Check for updates

Received: 21 December 2021 | Revised: 6 July 2022 | Accepted: 20 August 2022

DOI: 10.1111/hsc.13990

Health and Social Care in the community WILEY

REVIEW ARTICLE

# Peer-led interventions to reduce alcohol consumption in college students: A scoping review

María Lavilla-Gracia MSc[1] | María Pueyo-Garrigues PhD[1,2] | Sara Pueyo-Garrigues PhD[3] | Miren Idoia Pardavila-Belio PhD[1,2] | Ana Canga-Armayor PhD[2,4] | Nuria Esandi PhD[2,4] | Cristina Alfaro-Díaz PhD[2,4] | Navidad Canga-Armayor PhD[1,2]

[1]School of Nursing, Community, Maternity and Pediatric Nursing, University of Navarra, Pamplona, Spain

[2]IdiSNA, Navarra Institute for Health Research, Pamplona, Spain

[3]San Francisco Javier Mental Health Center, Pamplona, Spain

[4]School of Nursing, Nursing Care for Adult Patients Department, University of Navarra, Pamplona, Spain

**Correspondence**
María Pueyo-Garrigues, School of Nursing. University of Navarra, C/ Irunlarrea, 1. Pamplona, Navarra C.P.: 31008, Spain.
Email: mpueyo.3@unav.es

**Funding information**
Association of Friends of the University of Navarra and Banco Santander

## Abstract

Risky alcohol consumption among college students is a significant public health issue. In the college setting, students can collaborate in the implementation of peer-led interventions. To date, evidence of peer-led programmes in reducing harmful alcohol consumption in this population is inconclusive. The aim of the current scoping review is to provide a broad overview by systematically examining and mapping the literature on peer-led interventions for preventing risky alcohol consumption by college students. The specific aims were to (1) identify the underlying focus of the interventions and assess their (2) effectiveness and (3) feasibility. A comprehensive search was conducted in PubMed, PsycINFO, CINAHL, Cochrane Library, Web of Science, DART-Europe, RCAAP, Trove and ProQuest. The inclusion criteria were peer-led interventions that exclusively addressed alcohol consumption, college students as the target population and interventional studies (randomised controlled trials, quasi-experimental studies, systematic reviews and meta-analyses of interventions). The methodological quality of the articles was evaluated. From 6654 potential studies, 13 were included. Nine interventions were described within these studies: Voice of Reason programme, Brief Advice sessions, Peer Theatre, Alcohol Education programme, Perceptions of Alcohol Norms intervention, Motivational Intervention, Alcohol Skills Training programme, Lifestyle Management Class and the Brief Alcohol Screening and Intervention for College Students. Only the last showed significant reductions in three of the four outcome measures: quantity and frequency of drinking, estimated peak blood alcohol concentration and alcohol-related consequences. It did not significantly decrease the number of heavy-drinking episodes. Peer interventions may be effective in preventing alcohol use among college students, although the evidence is weak and scarce. Further research is needed to strengthen the findings about peer-led interventions.

KEYWORDS
alcohol, college students, community action, harm reduction, peer-led interventions, scoping review

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.
© 2022 The Authors. *Health and Social Care in the Community* published by John Wiley & Sons Ltd.



13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

## 1 | INTRODUCTION

Approximately 65% of college students report having consumed alcohol in the past month, and 40% of them report having one binge-drinking episode (Barry & Merianos, 2018; Busse et al., 2021). Therefore, alcohol use among this population is a significant public health issue. Specifically, alcohol consumption is responsible for death and disability relatively early in life. The most recent National Institute on Alcohol Abuse and Alcoholism (NIAAA) statistics estimate that 1519 college students aged 18 to 24 in the United States die from alcohol-related unintentional injuries (Hingson et al., 2017).

Drinking has acute and immediate effects on young people, in addition to increasing the risk of alcohol-related problems in adulthood (Grant et al., 2006). Moreover, excessive alcohol consumption is associated with a wide range of negative health, legal, social, psychological and environmental consequences for students, such as decreased cognitive functioning and academic ability (Martinez et al., 2014; Patrick et al., 2020). This behaviour affects the entire campus and broader community environment (Cimini et al., 2009).

College settings, identified as educational institutions for studying an undergraduate degree (Cambridge University Press, n.d., Definition 1), are favourable for students to implement peer-led interventions due to their viability (Eaton et al., 2018). Peers are defined as people who share similar characteristics, circumstances or experiences. Several studies have demonstrated their effectiveness in changing tobacco use behaviours among young people (Bilgiç & Günay, 2018; Ford et al., 2013; Mohammadi et al., 2019; Orsal & Ergun, 2021). To date, the evidence of the use of peer-led interventions to prevent alcohol consumption is weak and scarce, as was evidenced in a recent meta-analysis of peer-led programmes for alcohol use among youth ages 11 to 21 (Georgie et al., 2016). However, this previous review only included one study that focused on alcohol intake among college students, and brief, multicomponent peer-led interventions with short follow-up times were excluded. Therefore, a scoping review was undertaken to obtain an updated overview of existing peer-led interventions in college students, specifically. The aims of this review were (1) to identify the underlying focus of the identified interventions and to assess their (2) effectiveness and (3) feasibility.

### What is already known about the topic?

- Alcohol consumption in the college environment has a negative impact on students' health and society.
- Undergraduates can participate actively in alcohol prevention interventions.
- There is a lack of robust evidence regarding the effectiveness of peer-led interventions for preventing alcohol consumption in the college setting.

### What this paper adds?

- This paper identifies peer-led interventions for reducing risky alcohol consumption among college students.
- BASICS is the only intervention that showed significant reductions in alcohol consumption and alcohol-related consequences.
- Peer-led programmes are complex interventions in which feasibility aspects such as peer training, supervision and adherence are essential.

## 2 | MATERIALS AND METHODS

### 2.1 | Design

A scoping review was conducted following the recommendations of Arksey and O'Malley (2005) and Levac et al. (2010), which implies a six-step process: (1) formulation of the research question; (2) identification of relevant studies; (3) study selection; (4) data extraction; (5) analysis of the evidence and (6) result reporting.

### 2.2 | Search methods

The search strategy aimed to locate both published and unpublished studies. Five databases (PubMed, PsycINFO, CINAHL, the Cochrane Library and Web of Science) were searched for published studies. The search for unpublished studies was performed in DART-Europe, RCAAP, Trove and ProQuest. Third, the reference lists of all identified reports and articles were searched for additional studies.

This process was conducted from November 2020 to January 2021. The time frame was not established because the aim was to collect all the literature. Table 1 shows the search strategy used. Supporting Information S1 illustrates the complete search strategy in the different databases.

The inclusion criteria were as follows: (i) peer-led interventions (understanding peers as undergraduate students; excluding graduate students); (ii) exclusively addressed alcohol consumption, (iii) targeted college students and (iv) interventional studies (randomised controlled trials [RCTs], quasi-experimental studies, systematic reviews and meta-analyses of interventions).

After the removal of duplicate studies, the titles and abstracts were assessed for inclusion following the described criteria. If the inclusion criteria were met or further examination was needed, the full text of the article was retrieved. All the processes were carried out independently by two researchers to minimise the risk of biases. In case of a discrepancy, a senior investigator assessed the articles, and then, all members of the research team examined the included articles.

### 2.3 | Quality appraisal

The scoping study methodological framework (Arksey & O'Malley, 2005; Levac et al., 2010) does not involve the critical

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 1 Search strategy in PubMed

| Population | AND | Intervention | AND | Outcome |
|---|---|---|---|---|
| "college students" OR "university students" OR "undergraduates" OR "early adult" OR "young adult" OR "emerging adult" | | "peer-led" OR "peer" OR "student to student" OR "equal" OR "peer-delivered" **AND** intervention* OR educat* OR program* OR advis* OR techniqu* OR approach* OR strateg* OR practic* | | alcohol OR "alcohol consumption" OR "alcohol use" OR "alcohol intake" OR "drinking alcohol" OR "Alcohol Drinking"[Mesh] OR "Alcohol Drinking in College"[Mesh] |

appraisal of the included studies because the focus of the method is on 'mapping' the existing evidence. However, to approximate the quality of the selected studies, JBI tools were used to assess quality (Joanna Briggs Institute, 2017a, 2017b). The results of the quality evaluation of the studies are shown in Supporting Information S2.

## 2.4 | Data abstraction

Data were extracted from the included studies using a predefined table with the following categories: (1) author, year and country; (2) study design; (3) aim; (4) intervention; (5) interventionist; (6) training and supervision; (7) sample; (8) outcomes measured and (9) results. For the evaluation of effectiveness, a Synthesis Without Meta-Analysis (SWiM) was performed due to the heterogeneity of the studies (Campbell et al., 2020). Mean differences between the intervention and control groups were used as the effect size. Data related to the effectiveness of each intervention were extracted, mean differences for each outcome variable were calculated when possible and graphics were designed to facilitate understanding of the results.

## 2.5 | Synthesis

The data were descriptively analysed, synthesised, and narratively presented according to our guiding research aims. The information was collated and summarised in the form of a descriptive numerical summary and subjected to qualitative thematic analysis. Specifically, the latter step consisted of the familiarisation, aggregation and synthesis of findings to generate a set of statements. Their categorisation was performed following the NIAAA interventions guide (2019) and the Medical Research Council (MRC) framework for complex interventions (Craig et al., 2008). These categories were then subjected to synthesis to produce a single comprehensive set of synthesised findings.

Finally, the results were organised into four categories: characteristics of the studies, underlying approach, effectiveness and feasibility. Regarding the underlying approach, the interventions were organised following the NIAAA guide (2019) into the following three broad categories: education and awareness, cognitive behavioural skill-based and motivation/feedback-related approaches. Under the education and awareness approach, the NIAAA included the following programmes: information/knowledge/education alone, normative re-education and values clarification alone. Under cognitive behavioural skill-based approach: skills training alcohol focus and skills training alcohol plus general life skills. Last, the motivation/feedback-related approach included brief motivational intervention, a multicomponent education-focused programme and personalised feedback intervention.

