey will receive immediate assessment feedback via email (PDF) on their AOD-use and related problems, and mental health. Respondents will be texted a brief online survey to provide feedback on the GNO workshop after its completion. All students who consent to research at baseline will be invited to complete follow-up surveys at 12-weeks (primary time point), 26-weeks, and 52-weeks. Participants who complete a follow-up survey will be reimbursed $20, and receive the same feedback email (PDF) administered at baseline, as well as progress charts that map their AOD-use, AOD-related problems, and mental health (depression, anxiety) over time. This study was approved by the University of Queensland Human Research Ethics Committee (approval number: 2020002817).

The largest co-educational college recruited at Stage 1 will be offered the Stage 2 targeted SNI (cohort expected to be ~160 students, based on previous years and pre-enrolment lists). Selecting the largest co-educational cohort to receive Stage 2 was to: 1) ensure a balance of male and female students in the Stage 2 intervention group, and 2) maximise power to detect intervention effects during the feasibility trial of Stage 2. This cohort will be asked to complete an additional, abbreviated online survey at 4-weeks post-baseline (via text/email) to obtain social network data (friendship nominations; see Measures) and measure alcohol-use in the past 4 weeks. Strategic Players will be identified from this data and invited to participate in QuikFix (see 'Identifying Strategic Players' below). We will only recruit one college for Stage 2, due to the need to assess the feasibility of delivering the QuikFix intervention to Strategic Players before implementing it on a larger scale. See Appendix A for a study flow diagram.

3.2. Interventions

3.2.1. Stage 1: good night out workshop

The GNO Workshop (Stage 1) will be delivered as an interactive trivia competition. The aim of the workshop is to increase knowledge about AODs and related harm minimisation strategies. All workshops will be facilitated by student leaders from the respective colleges, as school-based health interventions are more effective when delivered by peer leaders, rather than staff [25]. First-year students at all colleges will participate in 'trivia teams' of approximately ten students. The GNO Workshop was co-designed by college student leaders during three face-to-face participatory design workshops, with the research team and a contractor from an AOD training development service. The workshop content was reviewed and refined by student leaders in three online

sessions. The workshop will run for 2-hours and comprise six rounds of trivia, all containing educational questions/activities about AODs and related harm minimisation strategies. Each round will cover one topic: 1) general knowledge about commonly used AODs; 2) alcohol; 3) AODs in popular culture; 4) cannabis; 5) AODs in media and advertising; and 6) party drugs. Interactive activities were built into the workshop to consolidate learning, such as a standard-drink pouring-task and a co-ordination task using goggles that emulate the experience of being severely intoxicated (0.26–0.35 blood alcohol concentration).

3.2.2. Workshop training and delivery

Training for student leaders will be delivered by the research team in 2-hour sessions at each participating college, in the week prior to the workshop. Consenting student leaders will be shown the final content and the optimal way to deliver it. During the training session, student-leaders will also delegate roles among each other, for facilitating the workshop (e.g., presenters, crowd support, technology assistance), and organise time(s) to practise facilitating the workshop. During the workshop, student leaders will group first-year students into 'trivia teams' of approximately 10 people. The team with the most points will win the 'competition' (no prize). Booster materials will be emailed to students throughout the year, in the form of online quizzes and attachments with facts and harm minimisation strategies for commonly used AODs (cannabis, tobacco, MDMA). These materials will also be provided to college staff.

3.2.3. Stage 2: targeted social network intervention

In Stage 2, potentially influential heavy-drinking students within the first-year network at the largest, co-educational college will be identified using the Strategic Players procedure detailed below [15]. Strategic Players will be offered the QuikFix brief telehealth intervention, which is a brief motivational interviewing intervention that incorporates assessment feedback, motivational interviewing, goal setting, and personality targeted coping-skills training. QuikFix targets five personality risk factors for AOD-use: sensation seeking, impulsivity, negative urgency, positive urgency, lack of premeditation and lack of perseverance [26]. Coping skills are provided to target the personality risk factors relevant to the individual (see Hides et al., 2014 for a detailed description of QuikFix) [23]. QuikFix can be used to target any substance, but clinicians will focus on alcohol-use, given heavy drinking students were targeted for the intervention.

