Effective interventions for the screening, brief intervention, referral and treatment of harmful alcohol use: an umbrella review protocol

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Abstract

Background Alcohol use is one of the leading risk factors for premature death and disability. Screening, brief interventions and referral to treatment, as well as evidence-based psychosocial and pharmacological interventions, are important in reducing the burden of harmful alcohol use. While many reviews summarise evidence for specific interventions or populations, there has yet to be a comprehensive comparison of interventions. As such, this umbrella review aims to identify effective interventions for the prevention and treatment of harmful alcohol use, with consideration of applicability to low- and middle-income country contexts.

Methods A comprehensive search of MEDLINE via PubMed, Embase, Cochrane Database of Systematic Reviews, PsycINFO and the International HTA Database will be conducted from inception to September 2021. Selected articles will be systematic reviews of randomised controlled trials of interventions for screening, brief intervention, referral to treatment, or treatment of harmful alcohol use. Title/abstract screening, full-text screening, data extraction, and methodological quality assessment will be conducted by reviewers working independently and in duplicate, with conflicts resolved by a third reviewer. Data extraction will be conducted using a modified version of the Joanna Briggs Institute form, incorporating elements of the Template for Intervention Description and Replication (TIDieR) checklist, and quality assessment will be conducted using A MeaSurement Tool to Assess systematic Reviews (AMSTAR) 2. Findings will be summarised qualitatively in text and tables, with a focus on summarising important considerations for policymakers and identifying gaps in the literature.

Discussion Results from this study will be disseminated through publication in a peer-reviewed journal and through presentation to policymakers in Thailand.

Systematic review registration This protocol is registered in PROSPERO, CRD42021275471.

Background

Alcohol use places a considerable burden on health systems, economies and societies across the globe. The 2016 Global Burden of Disease study ranked alcohol use as the seventh leading risk factor for premature death and disability, and the leading risk factor for people aged 15-49 years [1]. Alcohol consumption has been linked to 60 acute and chronic diseases, with the base of evidence suggesting that risk of alcohol-attributable disability and death increases with volume of alcohol consumption and frequency of heavy drinking occasions [1–4]. Beyond immediate health impacts, alcohol misuse can place significant societal and economic burden on countries: studies conducted across twelve countries suggest that the economic burden ranges from 0.45% and 5.44% of gross domestic product (GDP) [5, 6].

Harmful alcohol use has been defined as drinking that causes detrimental health and social consequences for the drinker, the people around the drinker and society at large, as well as patterns of drinking that are associated with increased risk of adverse health consequences [5]. Screening, brief interventions and referral to treatment typically seek to identify and prevent harmful alcohol use within the general population [7]. Alcohol use disorders represent a sub-set of harmful alcohol use, characterised by chronic relapsing brain disorder with an impaired ability to stop or control alcohol use despite adverse social, occupational, or health consequences [8]. Treatment for alcohol use disorders may be psychosocial or pharmacological, with evidence that a combination of both approaches may be most effective [7, 9].

In Thailand, the 2014 Burden of Disease estimated that alcohol addiction was responsible for 3% of the total disease burden, and the leading cause of disability adjusted life years [10]. Prevalence of alcohol use disorders has been estimated at 5.4% [11]. Thailand has a long history in implementing a coordinated alcohol control policy, which follows the five areas of intervention recommended in the WHO SAFER technical package, namely strengthening restrictions on alcohol availability; advancing drink-driving countermeasures; facilitating access to screening, brief interventions and treatment; enforcing restrictions on alcohol advertising, sponsorship and promotion; and raising alcohol prices [12, 13].

Interventions in Thailand are split into three levels [14]. The first level includes campaigns and interventions in the general population to prevent and manage drinking behaviour; the second covers screening and brief interventions for individuals with risky drinking behaviours; and the third is concerned with the treatment and rehabilitation of individuals with alcohol use disorder. This review will examine interventions that could be provided under the latter two levels, to identify whether any effective screening, brief interventions or treatment for harmful alcohol use are currently missing from the benefits package provided under the Thai Universal Coverage Scheme.

Prior systematic reviews and umbrella reviews for prevention and treatment of harmful alcohol use have either focused on specific interventions (e.g. brief interventions [15–18], pharmacotherapy for withdrawal [19], self-help groups [20]) or specific populations (e.g. pregnant women [21, 22], youth [23–25]). Moreover, existing reviews include limited analysis of applicability across settings and contexts, especially with regards to health system structures and resourcing [16]. We will therefore conduct an umbrella review as a streamlined approach to identify a set of options for policymakers [26], with a focus on translatability of findings to low- and middle-income country (LMIC) settings.

