Literature Review

APPLYING SOCIAL MARKETING TECHNIQUES TO REDUCE PROBLEMATIC DRINKING AMONG UK UNIVERSITY STUDENTS: A QUASI-SYSTEMATIC REVIEW

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ABSTRACT

Purpose

University students are at a lifecourse stage of gaining independence in choices about health risk behaviours, including alcohol consumption. Individual, social, and environmental factors within university settings contribute to the appeal of drinking. Social marketing has potential to modify health behaviours, yet its application in alcohol-reduction interventions remains unclear. This study synthesises evidence on how social marketing techniques have been applied to reduce problematic drinking among UK university students.

Study design/methodology/approach

A quasi-systematic review was conducted using CINAHL, MEDLINE, Cochrane Library, Academic Search Complete, PsycINFO, SportDiscus, Web of Science, and Business Source Complete. A narrative synthesis was conducted to identify the social marketing techniques applied within interventions and evaluate their usefulness.

Findings

Eleven studies published between 2008 and 2019 met the inclusion criteria. All incorporated behavioural goal setting, consumer orientation, motivational exchange, and methods mix, while fewer addressed theory, segmentation and targeting, competition, or actionable insights. Application of social marketing was often ambiguous, with few interventions integrating multiple techniques. Only four studies reported significant reductions in alcohol consumption. Most studies exhibited moderate to high risk of bias, limiting confidence in their findings.

Originality/value

By combining multiple studies and evaluating methodological quality, this review highlights how some social marketing techniques are underutilised in alcohol-reduction

interventions among university students, a population at higher risk of harm. The authors propose a programme of research to examine the effectiveness of comprehensive integration of social marketing techniques using rigorous evaluative methods.

Keywords

Social marketing, alcohol consumption, young adults, university students, health promotion, behaviour change

INTRODUCTION

Alcohol consumption is a major risk factor for disease burden in Europe (Murray *et al.,* 2020), which has the highest per capita intake globally (WHO, 2024). School surveys indicate that drinking begins around age 15, with heavy episodic drinking peaking between 20 and 24 years (WHO, 2024), a key demographic within university student populations (HESA, 2019). Young adulthood thus presents a critical window for prevention, as students transition towards independent decision-making about health behaviours (Stewart-Brown *et al.,* 2000).

Excessive alcohol consumption in the UK remains a pressing concern, associated with academic underperformance, mental health problems, and chronic disease risks such as liver cancer (Turrill, 2025). Despite widespread awareness of these risks, hazardous drinking behaviours persist. The Student, Alcohol and Drugs Survey 2023–2024 found that 46% of respondents believed students frequently got drunk before university. Regular drinking is increasing, with 29% reporting pre-drinking at home before a night out (up from 16% the previous year), and 38% admitting to missing classes due to alcohol use (up from 28%). Meanwhile, alcohol abstinence is declining, with only 12% reporting never having consumed alcohol, down from 18% (Student, Alcohol and Drugs Survey, 2024).

Multiple factors shape student drinking behaviours. Peer pressure and perceptions of social acceptability are major influences (Griffin *et al.,* 2018). Alcohol is often central to social identity during the transition to adulthood (Mallett *et al.,* 2009; Seaman and Ikegwuonu, 2010), reinforced by media portrayals on platforms like TikTok where alcohol-related content normalises binge drinking while downplaying its risks (Russell *et al.*, 2021;

Vranken *et al*., 2023). Emotional and mental health are also critical determinants of drinking behaviours, whereby alcohol use is linked to depression and anxiety (Kuntsche *et al.,* 2005; Bellos *et al.,* 2013), and a coping mechanism for academic or familial stressors (Surkan *et al.,* 2012; Dvorak *et al.,* 2013). Parental attitudes and family history also shape drinking patterns. Adolescents with low family connectedness, limited nurturance or supervision, parental leniency toward drinking, or a parental history of alcohol problems are more likely to engage in heavy drinking (Pape *et al.,* 2017; Foxcroft *et al.,* 2022). The pursuit of independence and freedom during university further fuels risky behaviours once restricted by parents (Lorant *et al.,* 2013). Conversely, strong family support and access to counselling can mitigate these risks (Perkins *et al.,* 2011; Van Ryzin *et al.,* 2012).

Environmental factors also play a role. Alcohol marketing and advertising normalise drinking, challenging health promotion efforts (Anderson et al., 2009; Jernigan et al., 2017). Affordability, availability, and accessibility of alcohol on and off campus (Martín-Turrero *et al.,* 2022) and proximity to drinking establishments, density of bars in an area and alcohol sale policies further drive consumption (Seid *et al.,* 2018). A lack of recreational alternatives within university settings may also encourage drinking (Muli and Lagan, 2017).

Social marketing is a consumer-centred approach to behaviour change that applies commercial marketing principles to promote social and health outcomes (Andreasen, 2002; NSMC, 2023). Distinct from traditional health education or awareness campaigns, social marketing prioritises a behavioural focus, grounded in an understanding of the audience's motivations, barriers, and environmental contexts (Lee and Kotler, 2011; Davoren *et al.*, 2016). It incorporates key marketing concepts such as exchange (cost-benefit), segmentation (targeting sub-groups), and the marketing mix (product, price, place, promotion) to tailor interventions effectively (Douglas *et al.*, 2008; Hastings, 2007). This contextual and consumer-driven approach enables social marketing to address complex health behaviours, such as excessive alcohol consumption, where immediate rewards of such outweigh long-term harms (Davoren *et al.*, 2016).