QuikFix will be delivered in two to three 20–30-minute telephone sessions over maximum 4-weeks by AOD clinicians working in an AOD service. Clinicians working at this AOD service have a minimum qualification of a Certificate IV in AOD counselling, but generally have an undergraduate degree (e.g. social work). They will receive a 2-day training workshop on QuikFix, and the website which supports its delivery. Training will include modules on: motivational interviewing, providing outcome measures feedback, psychoeducation, goal setting and personality targeted coping-skills training. Clinicians will be required to demonstrate competence via role play exercises and website use. Training and regular supervision will be provided by a clinical psychologist in the research team. QuikFix treatment session component checklists will be completed after each session, and all treatment sessions will be audio-recorded. An independent clinical psychologist will rate 20% of client checklists and recordings for treatment adherence and competence using an adapted version of the ACE Treatment Integrity Measure (ATIM) [27]. The four global scores of the Motivational Interviewing Treatment Integrity (MITI Version 4.1) [28] will be rated to provide a global rating of motivational interviewing adherence.

3.3. Identifying strategic players

The Strategic Players package in R software will be used to identify potentially influential students within the network, who are: i) heavy drinkers; ii) maximally connected to other heavy drinkers in the first-year network (target group); and iii) not maximally connected to non-heavy drinkers in the network (avoid group) [10,15]. Here, heavy drinkers (targets) will be defined as students consuming at least 4 (for females) or 5 (for males) standard drinks on two or more occasions in the past month. The avoid group (non-heavy drinkers) will be defined as people below this threshold. To define the social network, we will convert the friendship nominations from Stage 2 participants (collected at 4-weeks to provide students with several weeks to form stable friendships) into an adjacency matrix. The Strategic Players package will use this matrix to calculate the geodesic distances of the network (shortest path between each network member), and identify the subset of heavy drinkers with maximal reach to target-group members (heavy drinkers), yet limited reach to the avoid-group members (non-heavy drinkers) [14]. This strategy helps to maximise reach to students who are more at risk (target group) and minimise reach to students who are consuming alcohol at levels that do not indicate need for intervention, hence saving resources. The level of 'closeness' of Strategic Players to the avoid group is also defined by the researcher, via the theta parameter. The theta parameter will be set to 0.60, to constrain the algorithm to identify Strategic Players with moderate network proximity (in terms of geodesic distance) to the target group, over distant proximity to the avoid group [10,14,29].

The number of Strategic Players is also defined by the researchers. As per Barnett et al., [10], we initially aimed to select a subset of participants comprising 27% of the heavy drinkers (targets) in the Stage 2 social-network. To ensure an adequate number of the target group received the intervention, we made an apriori decision to double the number of Strategic Players identified (54% of the target group of heavy drinkers). This was based on the exclusion rate for QuikFix in our previous trial (38% of eligible young people declined) [24], and because college students have proven difficult to engage in AOD treatments [30]. We anticipate the largest, co-educational cohort (that will receive the Stage 2 targeted SNI), will be comprised of approximately 160 students, of whom ~40% will be heavy drinkers ($n = 64$). Of these heavy drinkers, 54% ($n = 35$) will be identified as Strategic Players and offered the QuikFix brief telehealth intervention.

4. Measures

The online survey will measure: demographics, AOD-use, alcohol-related consequences, mental health, college norms, and friendship nominations. See Appendix B for the assessment schedule for all measures.

4.1. Demographics

Include age, sex, relationship status, employment status, type of income, high-school performance, birth country, years lived in Australia, Indigenous Australian status, ethnicity, and rural/urban upbringing.

4.2. Primary AOD-use measures

The primary measure for AOD-use and associated problems is the 8-item World Health Organisation Alcohol Smoking and Substance Involvement Screening Test (WHO ASSIST), which is a validated measure for detecting past 3 month AOD-use problems [31]. We adapted this measure to include seven drugs of concern for young Australians: alcohol, tobacco, cannabis, MDMA, amphetamines, cocaine, and inhalants [32]. The primary outcome for alcohol-use will be the WHO ASSIST alcohol total score. Other drug use will be measured using the individual drug and total other drug composite scores on the WHO ASSIST.