Effectiveness refers to the effect of the intervention on the outcome variables. It was synthesised following the Synthesis Without

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Meta-Analysis reporting guideline by summarising the effect estimated by each study (Campbell et al., 2020).

Finally, feasibility was reviewed by evaluating two areas: acceptability (evaluating participants' satisfaction with the intervention) and implementation (to what extent can a programme be successfully delivered to intended participants; in some, defined by assessing peer counsellors' training, peer supervision and fidelity to the intervention) (Bowen et al., 2009).

## 3 | RESULTS

### 3.1 | Characteristics of the studies

From a total of 6654 potential studies identified, 13 studies were finally included (Figure 1). All of the studies were conducted in the USA and were published between 1994 and 2020. Regarding the study design, 12 were RCTs and 1 was a quasi-experimental study. Nine different interventions were described as follows: the Voice of Reason (VOR) programme, Brief Advice sessions, a Peer Theatre, an Alcohol Education programme, the Perceptions of Alcohol Norms (PAN) intervention, a Motivational Intervention, the Alcohol Skills Training Programme (ASTP), the Lifestyle Management Class (LMC) and the Brief Alcohol Screening and Intervention for College Students (BASICS). Table 2 summarises the characteristics of the studies.

The studies differed in their target samples: most studies included students participating voluntarily ($n = 8$; Abadi et al., 2020; Kulesza et al., 2013; Larimer et al., 2001; Mastroleo, 2008; Mastroleo et al., 2010; Stamper et al., 2004; Tollison et al., 2013; Turrisi et al., 2009), three targeted students who had violated the alcohol policy of the college and were mandated to participate (Borsari et al., 2012; Cimini et al., 2009; Mastroleo et al., 2014) and a minority ($n = 2$) included both voluntary and mandated students (Fromme & Corbin, 2004; Palmer et al., 2010). The samples also differed in alcohol intake: seven studies included all students regardless of their typical drinking habits, five addressed students with high-risk alcohol consumption and only one focused

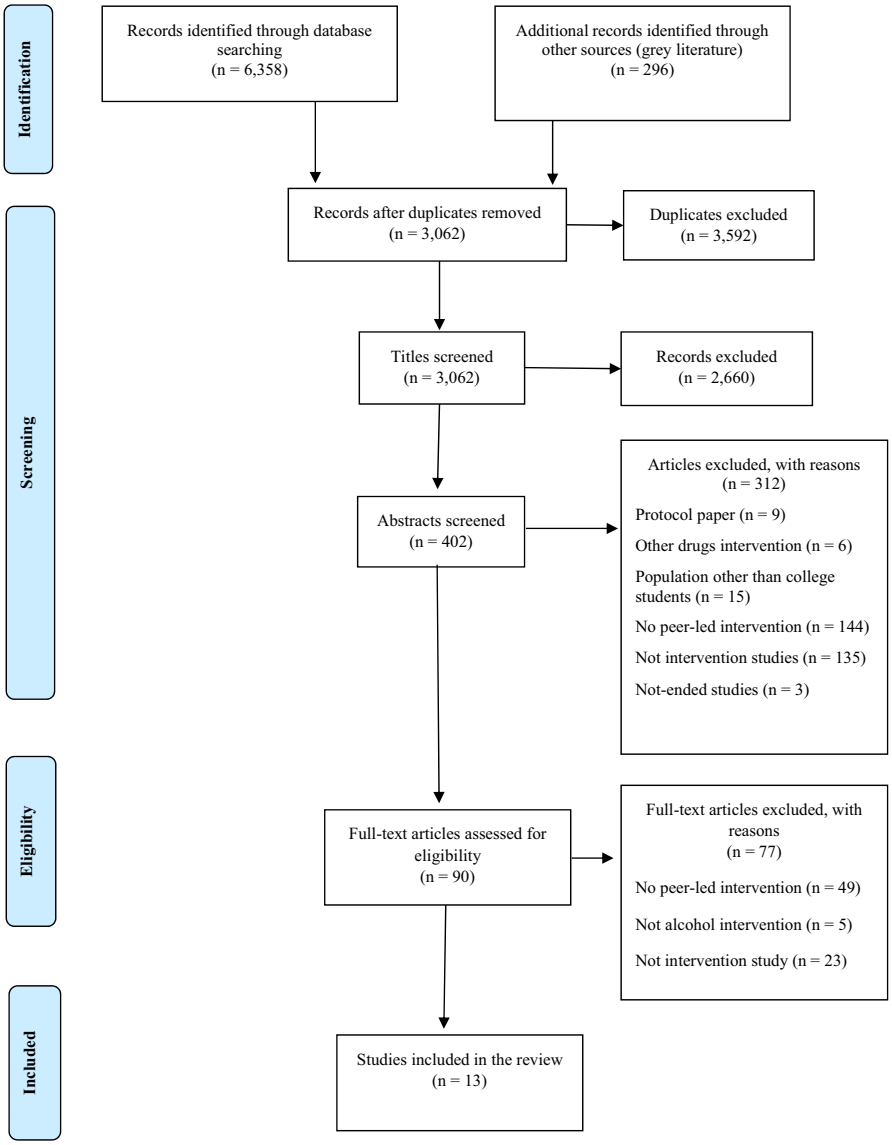


FIGURE 1 PRISMA flow diagram of the scoping review selection process (Moher et al., 2009).

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

**TABLE 2** Peer-led interventions for alcohol consumption in college students

| Author, year | Design | Sample | Intervention group | Control group | Format | Number of sessions | Session duration | Follow-up |
|---|---|---|---|---|---|---|---|---|
| Borsari et al. (2012) | RCT | 598 MS | 1. Peer Brief Advice: Each participant described their drinking pattern and received a 12-page booklet containing educational information on what constitutes a standard drink, guidelines for sensible drinking, indicators of risky drinking, information on what to expect should one decide to make a change in drinking, specific behavioural strategies to cut down on drinking and a list of further resources for change.<br>2. Professional Motivational Intervention: Each student was given a personalised report within the context of a motivational interviewing that provided feedback about his drinking pattern. | Assessment only | Individual | 1 | 15 mins | 6 weeks, 3 months, 6 months and 9 months |
| Cimini et al. (2009) | RCT | 685 MS | 1. Peer Alcohol Education Programme: Participants received information on the effects of alcohol on the body, definitions of a standard drink, blood alcohol concentration and tolerance; an activity to work on social norms; and finally, the visualisation of a 20-min alcohol education clip illustrating the physical and psychological effects of alcohol consumption.<br>2. Peer theatre: Students attended five interactive theatres representing a range of attitudes and behaviours around alcohol use. Between them, discussion of the reactions. Within each theatrical performance, campus social norms data were presented via slides appearing on a screen behind the actors about which the peer facilitator would elicit reactions from participants. The performance finished with a discussion.<br>3. Peer Motivational Intervention: Each candidate had a motivational intervention focused on the evaluation of participants' own alcohol consumption and problems associated with alcohol use and how current alcohol use is or is not consistent with their own personal values and goals. Information on campus alcohol-use norms was presented within the context of the discussion. | No control group | Group | 1 | 2 h | 6 months |
| Stamper et al. (2004) | RCT | 874 VS | 1. Perceptions of Alcohol Norms Intervention: Each participant received a session consisting of four parts. Firstly, the students listed reasons for drinking and the peer leaders called attention to the many social influences on drinking. Secondly, the students graphed their drinking patterns. Then, the peer leaders revealed the mean quantity and frequency of drinking reported in recent campus-wide surveys. Thirdly, an interactive discussion of a hypothetical party in which a small minority of drunk and poorly behaved students might be misperceived as representing the behaviour of almost everyone at the party. Finally, a campus-wide social norming media campaign. | Standard alcohol presentation (control) | Group | 1 | 45–60 min | 1 month |

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 2 (Continued)

| Author, year | Design | Sample | Intervention group | Control group | Format | Number of sessions | Session duration | Follow-up |
|---|---|---|---|---|---|---|---|---|
| Abadi et al. (2020) | Quasi-experimental | 1402 VS | 1. Voice of Reason: Students received five interactive sessions, focusing on alcohol behaviour modification, effective communication skills, promotion of alcohol awareness and protective behavioural strategies, through practice conversations with peers. | No control group | Group | 5 | 1 h | Immediately after the last session |
| Palmer et al. (2010) | RCT | 90 MS<br>204 VS | 1. Alcohol Skills Training Program (ASTP): Each candidate attended two oral presentations followed by a group discussion. The sessions provided information about alcohol use and facilitated group discussions to help participants craft a plan to reduce their alcohol consumption. The ASTP uses several metaphors to communicate programme themes and information about safe drinking practices. | Assessment only | Group | 2 | 90 min | 1 week and 3 months |
| Fromme and Corbin (2004) | RCT | 238 MS<br>452 VS | 1. Peer-led Lifestyle Management Class (LMC): Participants attended two classes. In the first one, concepts of self-management, balance, moderation, stages of change, blood alcohol concentration levels, tolerance and gender differences in alcohol's effects were introduced. Session 1 concluded with a guided discussion about legal considerations around alcohol use. The second session began with a discussion of peer norms and myths about student drinking, followed by the provision of more accurate statistics about college alcohol use. Session 2 concluded with a presentation on time and stress management, a group discussion of skills to maintain lifestyle balance and encouragement to set personal goals for self-management that included a reduction in alcohol use.<br>2. Professional-led LMC: same intervention but led by a professional. | Assessment-only | Group | 2 | 2 h | 6 weeks |
| Mastroleo et al. (2014) | RCT | 82 MS | 1. Brief Alcohol Screening and Intervention for College Students (BASICS) with CPA approach (common practice approach means without peer supervision): Each participant received one individual motivational interviewing session based on a computer-generated personalised feedback sheet. Topics included were participant's drinking pattern, perceived and actual descriptive norms for drinking, drinking consequences, alcohol caloric consumption (based on reported typical drinking) and hours of exercise required to burn those calories and protective behavioural strategies the participant had already used.<br>2. Brief Alcohol Screening and Intervention for College Students (BASICS) with EAA approach (evidence-based approach means without peer supervision): Same as previous but once peer counsellors began implementing BASICS with participants, peer facilitators continued in weekly individual (1 h) and group (30–45 min weekly) supervision. | No control group | Individual | 1 | 32 min | 6 weeks and 3 months |