The National Social Marketing Centre (NSMC), established by the UK Department of Health and National Council, developed a benchmark framework to maximise the

effectiveness of social marketing in health promotion (Gordon *et al.*, 2006; Hastings, 2007). Building on Andreasen's (2002) six foundational elements: behaviour change, consumer research, segmentation and targeting, marketing mix, exchange, and competition; the NSMC introduced an eight-benchmark criteria. These require interventions to have distinct *behavioural goals*, utilise *consumer research* and pretesting, be *insight-driven*, apply *segmentation and targeting*, be *theory-informed*, employ a comprehensive *marketing mix*, foster *motivating exchanges*, and address *competing influences* (NSMC, 2023). These benchmarks offer a practical framework for designing and evaluating social marketing interventions.

Social marketing has shown the potential to reduce alcohol-related behaviours and harms (Hastings, 2007). In the UK, for instance, the Department of Health collaborated with industry partners to fund and deliver a campaign aimed at encouraging responsible drinking and changing public attitudes towards alcohol consumption (Department of Health, 2010). However, the effectiveness of such campaigns in reducing alcohol-related harms among university students has been under-explored, and more research is needed to evaluate how different social marketing techniques are applied in UK universities to reduce problematic drinking (Kubacki *et al.,* 2015). This review addresses this gap by assessing the application and quality of evidence to support the value of social marketing techniques for reducing alcohol consumption in this important context for health promotion.

METHODS

Search strategy and search terms

A systematic search was conducted between June 8–19, 2023, across CINAHL, MEDLINE, Cochrane Library, Academic Search Complete, PsycINFO, SportDiscus, Web of Science, and Business Source Complete. An initial scoping search using "social marketing" and "social norms marketing" yielded limited results, prompting expansion of search terms to include "health promotion," "health education," and "health campaigns." Full search terms are presented in *Table I*. Reference lists of identified studies were also reviewed to enhance search sensitivity.

Table I: Search terms used to search databases

Search Term 1 (intervention)		**Search Term 2 (outcomes assessed)**		**Search Term 3 (population)**		**Search Term 4 (context)**
"Social marketing" **OR** **"Social norms marketing"** **OR** **"Health promotion"** **OR** **"Health educat*"** **OR** **Campaign*** **OR** **"Publicity campaign*"** **OR** **"Information campaign*"**	**AND**	"Excessive alcohol use" **OR** "Excessive alcohol consumption" **OR** Alcohol* **OR** "Hazardous drinking" **OR** "Harmful drinking" **OR** "Binge drinking" [MH] **OR**	**AND**	"Young adult*" **OR** "Emerging adult*" **OR** "University student*" **OR** "College student*" **OR** "Undergraduate student*"	**AND**	UK **OR** "United Kingdom" **OR** Wales **OR** Scotland **OR** "Northern Ireland" **OR** England

OR	“Binge
“Mass	alcohol
communication	consumption”
campaign*”	[MH]
OR	**OR**
Intervention*	“Reduc*
OR	alcohol*”
“Community	**OR**
intervention*”	“Alcohol
	intake”
	OR
	“Drinking
	alcohol”
	OR
	“Alcohol use”
	OR
	“Alcohol
	related harms”
	OR
	“Student
	drinking”
	[MH]
	OR

	"College drinking" [MH] **OR** "University student drinking" [MH]

MH – Mesh Terms used to broaden search, used in all databases

***Asterisk symbol used to denote truncation**

Inclusion and Exclusion Criteria

The review included primary research evaluating alcohol-reduction interventions in UK university populations. The inclusion criteria (*Table II*) required peer-reviewed studies published in English to ensure accessibility and avoid translation bias. Eligible studies explicitly or implicitly employed social marketing benchmarks. Primary outcomes included reductions in alcohol consumption or behavioural change, while secondary outcomes assessed awareness, attitudes, and academic or health impacts.

Although various study designs can inform behaviour change (Fernainy *et al.,* 2024), this review focused on randomised controlled trials (RCTs). Our scoping review found most eligible studies already employed RCTs, and this focus enhanced methodological consistency and comparability of findings across studies, supporting the rigour and internal validity of the synthesis.

Table II: Inclusion and exclusion criteria of studies

Inclusion	**Exclusion**

Population focus	University students who are alcohol consumers	Non-consumers of alcohol, non-university students
Intervention	Interventions involving social marketing benchmarks	Interventions that do not include social marketing benchmarks
Outcome	Reduced alcohol consumption and alcohol-related harms Motivation-related outcomes that lead to subsequently reduced alcohol consumption	Outcomes not related to reduced alcohol consumption, i.e., combined harms such as alcohol and drug use together or reduction of different health-related behaviour
Research Type	All empirical research: qualitative, quantitative and mixed-method research	-
Research Design	Randomized control trials, case-control studies, cohort studies	Cross-sectional studies, case series, case reports
Type of publication	Peer-reviewed articles	Non-peer-reviewed articles/ PhD theses
Language	Articles written in English	Articles not written in or translated into English
Dates	Articles published between 1st January 2005 – 1st May 2023	Articles published before 1st January 2005
Availability	Articles can be accessed in full text	Articles cannot be accessed in full text

Geography	Studies that report data from the UK	Studies that report data from outside the UK

Study Selection Process

The review adopted a quasi-systematic methodology aligned with MECIR standards for rigour and transparency (Higgins *et al.,* 2021). One researcher (LM) conducted searches, screened titles and abstracts, and removed duplicates in EndNote before full-text review. A second researcher (SJH) independently verified selections. Reference lists of included studies and relevant reviews were also checked.