4.3. Secondary measures

The Australian Treatment Outcome Profile (ATOP; Section 1) [33] will be included as a secondary measure of AOD-use, to assess the frequency and typical quantity of AOD-use in the past 30 days. The 10-item Alcohol Use Disorders Identification Test (AUDIT) [34] will be used to provide a measure of problem drinking in the past 3-months. Single item measures of past 30-day drinking and confidence to cut back on drinking from the SNI by Barnett et al., [10] will be included for replicability purposes. The items read: 1) "During the past 30 days, on the days when you drank, how many drinks did you drink on average?" (numeric response); and 2) "How confident are you in your ability to cut down on drinking if you want to?" (10-point scale from "Not at all" to "Completely"). Alcohol-related consequences in the past 30-days will be assessed using the Brief Young Adult Alcohol Consequences Questionnaire (B-YAACQ) [35]. Severity of depression and anxiety symptoms will be assessed using the Patient Health Questionnaire (PHQ-9) [34] and the Generalized Anxiety Disorder scale (GAD-7) [35]. Impulsivity will be assessed using the Short UPPS-P Impulsive Behaviour Scale (S-UPPS-P) [26].

4.4. Social network measure for identifying strategic players

College social networks will be measured using an adapted version of the Important People Instrument [10,36]. Students will nominate up to five peers from their own year-level, at their own college, "who you feel will be most important to you this year" (minimum 3 nominations required). Students will type the friend's full name and select the name from a drop-down roster list. This measure will be used to identify Strategic players in Stage 2.

4.5. Alcohol-use measure for identifying strategic players

One single item measure of past 30-day drinking will be included to inform the selection of the heavy drinkers (target group), as per the protocol described by Barnett et al. [10]. The item will read: 1) "During the past 30 days, how many times did you have four or more (presented to females) (or) five or more (presented to males) standard drinks on one occasion?" (numeric response). This is a common definition of binge drinking that is validated among college students [3]. Respondents who answer 2 or more times will be categorised as heavy drinkers (targets).

5. Analysis plan

Mixed-effects, repeated measures analyses will be used to determine if there are time by treatment interaction effects between groups on the primary AOD-use outcomes. The within-groups factor will be time (baseline, 12-, 26-, 52-weeks) and the between groups factor will be treatment condition (Stage 1: Workshop only versus Stage 1 + Stage 2: Workshop + Targeted SNI). This analysis will enable us to examine both within and between group effects for college cohorts receiving Stage 1 only, and the cohort receiving Stage 1 + Stage 2. Given two single sex (female) colleges participated in the study, the above analysis will be repeated, comparing the two co-education colleges. All analyses will be conducted on an intention-to-treat basis, and will adjust for relevant covariates (e.g., sex, age, baseline measures of AOD-use, co-educational or female college, birth country, rural/urban upbringing, and cultural/community factors that influence alcohol use). Sensitivity analyses will be conducted with outliers and missing data excluded to test the robustness of results.

6. Sample size calculation

As the study aim is to examine a social network intervention, we aim to recruit at least 90% of the college cohorts (estimated $N = 500$ total, estimated $n = 160$ in Stage 2 targeted SNI college). We also conducted a power analysis for the above described mixed-effects repeated measures model [37], to determine the required sample size needed to achieve a power of 0.9 with a Type 1 error rate of 0.05 and assuming medium effect size for the primary hypothesis of time by treatment interaction. Sample size estimates were calculated using a general linear mixed model power and sample size program (GLIMMPSE) (http://glimmpse.samplesizeshop.org/). Estimated mean differences used in the calculation were based on the findings of the QuikFix trial [24], which found moderate effect size differences (Cohen's D = 0.45) between assessment feedback only (M = 34.12, CI 99.75% = [26.59, 41.65]) and QuikFix intervention (M = 19.50, CI 99.75% = [11.31, 27.68]) at 12 months on the primary outcome of total standard drinks. Previously published mean and standard deviation estimates for ASSIST scores [38] were used in the analyses. According to this analysis, 80 participants are required with 40 participants in each condition (Stage 1 versus Stage 1 + 2). As we predict a 20% attrition rate at 12 months, we will require a minimum of 100 participants in total.

7. Results

Recruitment commenced in February 2021 and is now closed. Data collection is expected to be completed in March 2022. The results are expected to be submitted for publication in late 2022.

8. Discussion

This paper presented the protocol of a two-stage SNI, utilising the QuikFix Intervention, to reduce AOD-use among first-year residential college students at an Australian university. Given the promise of SNIs as an effective intervention approach for reducing AOD-use in networks of young people [39], this study aims to test the feasibility of this applied

SNI for reducing AOD-use in residential college settings, with emphasis on reducing alcohol-use [10].