This umbrella review aims to identify which interventions are effective in the prevention and treatment of harmful alcohol use. We have two specific research questions (Figure 1):

- **Research question 1**: which screening, brief interventions, and referral to treatment mechanisms are effective at reducing harmful alcohol use in the general population?
- **Research question 2**: which treatment interventions are effective at reducing harmful alcohol use among people diagnosed with alcohol use disorder?

The research questions, considering the effect of interventions on intermediate behavioural outcomes related to harmful alcohol use, are represented by solid blue lines. The dashed line represents the relationship between the intermediate and health outcomes. Although research questions focus on intermediate outcomes, reviews reporting on either intermediate and/or health outcomes will be included.

Interventions will be considered as effective if they significantly improve the outcome of interest compared to placebo or standard care. We will summarise the evidence on the identified interventions in a format that is relevant for policymakers, highlighting applicability to LMIC settings, variation in definitions or practice within the same intervention, and limitations in evidence that are important for policy. Searching the International Prospective Register of Systematic Review (PROSPERO) and the Joanna Briggs Institute Systematic Review Register did not identify any systematic or umbrella review underway for this topic.

Methods

This protocol was designed following the Preferred Reporting Items for Systematic review and Meta-Analysis Protocols (PRISMA-P) guidelines [27] (Supplement 1) and the Cochrane Handbook Chapter V: Overviews of Reviews [28]. The protocol is registered in PROSPERO, CRD42021275471. Any amendments to this protocol will be dated and reported in the final umbrella review report.

Eligibility criteria

We will include systematic reviews with or without meta-analysis, published in peer-reviewed journals. Since the purpose of this review is to identify potential interventions for the universal coverage scheme benefits package in Thailand, we will supplement our search by identifying systematic reviews conducted as part of published health technology assessments, made available on the International HTA Database [29]. We will not restrict the language or dates for the search. The following PICOS framework (population, intervention, comparator, outcome, study design) structured our search strategy.

Population

We will include systematic reviews of the general population as well as those limited to individuals with risky drinking behaviour or diagnosis of alcohol use disorder. Selection of systematic reviews will not be limited by country or setting (e.g. community, primary healthcare clinic, hospital).

Interventions and Comparators

We will select systematic reviews of studies assessing screening, brief interventions and referral to treatment for harmful alcohol use, or treatment interventions for alcohol use disorder (Figure 1). We will exclude systematic reviews of population level interventions, such as laws, regulations and taxes; advertising and awareness campaigns; and education campaigns or curricula that are conducted without prior risk screening. We will classify included interventions according to the categories in Table 1, adapted from the International Standards for the treatment of drug use disorders [7]. Systematic reviews of interventions for both single treatment episodes and for long-term treatment (recovery management) will be included in our review. We will not exclude studies based on comparator.

Table 1
Classification of interventions within the scope of this review, adapted from the World Health Organization (WHO)/United Nations Office on Drugs and Crime (UNODC) International Standards for the Treatment of Drug Use Disorders [7].

	Category	Sub-category	Definition
1	Screening, brief intervention and referral	1A) Screening	A brief process to identify indicators for the presence of alcohol use disorder.
		1B) Brief intervention	A structured therapy of short duration (typically 5-30 minutes) with the aim of helping an individual cease or reduce their alcohol consumption.
		1C) Referral to treatment	Interventions to speed up or reduce drop-out during referral to treatment, in individuals assessed to have clinically significant harmful alcohol use.
2	Psychosocial interventions	2A) Cognitive behavioural therapy	Patients are introduced to new coping skills and cognitive strategies to replace maladaptive behavioural and thinking patterns.
		2B) Contingency management	Patients are given concrete rewards to reinforce positive behaviours, such as abstinence, treatment attendance, or compliance with medication.
		2C) Community reinforcement approach	Patients seek to modify the way in which they interact with their community in order to gain positive reinforcement, for example through family interactions, healthy social activities, or employment.
		2D) Motivational interviewing/ enhancement	Patients increase their motivation to change a behaviour, through collaborative sessions with a clinician that recognise autonomy of the patient.
		2E) Family-oriented treatment approach	A collection of methods that utilise family relationships to positively influence the behaviour of an individual with alcohol use disorder. Families and caregivers may participate in and support the treatment process.
		2F) Mutual help group	Patients participate in groups that provide information, structured activities and peer support in a non-judgemental environment.
3	Pharmacological interventions	3A) Management of withdrawal (detoxification)	Medications and protocols to manage alcohol withdrawal symptoms. Withdrawal protocols often combine pharmacotherapy, rest, nutrition and motivational counselling.
		3B) Management of dependence	Medications to manage alcohol dependence, either through maintenance or relapse-prevention.