The Risk of Bias (RoB) tool for randomised control trials, as recommended by Sterne *et al.* (2019), was employed to assess the methodological quality of the selected studies.

Data Extraction and Synthesis

Data extraction followed Popay *et al.*'s (2006) narrative synthesis framework:

1. Theory of Change: The NSMC's eight benchmarks were used to classify social marketing techniques.
2. Preliminary Synthesis: Study characteristics, intervention components, and outcomes were tabulated to identify benchmark application patterns.
3. Exploring Relationships in Data: Text was coded for descriptive themes aligned with benchmarks, grouped into higher-order categories reflecting the review question, and synthesised into analytical themes. Contextual factors such as study setting and population were considered to explain variations in reported outcomes.
4. Robustness of Synthesis: The strength of evidence was assessed by appraising study methodological quality and the consistency of findings across contexts.

The first author (LM) extracted key details (study characteristics, intervention type, benchmarks, outcomes, and risk of bias). Both authors reviewed extracted data independently and resolved discrepancies through discussion.

RESULTS

Literature search findings

The search yielded 2,905 studies. After title screening, 225 remained, and 158 records were retained post-duplication removal. LM screened abstracts, shortlisting 54 papers for full-text review, resulting in 11 eligible studies. No additional papers were identified through reference list checks of existing systematic reviews and included studies. *Figure I* outlines the selection process based on the PRISMA flow diagram.

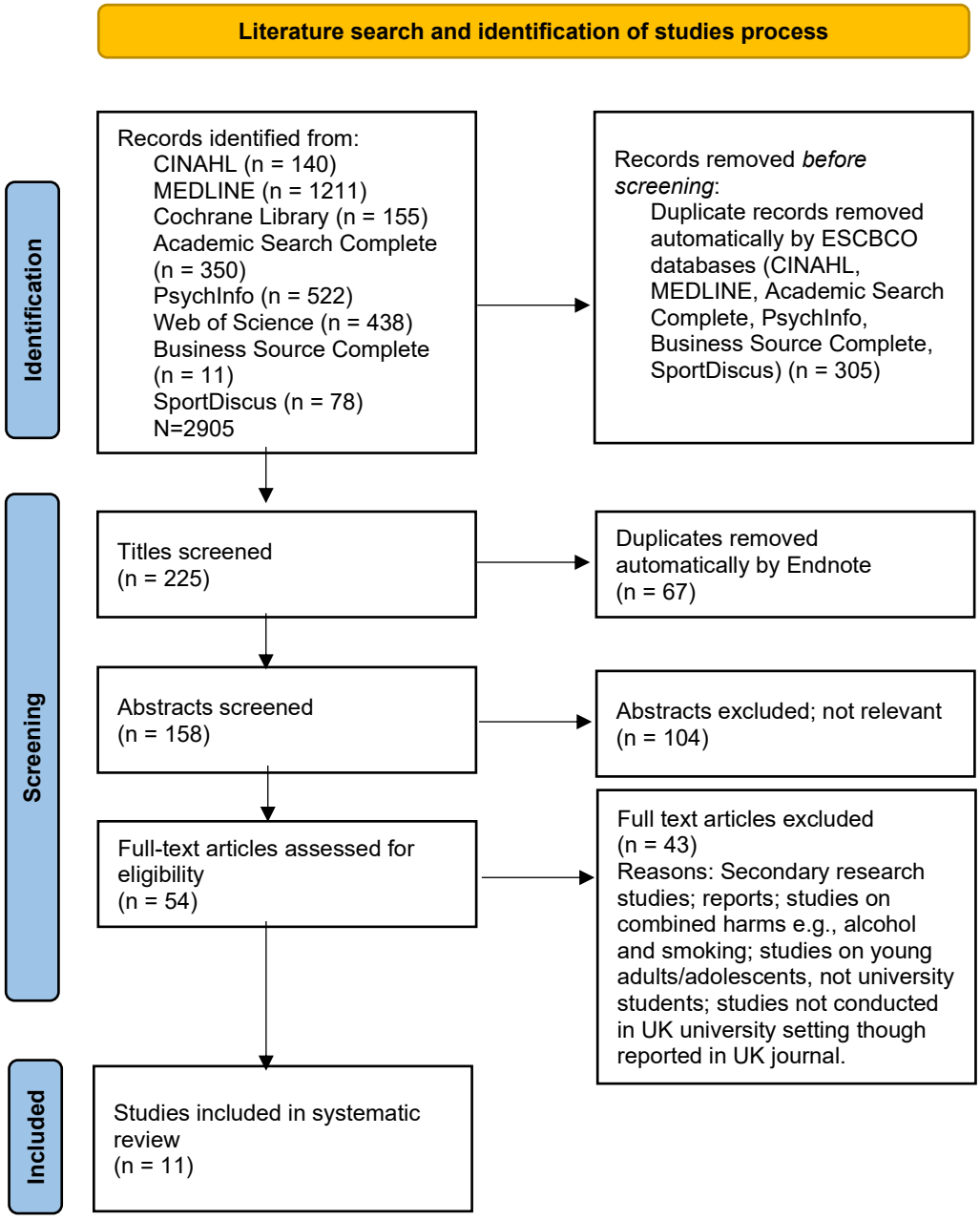

Figure I: Study selection process based on the PRISMA Flow diagram (Page *et al.*, 2021)

Alt Text: PRISMA flowchart to show how the 11 included studies were selected after duplicate removal, title and abstract screening and full-text review.