8.1. Novelty of intervention

The two-stage design of this SNI makes a unique contribution to the literature. This study extends upon the SNI design proposed by Barnett and colleagues [10], in which the Strategic Players method [15] was used to identify potentially influential college students to receive a brief MI intervention to reduce alcohol-use. In our two-stage study design, we also deliver a brief AOD harm minimisation workshop to the entire first-year student network as a precursor to a targeted SNI, which may reduce AOD-use in college students [40,41]. Furthermore, the workshop (Stage 1) is likely to maximise recruitment of the first-year network into the study which is critical for the success of the targeted SNI, since the threshold for complete network data is 80% [42]. It also provides an active control condition as a comparison to the SNI intervention. Another unique feature of this intervention is the use of QuikFix personalised brief MI intervention as the treatment offered to Strategic Players, which has proven more effective than usual MI or assessment feedback, at 12 months [24], but is yet to be trialled in the context of a SNI.

8.2. Potential efficacy of novel intervention

This two stage SNI combines well-known approaches for reducing AOD-use among young people, including: 1) brief AOD-education workshops [43,44]; 2) a targeted SNI using the 'individuals approach' [11]; and, 3) a brief, personalised alcohol intervention for at-risk individuals (see [45] for review). The two-stage design allows us to directly reach most first-year college students during the high-risk orientation-week period [8]. This opportunity for early education has important implications for AOD harm minimisation, given that college students tend not to proactively seek AOD education [46] and drinking behaviour adopted during orientation-week predicts year-round drinking patterns [8]. The targeted SNI allows us to provide personalised treatment to students who are high-risk drinkers and have greatest potential to spread the intervention effects to other risky drinkers in the network [10,14,15].

8.3. Strengths and limitations

Some notable strengths of this study are: 1) the inclusion of orientation-week workshops (that directly intervene with the whole network, and also maximise participation in the research) [43,44]; and, 2) the use of student leaders as co-facilitators of the Stage 1 workshop (in line with previous literature on the effectiveness of peer-facilitated interventions) [11]. Another strength of this study is the cost and time efficiency of the design. Stage 1 can reach hundreds of students at once, and administration efforts are minimised by including student leaders as facilitators. Stage 2, if effective, may also prove resource efficient, as the intervention effects are expected to reach heavy-drinkers in the network who are not directly treated, consistent with previous research showing diffusion of SNI effects for reducing substance-use to the broader social network [11].

A notable limitation of this study is the non-randomised design and lack of a no-intervention control or active control group wherein QuikFix recipients are selected randomly (not using the Strategic Players Method) [16]. Without this, we cannot determine if either intervention alone (Stage 1 or Stage 1 + 2) is more effective than the current adhoc approach to the delivery of AOD-related information by the colleges. In addition, students in both the Stage 1 and Stage 1 + 2 groups will receive assessment feedback after completing each survey, which has been shown to reduce AOD-use among college students [47]. While we note these limitations, the aim of this study is to test the feasibility of delivering the QuikFix intervention to Strategic Players, before conducting a large-scale RCT (wherein randomisation and an 'assessment only' control group will be applied). As well as demonstrating feasibility, this trial may provide preliminary evidence for additional treatment benefits of Stage 2 of the intervention (targeted SNI), atop the Stage 1 'Good Night Out Workshop', which would also justify funding for a larger-scale RCT. The sex imbalance of the participating colleges (two female-only colleges) is a further limitation of this study. However, we plan to control for sex in all analyses, and deliver the Stage 2 SNI to the largest co-educational college, so we can compare the outcomes of two co-educational colleges.

9. Conclusion

The current study meets the demand for applied studies exploring the feasibility and efficacy of SNIs for reducing alcohol-use among young people [39]. Given the scarcity of applied SNIs in colleges, the current study provides a useful blueprint for researchers aiming to apply SNIs in residential colleges, where health behaviours are heavily affected by network processes, such as peer influence [9]. Finally, given the ongoing nature of AOD-use and related problems in residential colleges in Australia and abroad [1,2] the outcomes of this novel SNI may provide valuable insights into effective interventions for reducing AOD-use in residential colleges.