13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 2 (Continued)

| Author, year | Design | Sample | Intervention group | Control group | Format | Number of sessions | Session duration | Follow-up |
|---|---|---|---|---|---|---|---|---|
| Kulesza et al. (2013) | RCT | 278 VS | 1. 10-min BASICS<br>2. 50-min BASICS | Assessment only | Individual | 1 | 10 or 50 min | 4 weeks |
| Tollison et al. (2013) | RCT | 327 VS | 1. BASICS<br>2. BASICS combined with parent intervention: Each student received one BASICS and one parent intervention. The last one consisted of giving parents a handbook during the transition period between their teens' high school graduation and first year in college. The 35-page handbook included an overview of college student drinking, strategies, and techniques for communicating effectively with teens, tips on discussing ways to help teens develop assertiveness and resist peer pressure and in-depth information on teen drinking and how alcohol affects the body. | No control group | Individual | 1 | 45–60 min | 5 months and 10 months |
| Mastroleo et al. (2010) | RCT | 238 VS | 1. BASICS CPA<br>1. BASICS EAA | Assessment only | Individual | 1 | 50 min | 3 months |
| Turrisi et al. (2009) | RCT | 1275 VS | 1. BASICS<br>2. Parent intervention (same as Tollison et al., 2013)<br>3. BASICS and parent intervention | Assessment only | Individual | 1 | 45–60 min | 10 months |
| Mastroleo (2008) | RCT | 238 VS | 1. BASICS EAA<br>2. BASICS CPA | Assessment only | Individual | 1 | 50 min | 3 months |
| Larimer et al. (2001) | RCT | 120 VS | 1. BASICS | Assessment only | Individual | 1 | 1 h | 12 months |

Abbreviations: MS, mandated students; RCT, randomised controlled trial; VS, volunteer student.

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

on students with low- and high-risk alcohol consumption. The follow-up time also varied among studies from 1 week to 12 months. Finally, regarding the number of measurements during follow-up, most studies ($n$ = 9) included a single measurement after receiving the intervention (Abadi et al., 2020; Cimini et al., 2009; Fromme & Corbin, 2004; Kulesza et al., 2013; Larimer et al., 2001; Mastroleo, 2008; Mastroleo et al., 2010; Stamper et al., 2004; Turrisi et al., 2009), while four studies included more than one measurement (Borsari et al., 2012; Mastroleo et al., 2014; Palmer et al., 2010; Tollison et al., 2013).

## 3.2 | Underlying approach

All the included studies performed individual-level interventions. Following the NIAAA guide (2019), the interventions were organised into education and awareness, cognitive behavioural skill-based and motivation/feedback-related approaches. Within each category, the interventions were further grouped into subcategories based on the specific strategy used. As many interventions had multiple components, the classification was intended to serve as a useful guide to understanding the interventions rather than an absolute categorical model.

### 3.2.1 | Education and awareness programmes

Four interventions were included under this approach (Borsari et al., 2012; Cimini et al., 2009; Stamper et al., 2004); these interventions aimed to provide information about the effects of alcohol on the body, potential consequences of drinking (e.g. financial cost or health problems), social norms, protective behaviours to reduce risk and definitions of a standard drink, blood alcohol concentration and alcohol tolerance (Worsley et al., 2020). Three strategies were identified as follows: informative strategy, normative re-education and value clarification.

First, two interventions used an informative strategy and focused on information, knowledge and education about alcohol, namely, brief advice sessions (Borsari et al., 2012) and alcohol education programmes (Cimini et al., 2009). The brief advice sessions lasted 15 min and consisted of minimal intervention, addressing risks associated with drinking and providing tips to reduce alcohol consumption (Borsari et al., 2012). The Alcohol Education Programme took 2 h and included an interactive session, where participants were presented with information on the effects of alcohol on the body, definitions of a standard drink, the estimated peak blood alcohol concentration (peak eBAC) and tolerance (Cimini et al., 2009). Peer counsellors in the educational programme also discussed the campus culture of college drinking, potential consequences of drinking and use of protective behaviours to reduce the risk (Cimini et al., 2009).

Second, two interventions used normative re-education and value clarification strategies: the PAN intervention (Stamper et al., 2004) and Peer Theatre (Cimini et al., 2009). The first strategy was designed to give students accurate information about peer alcohol use and consequences and to modify students' attitudes about the acceptability of their excessive alcohol consumption. The second strategy helped students evaluate their values and goals and incorporate responsible decision-making about alcohol use into these values and goals (National Institute on Alcohol Abuse and Alcoholism, 2019). The PAN intervention lasted approximately 45 min and primarily included interactive presentations focusing on value clarification, the risks of drinking and its consequences, alcohol norms and students' perceptions of their peers' consumption (Stamper et al., 2004). The Peer Theatre intervention took 2 h and consisted of an interactive theatrical presentation representing a range of norms, attitudes and behaviours regarding alcohol use (Cimini et al., 2009).

### 3.2.2 | Cognitive behavioural skill-based approaches

Three interventions were included under this approach (Abadi et al., 2020; Fromme & Corbin, 2004; Palmer et al., 2010), which were aimed at changing thoughts and behaviours (Worsley et al., 2020); all of them combined two strategies: alcohol education and skills training. The first strategy pertained to knowledge, perceptions and beliefs about alcohol, and the second strategy involved providing exercises and training in skills (National Institute on Alcohol Abuse and Alcoholism, 2019). These programmes were identified as complex multicomponent interventions (Larimer & Cronce, 2007).

The VOR intervention consisted of five 1-h interactive sessions focused on alcohol behaviour modification, effective communication skills and the promotion of alcohol awareness and protective behavioural strategies through practice conversations with peers (Abadi et al., 2020). The ASTP duration included two 90-min sessions and involved brief presentations of information by group leaders followed by small-group discussions. The goal was to change drinking and related lifestyle patterns (Palmer et al., 2010). Finally, the LMC was delivered in two 2-h group sessions focused on the development of skills for lifestyle management in the college setting. Issues related to health behaviour change, moderate drinking, drinking safety, academics, stress and time management and goal setting were explored through didactic lectures, experiential exercises and group discussions (Fromme & Corbin, 2004).

### 3.2.3 | Motivation/feedback-related approaches

Two interventions were included under this approach (Cimini et al., 2009; Kulesza et al., 2013; Larimer et al., 2001; Mastroleo, 2008; Mastroleo et al., 2010, 2014; Tollison et al., 2013; Turrisi et al., 2009); these interventions were aimed at emphasising the personal responsibility, motivation and self-efficacy of participants and reducing

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

their ambivalence to change (Li et al., 2016; National Institute on Alcohol Abuse and Alcoholism, 2019). They used motivational and feedback strategies.

The motivational intervention consisted of a small-group 2-h session that included specific components designed to enhance participants' motivation to reduce their alcohol consumption (Cimini et al., 2009). It incorporated a discussion focused on students' evaluation of their own alcohol consumption and problems associated with alcohol use and how current alcohol use was or was not consistent with their own personal values and goals (Cimini et al., 2009).

BASICS was applied in seven studies (Kulesza et al., 2013; Larimer et al., 2001; Mastroleo, 2008; Mastroleo et al., 2010, 2014; Tollison et al., 2013; Turrisi et al., 2009). The studies differed in the duration of the intervention, ranging from 10 to 60 min. The BASICS intervention involved a motivational session that targeted peer influences through the provision of personalised feedback and the discussion of alcohol norms, alcohol expectancies, negative consequences and protective behavioural strategies and skills (Turrisi et al., 2009).

## 3.3 | Effectiveness

The review aims to examine the effectiveness of peer-led interventions for preventing alcohol consumption in the college setting. Among the included studies, there were differences in terms of the outcome measures (e.g., typical drinking quantity and frequency, peak eBAC, episodes of heavy drinking, alcohol-related consequences or problems, alcohol effects and risk behaviours among others), the measurement period (e.g. ranging from 1 week to 12 months) and the evaluation tools (different scales or instruments used).

The most common primary outcomes were the quantity and frequency of drinking, peak eBAC, number of heavy-drinking episodes and alcohol-related consequences. The quantity and frequency of drinking were measured in all the included studies; most used the Daily Drinking Questionnaire (Collins et al., 1985). Three studies found a statistically lower amount and frequency of alcohol consumption in the intervention group than in the control group (Figure 2; Kulesza et al., 2013; Larimer et al., 2001; Turrisi et al., 2009). Specifically, Kulesza et al. (2013) found a decrease of 2,5 drinks per week (95% CI = −4.89 to −0.11) in students who received a 50-min BASICS intervention compared to the control group and a decline of 4.1 drinks per week (95% CI = −6.42 to −1.78) in students who received a 10-min BASICS intervention compared to the control group. Turrisi et al. (2009) reported a reduction of 0.89 and 1.12 drinks per week (95% CI = −0.95 to −0.83; −1.17 to −1.06) in participants who attended, respectively, BASICS and the combined intervention compared to the control group. Finally, Larimer et al. (2001) found a decrease of 5.24 drinks per week (95% CI = −9.73 to −0.75) in students who received BASICS compared to the control group.

The second most evaluated variable was the peak eBAC. It was measured through a specific ad hoc question, or the Quantity/Frequency/Peak Index (Dimeff et al., 1999). It was evaluated in seven studies, and one of them reported a statistically significant reduction in favour of the IG (Figure 3) (Turrisi et al., 2009). Turrisi et al. (2009) found reductions of 0.015 and 0.026 g/L (95% CI = −0.02 to −0.01 g/L; CI = −0.03 to −0.022 g/L) in students who attended BASICS and the combined intervention, respectively, compared to the control group.

Third, the number of heavy drinking episodes was evaluated in six studies. It was measured through a specific ad hoc question. None of them found a statistically significant reduction in favour of the IG (Figure 4).