Preliminary Synthesis

The included RCTs (*Table III*) employed diverse strategies to reduce alcohol consumption, with sample sizes ranging from 103 to 2,951 participants across institutions in England, Wales, and Scotland. Recruitment methods included emails, posters, digital ads, bulletin boards, online systems, and verbal reminders.

Interventions were categorised into four distinct approaches based on their core design and delivery components: **(i)** web-based personalised feedback and social norms information (n=6) (Bewick *et al.*, 2008, 2010, 2013; Moreira *et al.*, 2012; Clarke *et al.*, 2015; McClatchey *et al.*, 2017); **(ii)** social norms campaigns (n=1) (Moore *et al.*, 2013); **(iii)** self-affirmation manipulations (n=3) (Knight and Norman, 2016; Norman *et al.*, 2018; Norman, Webb and Millings, 2019); and **(iv)** combined interventions (n=3) (Hagger, Lonsdale and Chatzisarantis, 2012; Norman *et al.*, 2018; Norman, Webb and Millings, 2019). While all interventions sought to influence perceptions, motivations, and behaviours related to alcohol, they varied in content, psychological techniques, and delivery formats.

Statistically significant reductions in alcohol consumption were reported in studies using personalised feedback (Bewick *et al.*, 2008, 2010, 2013), mental simulation (Hagger *et al.*, 2012), and theory-based messaging (Norman *et al.*, 2018). Social norms campaigns, brief interventions, and self-affirmation components generally produced mixed or non-significant results (e.g., Moore *et al.,* 2013; Knight and Norman, 2016; Norman *et al.,* 2019). Intervention duration ranged from one-off sessions (e.g., Bewick *et al.,* 2008; Norman et al., 2018) to multi-week programmes with repeated engagement (e.g., Hagger *et al.,* 2012).

Table III: Characteristics of included studies

Author (Year)	**Study Design & Duration**	**Sample**	**Intervention Type**	**Control Group**	**Measures**	**Alcohol-reduction outcome assessed**	**Outcome Significance**	**Risk of bias judgement**
(Bewick et al., 2008)	RCT ; 12 weeks	Leeds students (N = 506)	Web-based personalized feedback, social norms intervention, generic information	Assessment only	*Pre-test:* CAGE - screening alcohol use disorders *Post-test:* five-point scale on usefulness of PFI	Reduced units of alcohol consumed over last week and on average occasion; gender differences; effectiveness of intervention on heavy drinkers	*Significant reduction* in per-average alcohol consumption	High
(Bewick et al., 2010)	RCT – 3 arms (control, immediate, delayed access to	Multisite investigation; four UK universities (N = 1112)	Web-based (Unitcheck) personalized feedback, social norms information,	Assessment electronic survey only	7-day retrospective drinking diary, AUDIT, 3-	Reduced alcohol intake regardless of availability of	*Significant reduction* in weekly alcohol units	High

	interventi on) ; 27 weeks		generic information		question algorithm to assess RTC	intervention over the academic year	consume d	
(Bewick et al., 2013)	RCT ; 34 weeks	University of Leeds (N =1618)	Web-based (Unitcheck) personalized feedback, social norms information, generic information	Self-assessments using online survey	CAGE, questions to assess risk behaviour over last 12 months	Reduced alcohol consumption	*Significa nt reduction* in past-week consumpt ion	Moderat e
(Clarke, Field and Rose, 2015)	RCT ; Active control group	University of Liverpool (N = 103)	Web-based Brief Personalized Intervention	Drinking assessment and engagement with alcohol-related information	AUDIT, TLFB, RTC Contemplation Ruler, Active Control by interacting with the alcohol section (‘Choose Less Booze’) of the Change4Life website and BPI	Reduced fortnightly consumption and binge frequency in BPI group	*Not significan t*	Low
(Hagger, Lonsdale and	RCT (two-factor	Undergradu ates - University	Combined Intervention s: Theory-	-	Self-reported alcohol behaviour,	Reduced alcohol consumption	*Significa nt effect* of mental	Low

Chatzisarantis, 2012)	design) ; 1-month follow-up period	of Nottingham (19 academic departments) (N = 709)	based motivational (outcome mental simulations) and volitional (implementation intentions) strategy via online communication method		psychological measures	over guideline limits on single occasions Reduced units of alcohol consumed and fewer heavy episodic drinking occasions by participants allocated to the combined conditions than either condition alone	simulation only	
(Knight and Norman, 2016)	RCT (Between-participan	"Volunteers" of a UK university (N = 307)	Effects of self-affirmation manipulations (kindness	No separate control group; between-groups comparison across self-	Pre-test: demographics, screening question, baseline	Effects of the kindness questionnaire, a	*Not significant*	Moderate

	ts design); 1 week		questionnaire, values essay, attributes questionnaire) on health-risk message from Drinkaware alcohol campaign website on the dangers of binge drinking	affirmation conditions (kindness questionnaire, values essay, attributes questionnaire).	alcohol consumption Post-test: negative reactance, negative message evaluation, counter-arguing, perceived risk, intention to binge drink, plans to avoid binge drinking, self-affirmation manipulation check, follow-up alcohol consumption	values essay, and an attributes questionnaire on alcohol-related cognitions and behaviour in university students; whether binge drinking status at baseline moderates self-affirmation effects		
(McClatchey, Boyce and Dombrowski, 2017)	RCT	University in Scotland (N= 125)	Web-based alcohol brief intervention	Information leaflet only	AUDIT-C	Reduced alcohol consumption and change in patterns of drinking	*Not significant*	High