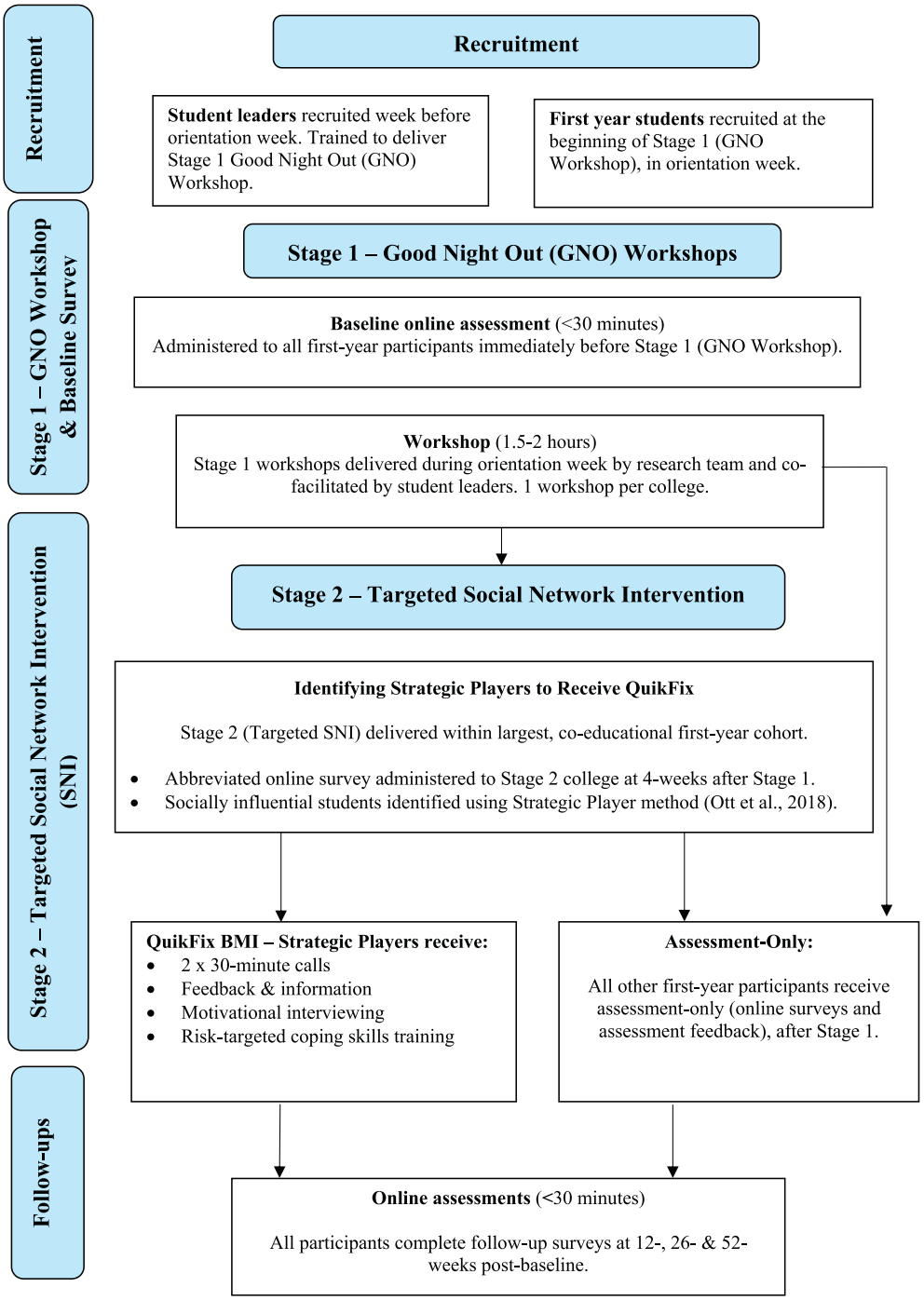
Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendices



Appendix A. Timeline for participating in the intervention.

Appendix B

Measures and assessment schedule for all measured variables.

Timepoint	Baseline (All participants)	4-week FU (Stage 2 college)	12-week FU (All participants)	26-week FU (All participants)	52-week FU (All participants)
Measures					
Demographics	X	X (reduced)	X (reduced)	X (reduced)	X (reduced)
WHO ASSIST	X		X	X	X
AUDIT	X		X	X	X
Single Item Alcohol Measures	X	X	X	X	X
ATOP Section 1	X	X	X	X	X
College Social Network	X	X	X	X	X
College Norms	X		X	X	X
B-YAACQ	X		X	X	X
PHQ-9	X	X	X	X	X
GAD-7	X	X	X	X	X
S-UPPS-P	X				

Note. WHO ASSIST: World Health Organisation Alcohol Smoking and Substance Involvement Screening Test; AUDIT: Alcohol Use Disorders Identification Test; ATOP: The Australian Treatment Outcome Profile; B-YAACQ: Brief Young Adult Alcohol Consequences Questionnaire; GAD-7: Generalized Anxiety Disorders-7; PHQ-9: Patient Health Questionnaire; S-UPPS-P: Short UPPS-P Impulsive Behaviour Scale.