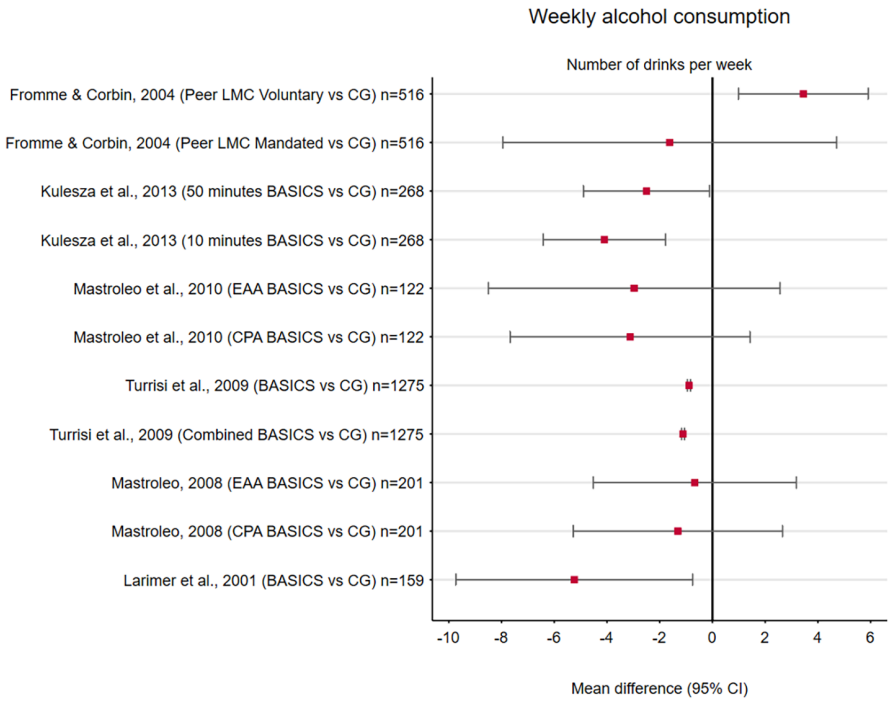


**FIGURE 2** Mean differences between intervention and control group in weekly alcohol consumption. Note: BASICS, Brief Alcohol Screening and Intervention for College Students; CG, Control Group; CPA, common practice approach; EAA, evidence-based approach; LMC, Lifestyle Management Class; *n*, sample size.

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

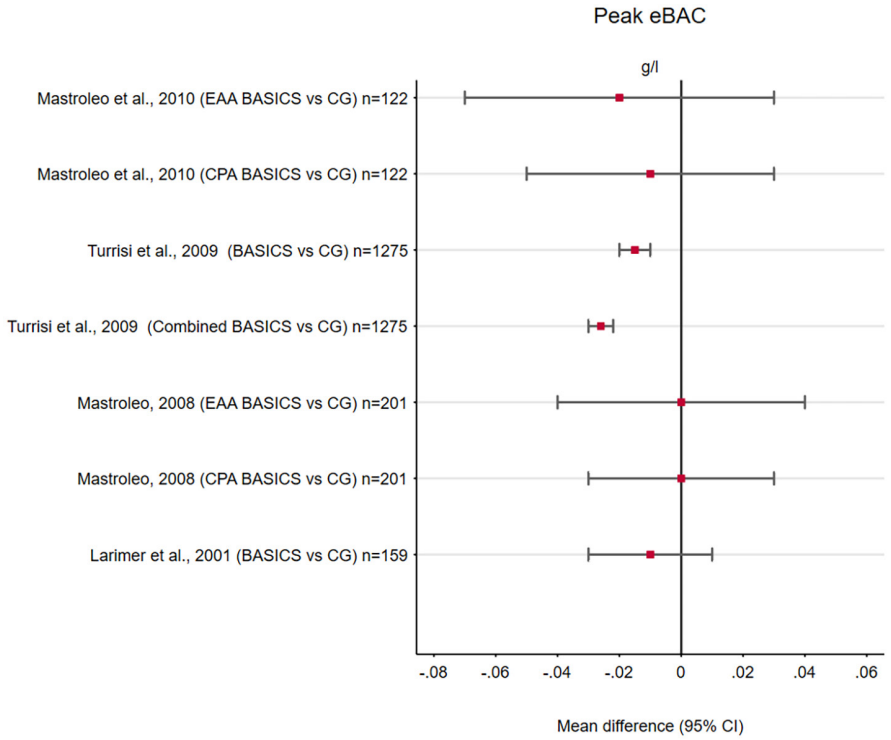


**FIGURE 3** Mean differences between intervention and control group in peak eBAC. Note: BASICS, Brief Alcohol Screening and Intervention for College Students; CG, Control Group; CPA, common practice approach; EAA, evidence-based approach; *n*, sample size.

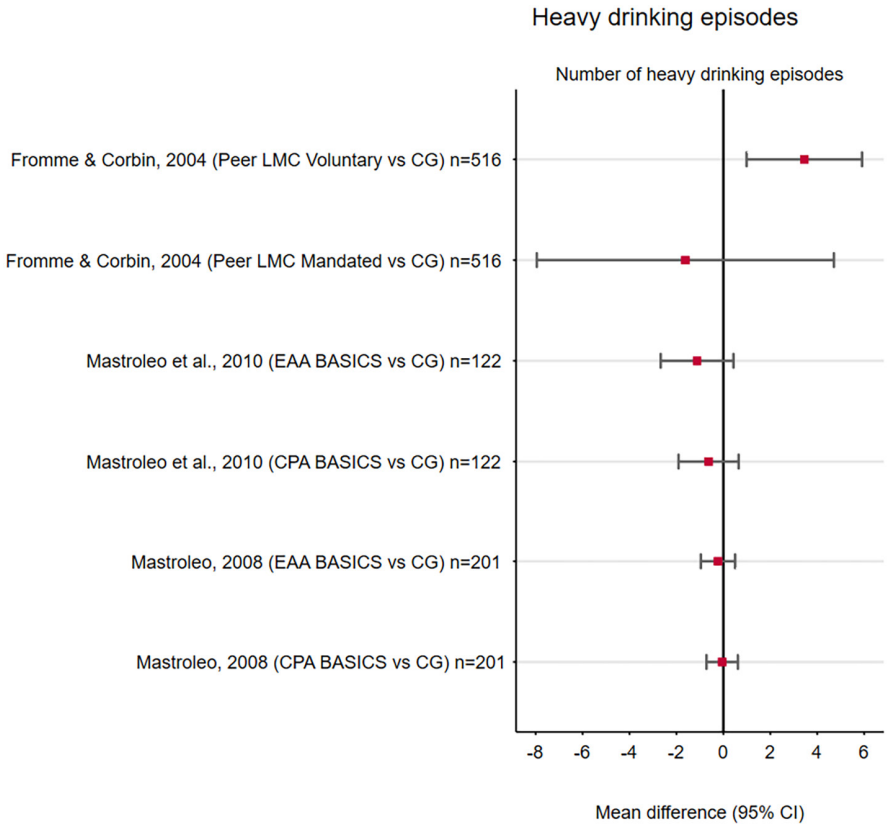


**FIGURE 4** Mean differences between intervention and control group in heavy-drinking episodes. Note: BASICS, Brief Alcohol Screening and Intervention for College Students; CG, Control Group; CPA, common practice approach; EAA, evidence-based approach; LMC, Lifestyle Management Class; *n*, sample size.

Finally, alcohol-related consequences include driving under the influence of alcohol, nausea and vomiting, a lack of class attendance, fights or physical aggression and unsafe sex, among others. Eleven studies measured them. The following tools were used: Young Adult Alcohol Consequences Questionnaire (YAACQ), Rutgers Alcohol Problem Index (RAPI), Positive and Negative Consequences Experienced (PNCE) and Young Adult Alcohol Problems Screening Test (YAAPST). Only Turrisi et al. (2009) reported a statistically significant reduction in favour of the IG (Figure 5). They found a decrease of 0.049 and 0.65 in the total

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

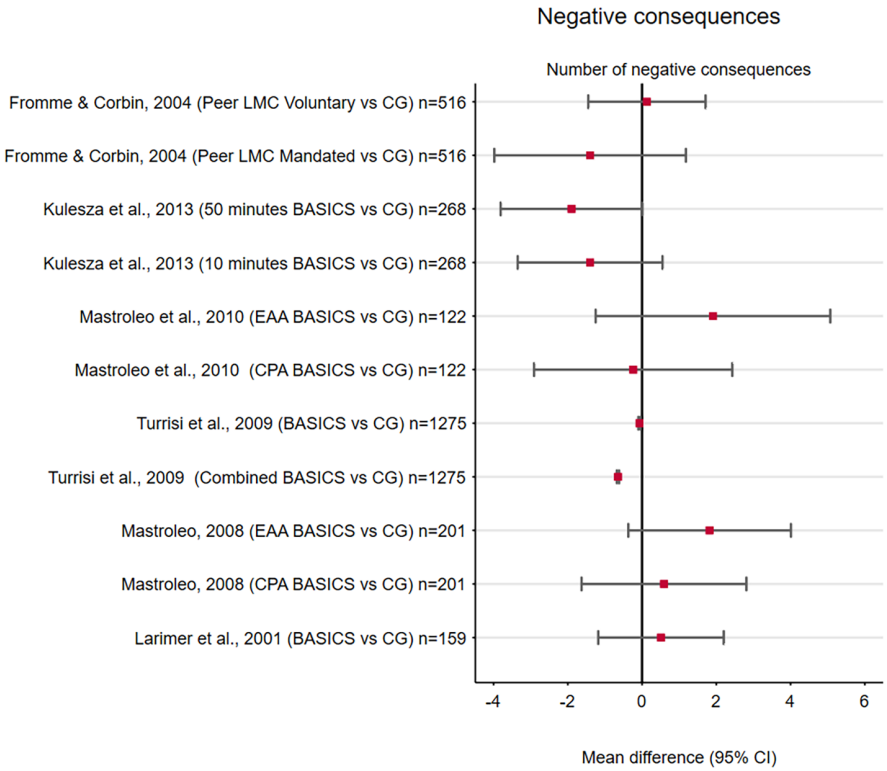


**FIGURE 5** Mean differences between intervention and control group in negative consequences. Note: BASICS, Brief Alcohol Screening and Intervention for College Students; CG, Control Group; CPA, Common Practice Approach; EAA, Evidence-Based Application; LMC, Lifestyle Management Class; *n*, sample size.

consequence score (95% CI = −0.08 to −0.02; CI = −0.68 to −0.62) at 10 months after receiving the intervention in students who attended BASICS and the combined intervention, respectively, compared to the control group. They do not specify which consequences were reduced.