						behaviour in ABI group compared to information-only group		
(Moore et al., 2013)	Exploratory cluster RCT	First-year students in four Welsh Universities' halls of residence (N = 554)	Social norms intervention campaign. Key messages delivered by placement of posters, coasters, drinking glasses, meal planners and mirror stickers in halls of residence	No intervention materials placed in halls; students continued usual activities. Some contamination occurred due to exposure to materials in other halls or social spaces.	Demographics, intervention exposure/contamination, recall, evaluative responses and perceived impacts, perceived drinking norms using DNRF, alcohol consumption, pre-university alcohol consumption, acceptability of objective measures of alcohol consumption (hair samples)	Reduced alcohol consumption To examine impact on perceived descriptive and injunctive norms To examine the acceptability of requesting hair samples as an objective method of quantifying alcohol	*Not significant*	Low

						consumption in future definitive trial		
(Moreira et al., 2012)	RCT (intervention group and two control groups to control separately for intervention and measurement effects); 12 months	22 British Universities; first- and second-year undergraduates (N = 1751) (normative)	Normative web-based Brief Personalized Intervention	Screening/assessment only	Demographics, AUDIT, frequency of alcohol consumption, usual quantity of alcohol consumption, weekly drinking diary, self-reported scale on problematic behaviour, perceived norms using DNRF, positive alcohol expectancies using Alcohol Expectancies Questionnaire, social desirability responsiveness (Marlowe Crown scale)	Assess effectiveness of PNF in reducing risky drinking	*Not significant*	Low

(Norman et al., 2018)	RCT (2 X 2 factorial design) ; Immediate, one-month and six-month follow-up	New university students in a large UK city (N = 2951)	Combined interventions: Brief Personalized Intervention messages that target key beliefs from TPB that underlie binge drinking, a self-affirmation manipulation to reduce defensive processing, and implementation intentions (if-then plans to avoid binge drinking)	No-intervention (no TPB messages or implementation intention instructions)	Baseline alcohol consumption & AUDIT at 6-month follow-up, cognitions about binge drinking	Reduced alcohol intake due to messaging based on TPB; effects of messages on alcohol consumption would be mediated by change in cognitions concerning binge drinking Increased impact of the messages on binge drinking cognitions by self-affirmations Increased effect of the	*Significant* for TPB-based messaging on binge drinking and alcohol reduction	Moderate

						messages on alcohol consumption over the first six months at university due to forming implementation intentions		
(Norman, Webb and Millings, 2019)	RCT (2 X 2 factorial design) ; Immediate and one-month follow-up	All new undergraduates at UK universities (N = 493)	Combining motivational intervention (i.e., messages targeting TBP constructs) and volitional interventions (instructions to form simple implementat	No TPB messages and no implementation intention instructions	Frequency of binge drinking using Alcohol Outcomes Record, TBP cognitions about binge drinking	Reduced students' intentions to binge drink due to TPB-based messages, less favourable cognitions about binge drinking, and reduced	*Not significant*	Moderate

			ion intentions)			frequency of binge drinking Reduced frequency of binge drinking due to implementations to form implementation intentions Significant interaction of receiving messages and instructions to develop implementation intentions		
Abbreviations used: AUDIT: Alcohol Use Disorders Identification Test/ -C: Consumption								

BPI: Brief Personalized Intervention

DNRF: Drinking Norms Rating Form

PFI: Personalized Feedback Intervention

RCT: Randomized Control Trial

RTC: Readiness To Change

TBP: Theory of Planned Behaviour

TLFB: Timeline Follow Back Questionnaire

Assessing Robustness of the Synthesis (Critical Appraisal)

The RoB 2 tool identified variations in study quality. Four studies showed concerns with randomisation and allocation concealment (Bewick *et al.,* 2013; Knight and Norman, 2016; Norman *et al.,* 2018; Norman, Webb and Millings, 2019), while three presented potential bias due to lack of blinding (Bewick *et al.,* 2008; McClatchey *et al.,* 2017; Norman, Webb and Millings, 2019). Most relied on self-reported data, and attrition was particularly high among heavy drinkers, which may have influenced comparability. Overall, Hagger *et al.* (2012), Moreira *et al.* (2012), Moore *et al.* (2013), and Clarke *et al.* (2015) were rated as low risk of bias. Bewick *et al.* (2013), Knight and Norman (2016), and Norman *et al.* (2018, 2019) demonstrated moderate risk, while Bewick *et al.* (2008, 2010) and McClatchey *et al.* (2017) were rated high risk. Findings were interpreted with these limitations in mind.

Exploring relationships in the data

Table IV outlines the distribution of the eight benchmarks. All studies incorporated behavioural goals, consumer orientation, motivational exchange, and methods mix, while fewer addressed theory, segmentation and targeting, competition, or insights.