References

[1] D. Rickwood, et al., Harmful alcohol use on campus: impact on young people at university, Youth Studies Australia 30 (1) (2011) 34–40.
[2] H. Wechsler, et al., College binge drinking in the 1990s: A continuing problem results of the Harvard School of Public Health 1999 college alcohol study, J. Am. Coll. Heal. 48 (5) (2000) 199–210.
[3] H. Wechsler, T.F. Nelson, Binge drinking and the American college students: What's five drinks? Psychol. Addict. Behav. 15 (4) (2001) 287.
[4] D.A. Dawson, et al., Another look at heavy episodic drinking and alcohol use disorders among college and noncollege youth, J. Stud. Alcohol 65 (4) (2004) 477–488.
[5] H. Wechsler, T.F. Nelson, Binge drinking and the American college student: What's five drinks? Psychol. Addict. Behav. 15 (4) (2001) 287–291.
[6] N. Funnell, A. Hush, The red zone report, in: An Investigation into Sexual Violence and Hazing in Australian University Residential Colleges, End Rape on Campus (EROC) Australia, 2018.
[7] C. Neighbors, et al., Event-specific prevention: addressing college student drinking during known windows of risk, Addict. Behav. 32 (11) (2007) 2667–2680.
[8] B.C. Riordan, et al., Just a first-year thing? The relations between drinking during orientation week and subsequent academic year drinking across class years, Subst. Use Misuse 53 (9) (2018) 1501–1510.
[9] B. Borsari, K.B. Carey, Peer influences on college drinking: a review of the research, J. Subst. Abus. 13 (4) (2001) 391–424.
[10] N.P. Barnett, et al., Enrollment and assessment of a first-year college class social network for a controlled trial of the indirect effect of a brief motivational intervention, Contemp. Clin. Trials 76 (2019) 16–23.
[11] R.F. Hunter, et al., Social network interventions for health behaviours and outcomes: A systematic review and meta-analysis, PLoS Med. 16 (9) (2019), e1002890.
[12] T.W. Valente, Network interventions, Science 337 (6090) (2012) 49–53.
[13] E.M. Rogers, Diffusion of Innovations, Simon and Schuster, 2010.
[14] M.Q. Ott, et al., Identification and description of potentially influential social network members using the strategic player approach, Subst. Use Misuse (2019) 1.
[15] M.Q. Ott, et al., Strategic players for identifying optimal social network intervention subjects, Soc. Networks 55 (2018) 97–103.
[16] R.C. Shelton, et al., Use of social network analysis in the development, dissemination, implementation, and sustainability of health behavior interventions for adults: A systematic review, Soc. Sci. Med. 220 (2019) 81–101.
[17] K.E. Tobin, et al., The STEP into action study: A peer-based, personal risk network-focused HIV prevention intervention with injection drug users in Baltimore, Maryland, Addiction 106 (2) (2011) 366–375.
[18] M.R. Weeks, et al., Changing drug users' risk environments: peer health advocates as multi-level community change agents, Am. J. Community Psychol. 43 (3) (2009) 330–344.
[19] S.G. Sherman, et al., Evaluation of a peer network intervention trial among young methamphetamine users in Chiang Mai, Thailand, Soc. Sci. Med. 68 (1) (2009) 69–79.
[20] J. Li, et al., A social network approach to demonstrate the diffusion and change process of intervention from peer health advocates to the drug using community, Subst. Use Misuse 47 (5) (2012) 474–490.
[21] C.A. Latkin, Outreach in natural settings: the use of peer leaders for HIV prevention among injecting drug users' networks, Public Health Rep. 113 (Suppl. 1) (1998) 151.
[22] R. Campbell, et al., An informal school-based peer-led intervention for smoking prevention in adolescence (ASSIST): a cluster randomised trial, Lancet 371 (9624) (2008) 1595–1602.
[23] L. Hides, et al., The Quik fix study: a randomised controlled trial of brief interventions for young people with alcohol-related injuries and illnesses accessing emergency department and crisis support care, BMC Emerg. Med. 14 (1) (2014) 1–11.