Thus, the results presented above show that the majority of studies found no differences between intervention and control groups. BASICS was the only programme with statistically significant results for three of the four main alcohol-related outcomes (Kulesza et al., 2013; Larimer et al., 2001; Turrisi et al., 2009); nevertheless, it failed to reduce alcohol use in various studies (Mastroleo, 2008; Mastroleo et al., 2010, 2014).

Furthermore, only two studies compared the programme effectiveness of peer- and professional-led interventions. While Fromme and Corbin (2004) indicated similar efficacy for both conditions, Larimer et al. (2001) found that a peer-led intervention was more effective than a professional one: those who received the peer-led programme showed reductions in normal peak eBAC of 0.04 g/L ($p$ <0,05) compared to those who received the professional-led intervention.

### 3.3.1 | Mediators of intervention effectiveness

Mediator variables were analysed in two of the included studies (Kulesza et al., 2013; Turrisi et al., 2009). They found that alcohol descriptive norms mediated treatment efficacy and that were significant mediators between the intervention and alcohol consumption ($\beta = 0.19$ $p<0.05$; $\beta = 0.33$ $p<0.01$, respectively). Specifically, participants in the control condition ($M = 4.04$; $SD = 0.87$) perceived that other college students consumed more alcohol than they did as compared to those in 50-min ($M = 3.22$; $SD = 0.71$) intervention (Kulesza et al., 2013). This result indicated that the more an individual perceived engagement in heavy drinking among their peers, the more alcohol they consumed. In the same vein, Kulesza et al. (2013), in accordance with Turrisi et al. (2009), suggested that if changes occur in drinkers' alcohol descriptive norms following the BASICS intervention, those drinkers are significantly more likely to decrease the amount of alcohol they consume.

Kulesza et al. (2013) also reported that post-intervention coping skills mediated the efficacy of the intervention. Therefore, another mediator variable was cognitive behavioural skills ($\beta = -0.33$ $p<0.05$), so the fewer behavioural coping skills for reducing alcohol consumption a student uses, the more he or she consumes alcohol (Kulesza et al., 2013).

## 3.4 | Feasibility

### 3.4.1 | Acceptability

Acceptability is paramount in the development of complex health-promoting interventions (Sekhon et al., 2017). Of the included studies, only three assessed participant satisfaction and all of them through questionnaires.

Borsari et al. (2012) found that satisfaction ratings for the brief advice intervention were very high and reported that 92% of the participants stated they would recommend the intervention.

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Participants' ratings of the peer counsellor were also high, with 95% reporting that the peer was organised and competent.

Fromme and Corbin (2004), in addition to assessing this aspect, compared the satisfaction of the participants who received peer intervention with those who received the professional intervention. They found that participants evaluated peers less positively than professionals on nine items, such as 'I am now more knowledgeable about moderating my use of alcohol and other drugs'.

Finally, Tollison et al. (2013) did not report the results of the satisfaction questionnaire in the article.

### 3.4.2 | Implementation

*Training programmes*

The duration of counsellors' training differed among the studies, with an average of 12 h and a range 8 (Abadi et al., 2020) to 16 h (Fromme & Corbin, 2004). In the training workshops, several strategies were applied: in all the studies, counsellors received theoretical information; eight studies provided counsellors with a written manual (Borsari et al., 2012; Kulesza et al., 2013; Mastroleo, 2008; Mastroleo et al., 2010, 2014; Stamper et al., 2004; Tollison et al., 2013; Turrisi et al., 2009); nine involved role play (Borsari et al., 2012; Cimini et al., 2009; Kulesza et al., 2013; Mastroleo, 2008; Mastroleo et al., 2010, 2014; Stamper et al., 2004; Tollison et al., 2013; Turrisi et al., 2009); five had counsellors view exemplary videos (Mastroleo, 2008; Mastroleo et al., 2010, 2014; Tollison et al., 2013; Turrisi et al., 2009); and finally, three used a feedback sheet in training counsellors (Mastroleo, 2008; Mastroleo et al., 2010, 2014). Only Cimini et al. (2009) evaluated the theoretical content through an exam that students had to pass to become counsellors.

*Peer supervision*

Eight studies included peer supervision once undergraduates began implementing the programme (Borsari et al., 2012; Cimini et al., 2009; Kulesza et al., 2013; Mastroleo, 2008; Mastroleo et al., 2010, 2014; Tollison et al., 2013; Turrisi et al., 2009). Seven of them specified that peer supervision was weekly. Regarding the type of supervision, two studies used group supervision (Borsari et al., 2012; Cimini et al., 2009), while four studies combined group supervision with individual supervision (Mastroleo, 2008; Mastroleo et al., 2010, 2014; Turrisi et al., 2009).

Three studies compared supervised and unsupervised peers (Mastroleo, 2008; Mastroleo et al., 2010, 2014), showing that the supervised group scored higher on some quality indicators, such as the percentage of complex reflections or percentage of open questions. However, no study found significant differences in the outcome variables of alcohol consumption according to supervision.

*Peer adherence to the intervention (fidelity)*

Fidelity examines the extent to which an intervention is consistently implemented according to the initial treatment protocol (Lovell et al., 2008). It includes the competence of the subject who performs the intervention (Margison et al., 2000); this aspect was evaluated in 8 of the 13 studies.

The measurement varied depending on the type of intervention. In the brief advice intervention, Borsari et al. (2012) examined whether peer counsellors discussed the information in the provided booklets. They coded the sessions, checked and summed the topics covered and found that 14 or more of the 16 total topics were addressed in 83% of the intervention meetings.

In the LMC intervention, the authors assessed adherence to the protocol, class participation and group cohesiveness (Fromme & Corbin, 2004). These variables were evaluated with a Likert-type scale, and the authors found that peer counsellors scored lower than professionals. In addition, compared to professionals, peer counsellors included less discussion among students and more lectures and time spent completing forms (Fromme & Corbin, 2004).

The studies on motivational interventions evaluated peers' adherence to the principles of motivational interviewing as well as to the protocol of the programme. Three studies used the Motivational Interviewing Treatment Integrity (MITI) instrument (Cimini et al., 2009; Tollison et al., 2013; Turrisi et al., 2009), two used the Peer Proficiency Assessment (PEPA) (Mastroleo, 2008; Mastroleo et al., 2010) and one used both instruments (Mastroleo et al., 2014). The MITI instrument evaluates adherence to motivational interviewing principles with five items (evocation, collaboration, support, direction and empathy; Mastroleo et al., 2014). Peer adherence differed in each study: one study found that counsellors scored high in proficiency (Turrisi et al., 2009), two found that counsellors had moderate proficiency scores (Mastroleo et al., 2014; Tollison et al., 2013) and one found that counsellors had low proficiency scores (Cimini et al., 2009).

The PEPA evaluates motivational interviewing microskills by counting open/closed questions and simple/complex reflections. Two studies showed significant differences between the supervised and unsupervised groups in simple and complex reflexes and the proportion of reflections to questions in favour of the supervised group (Mastroleo et al., 2010, 2014). Mastroleo (2008) did not find significant differences.

Finally, Larimer et al. (2001) measured peer counsellors' adherence but did not specify the tool. They reported that peers adhered to the intervention protocol.

## 3.5 | Quality appraisal

Regarding the quality assessment of RCT, all the studies ($n = 12$) received "yes" responses to at least 7 of the 13 questions from the JBI Critical Appraisal tool. Consequently, no study was discarded. The items that scored the lowest were those related to the allocation to treatment groups; treatment group similarity at baseline; and the blinding of participants, investigators and assessors. The quality appraisal of the quasi-experimental study included four of the nine

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

items. The items were those related to the clarity between cause and effect, multiple measurements of the outcome both pre- and postintervention, outcomes measurement in a reliable way and appropriate statistical analysis used.

## 4 | DISCUSSION

This is the first scoping review aimed at providing a broad overview of the existing peer-led interventions for preventing risky alcohol consumption in college students. The literature on peer-led interventions is weak and scarce. Only BASICS showed significant reductions in three of the four outcome variables: quantity and frequency of drinking, estimated peak blood alcohol concentration and alcohol-related consequences. This could be explained because of its preventive focus/foundation following a harm reduction approach, seeking to reduce health and social harms associated with alcohol use without necessarily requiring abstinence (Neighbors et al., 2006). It is known that young people respond better to this type of alcohol prevention approach that is contextually relevant and responsive to the lived experiences of youth (Jenkins et al., 2017). Another possible explanation could be that, as mentioned above, BASICS was the intervention that best fit the needs of the target students, as it combined cognitive and motivational strategies, predominantly the latter (Dimeff et al., 1999; Wagstaff, 2015). This is in accordance with the NIAAA, which rates BASICS as the intervention with the highest level of effectiveness (National Institute on Alcohol Abuse and Alcoholism, 2019).

These results have important clinical implications as any reduction in peak BAC might decrease a wide variety of risks such as fainting, unconsciousness or traffic accidents (Dimeff et al., 1999; Hingson et al., 2009). Another positive effect of the intervention is the reduction in alcohol-related negative consequences, such as harm to third parties or unprotected sex. Up to 12% of university students claimed to have been beaten or assaulted by another student who had maintained a risky alcohol consumption pattern (Hingson et al., 2009; National Institute on Alcohol Abuse and Alcoholism, 2020). Therefore, offering this type of intervention to reduce risky alcohol consumption in undergraduates is paramount.