Table IV: Distribution of social marketing benchmarks in included studies

	Set behavioural goals	Consumer orientation	Insight-driven	Use of theory	Motivational exchange	Competition	Segmentation and targeting	Methods mix
Bewick et al., (2008)	✓	✓			✓		✓	✓
Bewick et al., (2010)	✓	✓			✓			✓
Bewick et al., (2013)	✓	✓			✓			✓
Clarke et al., (2015)	✓	✓			✓		✓	✓
Hagger et al., (2012)	✓	✓		✓	✓		✓	✓
Knight and Norman (2016)	✓	✓		✓	✓			✓
McClatchey et al., (2017)	✓	✓		✓	✓			✓
Moore et al. (2013)	✓	✓	✓	✓	✓	✓		✓
Moreira et al., (2012)	✓	✓		✓	✓		✓	✓

Norman et al. (2018)	✓	✓		✓	✓		✓	✓
Norman et al., (2019)	✓	✓		✓	✓		✓	✓

Application of the NSMC Social Marketing Benchmarks

Benchmark 1: Set behavioural goals

Interventions aimed to help students set achievable goals and monitor progress in reducing alcohol use, often tailoring approaches to participants' drinking patterns identified through pre-test assessments. Behaviour change was measured using various study-specific indicators and measures, such as the AUDIT-C tool used by Bewick *et al.* (2010) to measure behaviour change over the academic year.

Benchmark 2: Consumer Orientation

All studies justified targeting university students, using prior research or survey data. Some tailored messages by context, e.g., McClatchey *et al.* (2017) compared Scottish and American drinking patterns, while Moore *et al.* (2013) linked messages to students' residential environments and acknowledged competing influences such as alcohol promotions.

Partial applications included tailoring by risk level (Clarke et al., 2015), gender (Bewick et al., 2008), year of study (Moreira et al., 2012), and transitional stages, e.g., first year (Norman et al., 2018, 2019). Most, however, focused on individual determinants (attitudes, norms, intentions) rather than wider factors such as affordability, institutional policies, or peer culture.

Benchmark 3: Insight-driven intervention

Across the included studies, insight-driven intervention design was limited. Most interventions drew on survey data or baseline assessments to inform intervention development, typically identifying factors such as peer pressure, misperceptions of peer drinking behaviours, and independence from parental oversight as facilitators of alcohol use. However, these descriptive findings rarely translated into deeper insights about students' lived experiences or the contextual drivers of drinking behaviour. Only Moore et al. (2013) demonstrated clear use of actionable insights. Their formative research explored students' interpretations of alcohol-related messages, the social drinking cultures within

university residence halls, and the perceived credibility of different communication sources. These insights directly informed the framing and placement of their social norms campaign, ensuring alignment with students' immediate social environments.

Benchmark 4: Use of Theory

Behavioural theory featured strongly across the reviewed interventions, with the Theory of Planned Behaviour (TPB) most frequently applied, followed by Self-Affirmation Theory, Social Norms Theory, and Social Learning Theory.

The Theory of Planned Behaviour (Ajzen, 1991) proposes that behaviour is influenced by intentions shaped by attitudes, subjective norms, and perceived behavioural control. Norman *et al.* (2018, 2019) applied this framework to design self-affirmation messages and implementation intentions targeting binge drinking among new students. These interventions reduced alcohol consumption and harmful drinking patterns during the first six months, though effects declined over time. Hagger *et al.* (2012) combined TPB with mental simulations and implementation intentions, showing reduced consumption and episodic drinking in participants in combined intervention conditions compared to individual intervention or control groups.

Similarly, Moore et al. (2013) integrated TPB with Social Learning Theory (SLT) in a social norms campaign aimed at correcting descriptive and injunctive norms among first-year students. While perceived norms shifted positively, the intervention achieved limited changes in actual drinking behaviour.

Self-Affirmation Theory (Steele, 1988) suggests that individuals are more receptive to health messages when their self-concept is not threatened. Knight and Norman (2016) and Norman *et al.* (2018) incorporated self-affirmation messages encouraging reflection on values before exposure to risk information. These studies reported reduced consumption and binge drinking intentions, as well as altered cognitive and affective attitudes towards alcohol use. However, both raised methodological concerns related to self-reported outcomes and potential bias arising from participants' awareness of the intervention.

Despite these limitations, self-affirmation strategies appeared effective in reducing defensive responses to health messages and promoting healthier drinking behaviours.

The Social Norms Theory (Perkins and Berkowitz, 1986) suggests that perceptions of peer behaviours influence individuals' behaviours. Moreira *et al.* (2012) applied this framework to develop a social norms intervention correcting misperceptions of peer alcohol consumption, which successfully altered perceived norms but did not yield significant behavioural change. Similarly, Moore *et al.* (2013) demonstrated that descriptive and injunctive norms can be influenced through targeted messaging, though behavioural effects remained limited.

Finally, Social Learning Theory (Bandura, 1977) emphasises that behaviour is learned through observing others and the outcomes of their actions. Moore *et al.* (2013) combined SLT with TPB in a social norms campaign, recognising the susceptibility of first-year students to peer influence. The intervention successfully altered perceived norms about acceptable drinking behaviours through targeted communication strategies, but its impact on reducing alcohol use was minimal. This finding underscores the limitations of social norms campaigns that fail to address the underlying motivations for alcohol consumption or offer alternative coping mechanisms.

Benchmark 5: Motivational exchange

The interventions aimed to create a reciprocal exchange by offering incentives as a motivating factor to engage with the intervention and change their drinking habits. The studies utilised both uncertain incentives (e.g., prize draws) and certain incentives (e.g., guaranteed tokens or supplies), acknowledging the varying effectiveness of these approaches. For instance, Bewick et al. (2010) and Moore *et al.* (2013) offered prize draws, where participants had a chance to win prizes, creating an element of uncertainty, while McClatchey *et al.,* (2017) provided tokens or essential university supplies like printer credits, ensuring every participant received a reward for their engagement. These variations in incentive structures likely influenced participant motivation, as uncertain incentives may appeal to individuals motivated by potential gains, while certain incentives provide immediate tangible benefits (Mantzari *et al.,* 2015).