[24] L. Hides, et al., Telephone-based motivational interviewing enhanced with individualised personality-specific coping skills training for young people with alcohol-related injuries and illnesses accessing emergency or rest/recovery services: a randomized controlled trial (QuikFix), Addiction 116 (3) (2021) 474–484.
[25] A. Harden, A. Oakley, S. Oliver, Peer-delivered health promotion for young people: a systematic review of different study designs, Health Educ. J. 60 (4) (2001) 339–353.
[26] M.A. Cyders, et al., Examination of a short English version of the UPPS-P impulsive behavior scale, Addict. Behav. 39 (9) (2014) 1372–1376.
[27] S. Bendall, et al., Therapy contamination as a measure of therapist treatment adherence in a trial of cognitive behaviour therapy versus befriending for psychosis, Behav. Cogn. Psychother. 43 (3) (2015) 314–327.
[28] T. Moyers, et al., Motivational Interviewing Treatment Integrity Coding Manual 4.1 (MITI 4.1), Unpublished manual, 2014.
[29] M.Q. Ott, et al., Identification and description of potentially influential social network members using the strategic player approach, Subst. Use Misuse 55 (5) (2020) 715–720.
[30] J. Merrill, et al., Piloting the alcohol feedback, reflection, and morning evaluation (A-FRAME) program: A smartphone-delivered alcohol intervention, in: Proceedings of the 54th Hawaii International Conference on System Sciences, 2021.
[31] Group, W.A.W, The alcohol, smoking and substance involvement screening test (ASSIST): development, reliability and feasibility, Addiction 97 (9) (2002) 1183–1194.
[32] N.W.V. Guerin, ASSAD 2017 Statistics & Trends: Australian Secondary Students' Use of Tobacco, Alcohol, Over-the-Counter Drugs, and Illicit Substances, Second edition, Cancer Council Victoria, 2020.
[33] A. Ryan, et al., Validation and implementation of the Australian treatment outcomes profile in specialist drug and alcohol settings, Drug Alcohol Rev. 33 (1) (2014) 33–42.
[34] J.B. Saunders, et al., Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II, Addiction 88 (6) (1993) 791–804.
[35] C.W. Kahler, et al., Validation of the 30-day version of the brief young adult alcohol consequences questionnaire for use in longitudinal studies, J. Stud. Alcohol Drugs 69 (4) (2008) 611.
[36] P. Clifford, R. Longabaugh, Manual for the Administration of the Important People and Activities Instrument 5, Adapted for use by Project MATCH for NIAAA, 1991. R01AA06698–05.
[37] Y. Guo, et al., Selecting a sample size for studies with repeated measures, BMC Med. Res. Methodol. 13 (1) (2013) 1–8.
[38] R. Humeniuk, et al., Validation of the alcohol, smoking and substance involvement screening test (ASSIST), Addiction 103 (6) (2008) 1039–1047.
[39] J. Knox, et al., Using social network analysis to examine alcohol use among adults: a systematic review, PLoS One 14 (8) (2019).
[40] R.M. Keillor, W.B. Perkins, J.J. Horan, Effects of videotaped expectancy challenges on alcohol consumption of adjudicated students, J. Cogn. Psychother. 13 (3) (1999) 179–187.
[41] K.A. Fischer Potts, Efficacy of the alcohol skills training program, a brief group intervention for high-risk college student drinkers, Diss. ProQuest Information & Learning (2002).
[42] P.E. Marks, et al., The effects of participation rate on the internal reliability of peer nomination measures, Soc. Dev. 22 (3) (2013) 609–622.
[43] C.A. Flynn, W.E. Brown, The effects of a mandatory alcohol education program on college student problem drinkers, J. Alcohol Drug Educ. 37 (1991) 15–24.

[44] G.L. Robinson, An Evaluation of a Substance Abuse Risk Reduction Program, University of Georgia, 1998.
[45] E.A. Hennessy, et al., Comparative effectiveness of brief alcohol interventions for college students: results from a network meta-analysis, Prev. Sci. 20 (5) (2019) 715–740.
[46] S. Murugiah, J. Scott, D. Gray, A Qualitative Study of Binge Drinking among Female University Students at an Australian University, 2010.
[47] S.T. Walters, In praise of feedback: an effective intervention for college students who are heavy drinkers, J. Am. Coll. Heal. 48 (5) (2000) 235–238.