This review shows how the underlying approach of the intervention is key for enhancing its effectiveness, as it should be in line with the target population's needs (Miller et al., 2015). In the case of college students, it is known that they lack the knowledge and skills required to reduce alcohol consumption (De Visser & Birch, 2012; White & Hingson, 2013) and that they need the motivation to change their drinking patterns because of social-contextual factors (e.g. misperceptions about alcohol use, the need for socialisation and peer pressure; Muli & Lagan, 2017; O'Hara et al., 2015). Thus, a combination of both cognitive behavioural skill-based and motivation/feedback-related approaches is recommended to address the necessities of the college population, as the lack of knowledge, motivation and skills could affect the programmes' impact (Hwang et al., 2018; Iarussi et al., 2016; Moreno-Guerrero et al., 2020; Pueyo-Garrigues et al., 2019).

Furthermore, evaluating mediators provides further guidance to enhance intervention effectiveness (Kazdin & Nock, 2003). This work has identified alcohol social norms and cognitive behavioural skills as significant mediators in contrast with a recent systematic review, which only found social norms mediating alcohol consumption among college students (Reid & Carey, 2015). This could be because this population tends to overrepresent alcohol consumption among their peers, a belief that is associated with an increase in an individual's own consumption (Lin et al., 2022; Wolter et al., 2021). Therefore, these results suggest that alcohol social norms and cognitive behavioural skills are important active ingredients in reducing drinking among college students.

In line with the aforementioned points, in addition to the effect of the intervention on the participants, we can also highlight the impact on the peer counsellors themselves. It is striking that no included study evaluated this effect despite evidence showing its positive effect, that is, on counsellors' interpersonal communication and self-esteem (King & Fazel, 2021; Newton & Ender, 2010). This impact is essential because peer facilitators influence the lives of college members and, moreover, of the community and society in general (Holt & Powell, 2017; Suárez-Reyes et al., 2019). Furthermore, they will become professionals and decision-makers in organisations, communities and countries (El Ansari et al., 2011). Therefore, it is recommended that future studies evaluate the impact of the intervention on the counsellors themselves since they are part of the target population.

Assessing the feasibility of the programme is important as it provides valuable information on why it does or does not work and how it can be optimised (Moore et al., 2014). Regarding the acceptability (satisfaction) of the intervention, this review found that participants' satisfaction was related to the counsellor's status as a peer, which allowed them to feel confident and understood (Borsari et al., 2012; Simoni et al., 2011). Acceptability was measured in only three studies. This is in contrast with the literature that stresses the importance of its assessment to optimise the intervention (Barnhart et al., 2020; O'Cathain et al., 2019). Consequently, future studies need to assess participants' degree of satisfaction to identify the aspects that need to be changed or improved. In addition, counsellor satisfaction was not evaluated in the studies. It would be interesting to assess counsellor satisfaction to determine specific aspects to improve the intervention (Pueyo-Garrigues, 2021).

Regarding implementation, the first aspect identified as fundamental for the quality of the intervention is peer counsellor training. This could be because peer facilitators lack the skills and knowledge for developing health-promotion interventions in comparison with professionals (Crozier et al., 2020). The pedagogical strategies used for peer training differed among the included studies. All of them provided theoretical information to peers, and nine studies added other strategies, such as written manuals, role playing and viewing exemplary videos. BASICS, which is the intervention that has been shown to be more effective, uses a combination of these strategies to train peers.

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

The second aspect analysed in the implementation section was supervision. Findings support its importance, especially for counsellors with deficiencies in motivational interviewing skills after initial training (Mastroleo et al., 2010, 2014). This is in line with the 'Evidence-Based Guidelines for Youth Peer Education', which recommend conducting supportive supervisory meetings (Family Health International, 2010). Regarding the supervision format, most of the interventions combined individual and group supervision. The former contributes to a greater awareness of counsellors' strengths and weaknesses in the implementation of the programme, while the latter favours an environment where counsellors can share ideas, opinions and experiences, as well as strengths and aspects of improvement (Pueyo-Garrigues, 2021). Therefore, future studies should include both supervision formats, as they are vital to ensure motivational interviewing adherence, microskill acquisition and fidelity.

The third implementation topic was adherence of peer counsellors to the intervention. It was evaluated in most of the studies, which corroborates the importance of its assessment in complex interventions (Craig et al., 2008). The way in which an intervention is applied can be a unique and important element of students' change processes (Moyers et al., 2007; Tollison et al., 2013). Although most of the included studies assessed peers´ adherence, the results were inconclusive. A possible explanation could be that the instruments used were heterogeneous, making comparisons between studies difficult. For future investigations, the combination of the Peer Proficiency Assessment (PEPA) and Motivational Interviewing Treatment Integrity (MITI) instruments is recommended since they provide complementary information (Mastroleo et al., 2014).

Finally, it is important to emphasise the moderate methodological quality of the studies included in this review. The majority had an appropriate research design for the research question posed and clearly defined randomisation, allocation and outcome measurement. However, there was a lack of information about the implementation of the intervention and the interventionist characteristics. Therefore, it is recommended for future studies to describe in detail the interventions used and the interventionists' characteristics.

### 4.1 | Limitations and strengths

This study has several strengths and limitations. Regarding the possible limitations, while we are confident that we found most peer-led intervention studies, some publications were possibly not identified in the literature review. Additionally, although we contacted the original authors to gather details about the intervention, when possible, some data from the reviewed studies were unavailable. Moreover, the investigations were heterogeneous in both the measured outcomes and instruments used; hence, the comparison between them was complicated and sometimes not possible. Despite the limitations, this study has various strengths. A rigorous and comprehensive three-step process for the search strategy was applied, with the inclusion of published and unpublished studies and the use of the JBI guidelines and the MRC framework as guides for data extraction and synthesis. Additionally, the review was performed by two investigators independently and a third who participated in case of discrepancy. Furthermore, although quality appraisal is not compulsory for a scoping review, a quality appraisal of the included articles was conducted.

## 5 | CONCLUSION

This review provided valuable information on the effectiveness of multicomponent peer-led interventions for preventing risky alcohol consumption among college students and shows that, despite limited evidence, BASICS is the intervention with the highest effect for this population. A strategic aspect highlighted in this review is the importance of peer training in alcohol and motivational interviewing, in addition to the need for supervision for intervention effectiveness. Such peer-led interventions can be considered complex interventions, and it is also necessary to evaluate process variables such as feasibility. Finally, future randomised controlled trials are desirable to assess the effectiveness and cost-effectiveness of peer-led interventions, as well as to evaluate if undergraduates could be a powerful health asset in the college setting.

### AUTHOR CONTRIBUTIONS

MLG (primary author) is a researcher in Health Promotion and Education. This author has participated in the conception and design of the study, acquisition of data, its analysis and interpretation and writing the article. MPG is a researcher in Health Promotion and Education. This author has participated in the conception and design of the study, acquisition of data, analysis and interpretation, and writing the article. SPG is a researcher in Health Promotion and Education. She contributed to the critical reviewing of the manuscript, enhancing the final version and writing the article. MIP is a researcher in Psychology and Health Promotion and Education. She contributed to the critical reviewing of the manuscript, enhancing the final version and writing the article. ACA is a senior researcher in Health Education and Family Health Promotion. She contributed to the critical reviewing of the manuscript, enhancing the final version and writing the article. NE is a researcher in Family Health Promotion. She contributed to the critical reviewing of the manuscript, enhancing the final version and writing the article. CAD is a researcher in Family Health Promotion. She contributed to the critical reviewing of the manuscript, enhancing the final version and writing the article. NCA is a senior researcher in Public Health and Health Promotion and Education. This author has participated in the conception and design of the study, acquisition of data, analysis and interpretation and writing the article. All authors read and approved the final manuscript.

### ACKNOWLEDGEMENTS

We thank the Santander University of Navarra for providing a grant and the Association of Friends of the University of Navarra for their financial collaboration in this project.

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

## FUNDING INFORMATION

The research that led to these results has been promoted by the Association of Friends of the University of Navarra and Banco Santander.

## CONFLICT OF INTEREST

No conflict of interest has been declared by the authors.

## DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analysed in this study.

## ETHICS STATEMENT

Ethical approval was not required for conducting this scoping review.

## TWITTER

*María Lavilla-Gracia* @MariaLavilla96
*María Pueyo-Garrigues* @MariaPueyoG
*Miren Idoia Pardavila-Belio* @IdoiaPardavila
*Ana Canga-Armayor* @acangaarmayor
*Nuria Esandi* @nelarramend
*Cristina Alfaro-Díaz* @CristinaCalfaro
*Navidad Canga-Armayor* @NavidadCanga

## REFERENCES

Abadi, M. H., Shamblen, S. R., Thompson, K. T., Richard, B. O., Parrino, H., & Hall, M. T. (2020). Peer-led training to reduce alcohol misuse and related harm among Greek-affiliated students. *Substance Use and Misuse*, *55*(14), 2321–2331. https://doi.org/10.1080/10826084.2020.1811342

Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology: Theory and Practice*, *8*(1), 19–32. https://doi.org/10.1080/1364557032000119616

Barnhart, D. A., Semrau, K., Zigler, C. M., Molina, R. L., Delaney, M. M., Hirschhorn, L. R., & Spiegelman, D. (2020). Optimizing the development and evaluation of complex interventions: Lessons learned from the better birth program and associated trial. *Implementation Science Communications*, *1*, 29. https://doi.org/10.1186/s43058-020-00014-8

Barry, A. E., & Merianos, A. L. (2018). The impact of protective behavioral strategy use frequency on blood alcohol concentrations among student drinkers Nationwide. *American Journal of Health Promotion*, *32*(1), 205–209. https://doi.org/10.1177/0890117116686901

Bilgiç, N., & Günay, T. (2018). Evaluation of effectiveness of peer education on smoking behavior among high school students. *Saudi Medical Journal*, *39*(1), 74–80. https://doi.org/10.15537/smj.2018.1.21774

Borsari, B., Hustad, J. T. P., Mastroleo, N. R., Tevyaw, T. O. L., Barnett, N. P., Kahler, C. W., Short, E. E., & Monti, P. M. (2012). Addressing alcohol use and problems in mandated college students: A randomized clinical trial using stepped care. *Journal of Consulting and Clinical Psychology*, *80*(6), 1062–1074. https://doi.org/10.1037/a0029902