Benchmark 6: Competition

Only Moore *et al.* (2013) considered competition, exploring students' exposure to alcohol-promoting communications in relation to "happy hours", on-campus and off-campus drinking. While there was evident change in perceived norms, behavioural outcomes were minimal.

Benchmark 7: Segmentation and targeting

Segmentation strategies varied across the studies. Moreira *et al.* (2012) applied risk-based targeting, referencing the prevention paradox (Rose, 2001), which suggests that interventions addressing the general population may yield greater public health benefits, even if individual effects are smaller. This approach informed strategies aimed at both high-risk drinkers and the wider student population. Clarke *et al.* (2015) tailored feedback based on risk categories (low, moderate, high), while Hagger *et al.* (2012) focused specifically on high-risk drinkers by combining mental simulation and implementation intentions, achieving significant reductions in alcohol consumption. Bewick *et al.* (2008) adopted a targeted universalism approach, setting broad behavioural goals while tailoring interventions for heavy drinkers and exploring gender differences. Life-course segmentation was also evident in Moreira *et al.* (2012), which targeted first- and second-year students to address overestimation of peer alcohol consumption, which is a known factor that increases peer pressure to conform. Similarly, Norman *et al.* (2018, 2019) focused on incoming university students, recognising the transition to university as a critical stage for behavioural and attitudinal change (Wood *et al.,* 2005).

Benchmark 8: Methods mix

Consistent with Carins and Rundle-Thiele (2013), all interventions demonstrated at least two elements of the marketing mix. "Promotion" was the most prominent component, evident in digital communications, reminder emails, and web-based delivery platforms used in personalised feedback interventions (Bewick *et al.,* 2008, 2010, 2013; Clarke *et al.,* 2015; McClatchey *et al.,* 2017). The "product" often comprised interactive online feedback tools, personalised drinking reports, and tailored behavioural advice, while

campaign-based studies such as Moore *et al.* (2013) offered tangible materials (cups, coasters, and posters), reinforcing social norms messages in student residences. “Place” elements involved web platforms and campus environments where interventions were delivered, making participation convenient and relevant to students’ daily routines. “Price” was rarely articulated, as few interventions explicitly addressed the social or psychological costs of reducing alcohol consumption, such as loss of peer approval or social enjoyment. The details provided for each intervention illustrate a narrow interpretation of the marketing mix, with limited integration of all four components to create a holistic social marketing strategy.

DISCUSSION

This review provides valuable insights into how social marketing benchmarks are applied in alcohol-reduction interventions targeting UK university students. Behavioural goals, consumer orientation, and motivational exchange were consistently used across studies, along with three marketing mix elements (product, place, promotion).

Despite benchmark inclusion, intervention effectiveness varied, suggesting that the mere presence of benchmarks does not ensure success. Variations in benchmark application likely impacted intervention outcomes, underscoring the complexity of behaviour-change interventions (Craig *et al.,* 2008) and the need to explore how benchmarks are used within individual studies (Janssen *et al.,* 2013).

Previous research indicates that successful social marketing interventions require comprehensive use of the social marketing criteria (Carins and Rundle-Thiele, 2013). Quantitative evidence by Xia et al. (2016) found that interventions applying more than three benchmark criteria had significantly higher success rates, with all using more than 7.5 benchmarks achieving positive outcomes. In a 50-year review of social marketing, Dietrich et al. (2022) similarly highlighted that comprehensive benchmark application is a consistent predictor of effectiveness across diverse health behaviours. Kubacki *et al.* (2015) argue that incomplete use of the benchmark criteria contributes to intervention ineffectiveness, reinforcing that all benchmarks should be evident for an intervention to be considered social marketing. This combined evidence indicates that both the breadth

(number) and depth (quality) of benchmark application are critical for achieving and sustaining behaviour change outcomes.

Analysis of the 11 interventions (*Tables II and IV*) suggested no clear linear relationship between the number of benchmarks applied and intervention effectiveness. Studies reporting significant reductions in alcohol consumption (Bewick *et al.,* 2008, 2010, 2013; Hagger *et al.,* 2012; Norman *et al.,* 2018) consistently incorporated behavioural goals, consumer orientation, and motivational exchange, with insight also present in most cases. While these patterns are broadly consistent with prior literature advocating comprehensive benchmark use (Carins and Rundle-Thiele, 2013; Kubacki et al., 2015), the small number of studies and design heterogeneity limit firm conclusions. Nonetheless, the recurrent absence of 'price' and competition across all studies, including those with positive outcomes, underscores their underutilisation and suggests scope for strengthening future alcohol-reduction strategies.

Studies with lower benchmark diversity (Bewick et al., 2008, 2010, 2013) achieved alcohol-reduction despite limited benchmark use, although methodological rigour was questionable. Conversely, methodologically robust studies (Hagger *et al.,* 2012; Moreira *et al.,* 2012; Moore *et al.,* 2013; Clarke *et al.,* 2015) incorporated more benchmarks but showed negligible effect. These differences suggest that intervention outcomes are influenced by factors beyond benchmark inclusion, including variation in intervention length, follow-up periods, and outcome measurement methods. Notably, interventions varied in length, from brief single-exposure formats to more extended multi-week interventions. While shorter formats may be practical in university contexts (Davoren *et al.,* 2016), they may limit sustained change if not reinforced over time (Kaner *et al.,* 2018; Fry *et al.,* 2009). This highlights the need to consider contextual and methodological factors when evaluating interventions.