Bowen, D. J., Kreuter, M., Spring, B., Cofta-Woerpel, L., Linnan, L., Weiner, D., Bakken, S., Kaplan, C. P., Squiers, L., Fabrizio, C., & Fernandez, M. (2009). How we design feasibility studies. *American Journal of Preventive Medicine*, *36*(5), 452–457. https://doi.org/10.1016/j.amepre.2009.02.002

Busse, H., Buck, C., Stock, C., Zeeb, H., Pischke, C. R., Fialho, P., Wendt, C., & Helmer, S. M. (2021). Engagement in health risk behaviours before and during the COVID-19 pandemic in German university students: Results of a cross-sectional study. *International Journal of Environmental Research and Public Health*, *18*(4), 1410. https://doi.org/10.3390/ijerph18041410

Cambridge University Press. (n.d.). Cambridge dictionary. Retrieved March 16, 2022, from https://dictionary.cambridge.org/es/diccionario/ingles/college

Campbell, M., McKenzie, J. E., Sowden, A., Katikireddi, S. V., Brennan, S. E., Ellis, S., Hartmann-Boyce, J., Ryan, R., Shepperd, S., Thomas, J., Welch, V., & Thomson, H. (2020). Synthesis without meta-analysis (SWiM) in systematic reviews: Reporting guideline. *BMJ (Clinical Research ed.)*, *368*, l6890. https://doi.org/10.1136/bmj.l6890

Cimini, M. D., Martens, M. P., Larimer, M. E., Kilmer, J. R., Neighbors, C., & Monserrat, J. M. (2009). Assessing the effectiveness of peer-facilitated interventions addressing high-risk drinking among judicially mandated college students. *Journal of Studies on Alcohol and Drugs*, *16*, 57–66. https://doi.org/10.15288/jsads.2009.s16.57

Collins, R. L., Parks, G. A., & Marlatt, G. A. (1985). Social determinants of alcohol consumption: The effects of social interaction and model status on the self-administration of alcohol. *Journal of Consulting and Clinical Psychology*, *53*, 189–200. https://doi.org/10.1037/0022-006X.53.2.189

Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., Petticrew, M., & Medical Research Council Guidance. (2008). Developing and evaluating complex interventions: The new Medical Research Council guidance. *BMJ (Clinical Research ed.)*, *337*, a1655. https://doi.org/10.1136/bmj.a1655

Crozier, A., Porcellato, L., Buckley, B., & Watson, P. M. (2020). Facilitators and challenges in delivering a peer-support physical activity intervention for older adults: A qualitative study with multiple stakeholders. *BMC Public Health*, *20*(1), 1904. https://doi.org/10.1186/s12889-020-09990-x

De Visser, R. O., & Birch, J. D. (2012). My cup runneth over: Young people's lack of knowledge of low risk drinking guidelines. *Drug and Alcohol Review*, *31*(2), 206–212. https://doi.org/10.1111/j.1465-3362.2011.00371.x

Dimeff, L. A., Baer, J. S., Kivlahan, D. R., & Marlatt, G. A. (1999). *Brief alcohol screening and intervention for college students (BASICS): A harm reduction approach*. Guilford Press.

Eaton, E. M., Magill, M., Capone, C., Cramer, M. A., Mastroleo, N. R., Reavy, R., & Borsari, B. (2018). Mechanisms of behavior change within peer-implemented alcohol interventions. *Journal of Studies on Alcohol and Drugs*, *79*(2), 208–216. https://doi.org/10.15288/jsad.2018.79.208

El Ansari, W., Stock, C., John, J., Deeny, P., Phillips, C., Snelgrove, S., Adetunji, H., Hu, X., Parke, S., Stoate, M., & Mabhala, A. (2011). Health promoting behaviours and lifestyle characteristics of students at seven universities in the UK. *Central European Journal of Public Health*, *19*(4), 197–204. https://doi.org/10.21101/cejph.a3684

Family Health International. (2010). Evidence-Based Guidelines for Youth Peer Education.

Ford, P., Clifford, A., Gussy, K., & Gartner, C. (2013). A systematic review of peer-support programs for smoking cessation in disadvantaged groups. *International Journal of Environmental Research and Public Health*, *10*(11), 5507–5522. https://doi.org/10.3390/ijerph10115507

Fromme, K., & Corbin, W. (2004). Prevention of heavy drinking and associated negative consequences among mandated and voluntary college students. *Journal of Consulting and Clinical Psychology*, *72*(6), 1038–1049. https://doi.org/10.1037/0022-006X.72.6.1038

Georgie, J. M., Sean, H., Deborah, M. C., Matthew, H., & Rona, C. (2016). Peer-led interventions to prevent tobacco, alcohol and/or drug use among young people aged 11-21 years: A systematic review and meta-analysis. *Addiction (Abingdon, England)*, *111*(3), 391–407. https://doi.org/10.1111/add.13224

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Grant, J. D., Scherrer, J. F., Lynskey, M. T., Lyons, M. J., Eisen, S. A., Tsuang, M. T., True, W. R., & Bucholz, K. K. (2006). Adolescent alcohol use is a risk factor for adult alcohol and drug dependence: Evidence from a twin design. *Psychological Medicine*, *36*(1), 109–118. https://doi.org/10.1017/S0033291705006045

Hingson, R., Zha, W., & Smyth, D. (2017). Magnitude and trends in heavy episodic drinking, alcohol-impaired driving, and alcohol-related mortality and overdose hospitalizations among emerging adults of college ages 18-24 in the United States, 1998-2014. *Journal of Studies on Alcohol and Drugs*, *78*(4), 540–548. https://doi.org/10.15288/jsad.2017.78.540

Hingson, R. W., Zha, W., & Weitzman, E. R. (2009). Magnitude of and trends in alcohol-related mortality and morbidity among U.S. college students ages 18-24, 1998-2005. *Journal of Studies on Alcohol and Drugs*, (16), 12–20. https://doi.org/10.15288/jsads.2009.s16.12

Holt, M., & Powell, S. (2017). Healthy universities: A guiding framework for universities to examine the distinctive health needs of its own student population. *Perspectives in Public Health*, *137*(1), 53–58. https://doi.org/10.1177/1757913916659095

Hwang, H. L., Kuo, M. L., & Tu, C. T. (2018). Health education and competency scale: Development and testing. *Journal of Clinical Nursing*, *27*, 1–10. https://doi.org/10.1111/jocn.14116

Iarussi, M. M., Tyler, J. M., Crawford, S. H., & Crawford, C. (2016). Counselor training in two evidence-based practices: Motivational interviewing and cognitive behavior therapy. *The Journal of Counselor Preparation and Supervision*, *8*(3), 1–24. https://doi.org/10.7729/83.1113

Jenkins, E. K., Slemon, A., & Haines-Saah, R. J. (2017). Developing harm reduction in the context of youth substance use: Insights from a multi-site qualitative analysis of young people's harm minimization strategies. *Harm Reduction Journal*, *14*(1), 53. https://doi.org/10.1186/s12954-017-0180-z

Joanna Briggs Institute. (2017a). *Checklist for randomized controlled trials* (pp. 1–9). Joanne Briggs Institute. http://joannabriggs.org/research/critical-appraisal-tools.html

Joanna Briggs Institute. (2017b). *Checklist for quasi-experimental studies* (pp. 1–7). Joanne Briggs Institute. http://joannabriggs.org/research/critical-apprasal-tools.htlm

Kazdin, A. E., & Nock, M. K. (2003). Delineating mechanisms of change in child and adolescent therapy: Methodological issues and research recommendations. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *44*(8), 1116–1129. https://doi.org/10.1111/1469-7610.00195

King, T., & Fazel, M. (2021). Examining the mental health outcomes of school-based peer-led interventions on young people: A scoping review of range and a systematic review of effectiveness. *PLoS ONE*, *16*(4), e0249553. https://doi.org/10.1371/journal.pone.0249553

Kulesza, M., McVay, M. A., Larimer, M. E., & Copeland, A. L. (2013). A randomized clinical trial comparing the efficacy of two active conditions of a brief intervention for heavy college drinkers. *Addictive Behaviors*, *38*(4), 2094–2101. https://doi.org/10.1016/j.addbeh.2013.01.008

Larimer, M. E., & Cronce, J. M. (2007). Identification, prevention, and treatment revisited: Individual-focused college drinking prevention strategies 1999-2006. *Addictive Behaviors*, *32*(11), 2439–2468. https://doi.org/10.1016/j.addbeh.2007.05.006

Larimer, M. E., Turner, A. P., Anderson, B. K., Fader, J. S., Kilmer, J. R., Palmer, R. S., & Cronce, J. M. (2001). Evaluating a brief alcohol intervention with fraternities. *Journal of Studies on Alcohol*, *62*(3), 370–380. https://doi.org/10.15288/jsa.2001.62.370

Levac, D., Colquhoun, H., & O'Brien, K. K. (2010). Scoping studies: Advancing the methodology. *Implementation Science*, *5*(1), 1–9. https://doi.org/10.1186/1748-5908-5-69

Li, L., Zhu, S., Tse, N., Tse, S., & Wong, P. (2016). Effectiveness of motivational interviewing to reduce illicit drug use in adolescents: A systematic review and meta-analysis. *Addiction*, *111*(5), 795–805. https://doi.org/10.1111/add.13285

Lin, C. A., Christensen, J. L., & Basaran, A. B. (2022). Know your safe drinking skills: Adaptation strategies for the college effect. *Social Sciences*, *11*(1), 18. https://doi.org/10.3390/socsci11010018

Lovell, K., Bower, P., Richards, D., Barham, M., Sibbald, B., Roberts, C., Davies, L., Rogers, A., Gellatly, J., & Hennessy, S. (2008). Developing guided self-help for depression using the Medical Research Council complex interventions framework: A description of the modelling phase and results of an exploratory randomised controlled trial. *BMC Psychiatry*, *8*, 91. https://doi.org/10.1186/1471-244X-8-91

Margison, F. R., Barkham, M., Evans, C., McGrath, G., Clark, J. M., Audin, K., & Connell, J. (2000). Measurement and psychotherapy. Evidence-based practice and practice-based evidence. *The British Journal of Psychiatry: The Journal of Mental Science*, *177*, 123–130. https://doi.org/10.1192/bjp.177.2.123

Martinez, J. A., Sher, K. J., & Wood, P. K. (2014). Drinking consequences and subsequent drinking in college students over 4 years. *Psychology of Addictive Behaviors: Journal of the Society of Psychologists in Addictive Behaviors*, *28*(4), 1240–1245. https://doi.org/10.1037/a0038352

Mastroleo, N. R. (2008). *Comparison of supervision training techniques in a motivational enhancement intervention on college student drinking* [doctoral dissertation]. The Pennsylvania State University.

Mastroleo, N. R., Magill, M., Barnett, N. P., & Borsari, B. (2014). A pilot study of two supervision approaches for peer-led alcohol interventions with mandated college students. *Journal of Studies on Alcohol and Drugs*, *75*(3), 458–466. https://doi.org/10.15288/jsad.2014.75.458

Mastroleo, N. R., Turrisi, R., Carney, J. L. V., Ray, A. E., & Larimer, M. E. (2010). Examination of posttraining supervision of peer counselors in a motivational enhancement intervention to reduce drinking in a sample of heavy-drinking college students. *Journal of Substance Abuse Treatment*, *39*(3), 289–297. https://doi.org/10.1016/j.jsat.2010.06.005

Miller, T., Chandler, L., & Mouttapa, M. (2015). A needs assessment, development, and formative evaluation of a health promotion smartphone application for college students. *American Journal of Health Education*, *46*, 207–215. https://doi.org/10.1080/19325037.2015.1044138

Mohammadi, M., Ghaleiha, A., & Rahnama, R. (2019). Effectiveness of a peer-led behavioral intervention program on tobacco use-related knowledge, attitude, normative beliefs, and intention to smoke among adolescents at Iranian public high schools. *International Journal of Preventive Medicine*, *10*, 111. https://doi.org/10.4103/ijpvm.IJPVM_493_17

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine*, *6*(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097

Moore, G., Audrey, S., Barker, M., Bond, L., Bonell, C., Cooper, C., Hardeman, W., Moore, L., O'Cathain, A., Tinati, T., Wight, D., & Baird, J. (2014). Process evaluation in complex public health intervention studies: The need for guidance. *Journal of Epidemiology and Community Health*, *68*(2), 101–102. https://doi.org/10.1136/jech-2013-202869

Moreno-Guerrero, A. J., Rodríguez-Jiménez, C., Gómez-García, G., & Ramos Navas-Parejo, M. (2020). Educational innovation in higher education: Use of role playing and educational video in future Teachers' training. *Sustainability*, *12*(6), 2558. https://doi.org/10.3390/su12062558

Moyers, T. B., Martin, T., Christopher, P. J., Houck, J. M., Tonigan, J. S., & Amrhein, P. C. (2007). Client language as a mediator of motivational interviewing efficacy: Where is the evidence? *Alcoholism, Clinical and Experimental Research*, *31*(10), 40s–47s. https://doi.org/10.1111/j.1530-0277.2007.00492.x

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Muli, N., & Lagan, B. M. (2017). Perceived determinants to alcohol consumption and misuse: A survey of university students. *Perspectives in Public Health*, *137*(6), 326–336. https://doi.org/10.1177/1757913917710569

National Institute on Alcohol Abuse and Alcoholism. (2019). *Planning alcohol interventions using NIAAA's CollegeAIM*. Alcohol Intervention Matrix. Revised and updated.

National Institute on Alcohol Abuse and Alcoholism. (2020). Alcohol facts and statistics. https://www.niaaa.nih.gov/sites/default/files/publications/NIAAA_Alcohol_FactsandStats_102020.pdf

Neighbors, C., Larimer, M. E., Lostutter, T. W., & Woods, B. A. (2006). Harm reduction and individually focused alcohol prevention. *The International Journal on Drug Policy*, *17*(4), 304–309. https://doi.org/10.1016/j.drugpo.2006.05.004

Newton, F. B., & Ender, S. C. (2010). *Students helping students: A guide for peer educators on college campuses* (2nd ed.). Jossey-Bass.

O'Cathain, A., Croot, L., Duncan, E., Rousseau, N., Sworn, K., Turner, K. M., Yardley, L., & Hoddinott, P. (2019). Guidance on how to develop complex interventions to improve health and healthcare. *BMJ Open*, *9*(8), e029954. https://doi.org/10.1136/bmjopen-2019-029954

O'Hara, R. E., Armeli, S., & Tennen, H. (2015). College students' drinking motives and social-contextual factors: Comparing associations across levels of analysis. *Psychology of Addictive Behaviors: Journal of the Society of Psychologists in Addictive Behaviors*, *29*(2), 420–429. https://doi.org/10.1037/adb0000046

Orsal, O., & Ergun, A. (2021). The effect of peer education on decision-making, smoking-promoting factors, self-efficacy, addiction, and behavior change in the process of quitting smoking of young people. *Risk Management and Healthcare Policy*, *14*, 925–945. https://doi.org/10.2147/RMHP.S280393

Palmer, R. S., Kilmer, J. R., Ball, S. A., & Larimer, M. E. (2010). Intervention defensiveness as a moderator of drinking outcome among heavy-drinking mandated college students. *Addictive Behaviors*, *35*(12), 1157–1160. https://doi.org/10.1016/j.addbeh.2010.08.009

Patrick, M. E., Terry-McElrath, Y. M., Evans-Polce, R. J., & Schulenberg, J. E. (2020). Negative alcohol-related consequences experienced by young adults in the past 12 months: Differences by college attendance, living situation, binge drinking, and sex. *Addictive Behaviors*, *105*, 106320. https://doi.org/10.1016/j.addbeh.2020.106320

Pueyo-Garrigues, M., Whitehead, D., Pardavila, M. I., Canga-Armayor, A., Pueyo-Garrigues, S., & Canga-Armayor, N. (2019). Health education: A Rogerian concept analysis. *International Journal of Nursing Studies*, *94*, 131–138. https://doi.org/10.1016/j.ijnurstu.2019.03.005

Pueyo-Garrigues, S. (2021). *Diseño, implementación y evaluación de una intervención preventiva sobre el consumo de alcohol, liderada por pares, en estudiantes universitarios. un ensayo exploratorio* [Unpublished doctoral dissertation]. University of Navarra.

Reid, A. E., & Carey, K. B. (2015). Interventions to reduce college student drinking: State of the evidence for mechanisms of behavior change. *Clinical Psychology Review*, *40*, 213–224. https://doi.org/10.1016/j.cpr.2015.06.006

Sekhon, M., Cartwright, M., & Francis, J. J. (2017). Acceptability of healthcare interventions: An overview of reviews and development of a theoretical framework. *BMC Health Services Research*, *17*(1), 88. https://doi.org/10.1186/s12913-017-2031-8

Simoni, J. M., Franks, J. C., Lehavot, K., & Yard, S. S. (2011). Peer interventions to promote health: Conceptual considerations. *The American Journal of Orthopsychiatry*, *81*(3), 351–359. https://doi.org/10.1111/j.1939-0025.2011.01103.x

Stamper, G. A., Smith, B. H., Gant, R., & Bogle, K. E. (2004). Replicated findings of an evaluation of a brief intervention designed to prevent high-risk drinking among first-year college students: Implications for social norming theory. *Journal of Alcohol and Drug Education*, *48*(2), 53–72.

Suárez-Reyes, M., Muñoz Serrano, M., & Van den Broucke, S. (2019). How do universities implement the health promoting university concept? *Health Promotion International*, *34*(5), 1014–1024. https://doi.org/10.1093/heapro/day055

Tollison, S. J., Mastroleo, N. R., Mallett, K. A., Witkiewitz, K., Lee, C. M., Ray, A. E., & Larimer, M. E. (2013). The relationship between baseline drinking status, peer motivational interviewing microskills, and drinking outcomes in a brief alcohol intervention for matriculating college students: A replication. *Behavior Therapy*, *44*(1), 137–151. https://doi.org/10.1016/j.beth.2012.09.002

Turrisi, R., Larimer, M. E., Mallett, K. A., Kilmer, J. R., Ray, A. E., Mastroleo, N. R., Geisner, I. M., Grossbard, J., Tollison, S., Lostutter, T. W., & Montoya, H. (2009). A randomized clinical trial evaluating a combined alcohol intervention for high-risk college students. *Journal of Studies on Alcohol and Drugs*, *70*(4), 555–567. https://doi.org/10.15288/jsad.2009.70.555

Wagstaff, J. (2015). *Brief alcohol screening and intervention for college students (BASICS): A qualitative study of the experiences of mental health practitioners on the college campus*. [Doctoral dissertation]. Virginia Polytechnic Institute and State University.

White, A., & Hingson, R. (2013). The burden of alcohol use: Excessive alcohol consumption and related consequences among college students. *Alcohol Research: Current Reviews*, *35*(2), 201–218.

Wolter, C., Lesener, T., Thomas, T. A., Hentschel, A. C., & Gusy, B. (2021). Finding the right balance: A social norms intervention to reduce heavy drinking in university students. *Frontiers in Public Health*, *9*, 653435. https://doi.org/10.3389/fpubh.2021.653435

Worsley, J., Pennington, A., & Corcoran, R. (2020). What interventions improve college and university students' mental health and wellbeing? A review of review-level evidence. *National Grey Literature Collection*, 1–54.

## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**How to cite this article:** Lavilla-Gracia, M., Pueyo-Garrigues, M., Pueyo-Garrigues, S., Pardavila-Belio, M. I., Canga-Armayor, A., Esandi, N., Alfaro-Díaz, C., & Canga-Armayor, N. (2022). Peer-led interventions to reduce alcohol consumption in college students: A scoping review. *Health & Social Care in the Community*, *30*, e3562–e3578. https://doi.org/10.1111/hsc.13990

13652524, 2022, 6, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/hsc.13990 by Universidad de Navarra, Wiley Online Library on [26/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License