Interventions ranged from brief single-exposure formats to multi-week programmes with repeated engagement. While shorter interventions may offer practical benefits in university settings (Davoren et al., 2016), they may limit sustained behaviour change if not reinforced over time (Kaner et al., 2018; Fry et al., 2009). This highlights the importance of considering contextual and methodological factors when evaluating interventions.

Although individual benchmarks were evident, their comprehensive application, as recommended by the NSMC (2023), was often unclear. For instance, the consumer orientation benchmark was generally reflected through background information, but there was little evidence of active student involvement in intervention design. Direct student participation in co-design, ethnographic enquiry, or formative pre-testing (Hastings, 2007) was rarely observed. Participatory approaches are central to consumer orientation and enhance contextual relevance (Dietrich et al., 2016; Domegan et al., 2016). Their limited use may have reduced the potential to address broader determinants of alcohol use in this population.

The price component of the marketing mix was notably absent. This element considers the perceived cost of behaviour change, such as the potential loss of social connections. Research shows that fear of losing social bonds is a barrier to reducing alcohol use (Kassel *et al.,* 2000; Kuntsche *et al.,* 2005; Seaman and Ikegwuonu, 2010). Identifying such barriers through consumer insights is vital (Longfield *et al.,* 2016), yet this review found little evidence of its use.

Competition was addressed in only one study (Moore *et al.,* 2013). Research indicates that alcohol advertising is pervasive and highly appealing to young people (Kinard and Webster, 2010), with alcohol industry products and activities meeting students' social needs (Kubacki *et al.,* 2015). Future interventions should counteract pro-drinking messages and consider competing influences on behaviour.

Overall, this review reaffirms that comprehensive and integrated application of social marketing benchmarks enhances intervention effectiveness, as demonstrated across multiple health domains (Carins and Rundle-Thiele, 2013; Dietrich *et al.,* 2022; Xia *et al.,* 2016). However, within alcohol-reduction interventions targeting university students, this integration remains partial and inconsistently articulated, indicating a need for more contextualised and holistic application of benchmark principles. Integration of benchmarks across interventions was rarely evident, despite diverse benchmark use, indicating a gap in understanding how they interact to shape outcomes. While the application of individual benchmarks may contribute to behaviour change, future research should prioritise integrated strategies that address interdependencies between benchmarks and recognise the

complex systems influencing health behaviours (Janssen *et al.,* 2013; Rutter *et al.,* 2017). Public health interventions increasingly acknowledge that behaviour change occurs within a complex system of interacting factors, yet individual studies rarely reflect this. Considering dynamic interactions between benchmarks is therefore essential for achieving more sustainable outcomes.

Strengths and limitations of this review

This review adhered to rigorous methodological standards, including a systematic search strategy, expert consultation, and Cochrane RoB-2 appraisal. Data extraction and synthesis followed predetermined narrative synthesis and thematic analysis, ensuring transparency, accuracy and alignment with PRISMA guidelines.

A key limitation was the scarcity of studies explicitly applying social marketing to alcohol reduction, requiring broader search terms like "health promotion." Benchmark identification was often unclear, limiting generalisability and link to intervention outcomes. However, the narrative synthesis approach enabled in-depth exploration of benchmark use across interventions.

Most studies had moderate to high risk of bias due to reliance on self-reported measures, leading to Hawthorne effects and social desirability bias. High attrition rates, particularly among heavy drinkers, further hindered comparability. To improve accuracy, future interventions should integrate objective measures (e.g., biomarkers, digital monitoring) alongside self-reports and employ mixed-methods approaches, ensuring a more comprehensive understanding of behaviour change and its sustainability.

This review focused exclusively on RCTs, which were the predominant design identified in our preliminary scoping review and aligned with our inclusion and exclusion criteria. This strengthened methodological consistency and internal validity, supporting robust causal inferences (Evans, 2003). However, alternative rigorous approaches, such as controlled trials without randomisation, interrupted time series, or cluster trials, can provide valuable insights into behaviour change in complex, real-world contexts (Fernainy

et al., 2024). Future reviews should incorporate such evidence to capture broader contextual influences and enhance applicability.

CONCLUSION AND FUTURE RESEARCH

This review highlights the fragmented application of social marketing benchmarks in alcohol-reduction interventions targeting UK university students. While behavioural goal setting and consumer orientation were widely applied, insight, competition, and the 'price' element of the marketing mix, were underutilised. Methodological limitations, including reliance on self-reported data, high attrition rates, and inadequate follow-up periods, further hindered understanding of intervention efficacy.

Findings suggest that applying a limited range of benchmarks does not guarantee success. Effective social marketing interventions should address the complexity of alcohol-related behaviours by considering contextual factors such as university policies, social norms, and peer influences. Future research should evaluate the feasibility and effectiveness of interventions that integrate all eight benchmarks synergistically to maximise impact. The role of segmentation and targeting for diverse student groups also warrants exploration, while the competition benchmark should be leveraged to counter pro-alcohol marketing and social influences. To strengthen the evidence base, future research should prioritise rigorous study designs, including RCTs with objective outcome measures and actively engage participants in intervention design to ensure relevance and sustainability.

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Tables

Figures

Alt Text: PRISMA flowchart to show how the 11 included studies were selected after duplicate removal, title and abstract screening, and full-text review.