Outcomes

Studies that measure outcomes related to harmful drinking behaviour will be included. Such outcomes may include average alcohol consumption, heavy drinking days, binge drinking episodes, or abstinence. Although the search strategy will be constructed according to these intermediate behavioural outcomes only (as this is the outcome of most randomised controlled trials (RCTs) and there exists strong evidence for a direct link with alcohol-attributable mortality, morbidity, accident and injury [1–4]), we will not exclude systematic reviews that

report on health outcome, namely reduced alcohol-related morbidity, mortality, or alcohol-related accidents and injury, either all-cause or for a specific disease (such as liver cirrhosis, road traffic accidents, or cancer).

Study design

We will include systematic reviews with or without meta-analysis, using the definition of systematic review from Krnic Martinic et al [30]. Other types of studies (e.g. reviews of reviews and scoping reviews) and reviews that do not meet the systematic review definition or search at least two databases, will be excluded. We will only include systematic reviews of RCTs for comparability of results and quality assurance. Systematic reviews that include both RCTs and observational studies or case series will be included only if they report results from RCTs separately.

Search strategy

We will conduct a comprehensive search for published systematic reviews in the following four databases: Cochrane Systematic Review Database, MEDLINE via PubMed, EMBASE and PsycINFO. We will complement the published literature by searching the International HTA Database for systematic reviews conducted as part of published health technology assessments [29]. Additional systematic reviews will be identified by searching the reference list of included reviews.

The search strategy was developed using a combination of controlled vocabulary and keywords, based on the following themes: (1) alcohol use; (2) screening, brief intervention, referral; (3) psychosocial treatment; (4) pharmacological treatment; (5) systematic review. Themes will be combined using the following Boolean operators: alcohol use AND (screening, brief intervention, referral OR psychosocial treatment OR pharmacological treatment) AND systematic review. The search strategy was revised by comparing results with papers identified by existing umbrella reviews on alcohol interventions, and updating search terms accordingly. The search strategy for each database is detailed in Supplement 2.

Study selection

The systematic review management software Covidence will be used to import references and manage title and abstract screening, full-text screening, and data extraction [31]. Search results from all databases will be imported into Covidence and duplicates removed before screening. Screening will first be conducted at the level of titles and abstracts. Two reviewers will screen studies independently, with conflicts resolved by a third reviewer. Next, the full text of all selected studies will be reviewed independently by two reviewers and the reason for exclusion will be recorded for all excluded studies. Any conflicts will be resolved by discussion with a third reviewer. A piloting process in which all authors independently review the same 25 papers according to the inclusion/exclusion criteria will be conducted before screening to refine selection criteria and to ensure consistency.

After full text screening, final selection of reviews will occur after controlling for overlap. We will identify overlapping reviews using a separate citation matrix (as described in the Cochrane Handbook [28]) for each of the intervention categories listed in Table 1. For reviews that include overlapping studies, we will select one systematic review to include using the criteria and scoring scale outlined in Table 2. Two reviewers will assess the overlapping studies. It is expected that the reviewers exercise their judgement when assigning scores and note any deviation in the scoring scale when reporting back to the team. The team will discuss the scores for each review and reach consensus on final study selection.

Table 2
Criteria and scoring system to select among overlapping systematic reviews.

Criterion	Indicator	Scoring scale
Comprehensiveness	Number of studies included in the review	1 - review with most included studies 0.5 - reviews with intermediate number of studies 0 - review with least included studies
Relevance	Alignment with our population, intervention/comparator, outcome, study design (PICOS)	2 - full alignment with PICOS 1 - one PICOS element is not aligned 0 - two or more elements are not aligned

Data extraction

Two reviewers will extract data independently using a standardised extraction form, modified from the Joanna Briggs Institute guidance [32] and Template for Intervention Description and Replication (TIDieR) checklist [33]. The form will contain the following data items:

- Citation details (e.g. author, year of publication, trial registration)
- Details of the review (e.g. objectives, type of review e.g. meta-analysis)
- Intervention (e.g. category as defined in Table 1, brief name, rationale, materials, procedures, intervention provider, mode and setting of delivery, when and how much, tailoring, adherence)
- Eligibility criteria (e.g. population, context/setting, comparator, outcome, study designs)
- Methodology (e.g. number of databases and sources searched, publication date range, method of synthesis/analysis, tool to assess data quality)
- Results (e.g. number of studies, types of studies, country of origin of studies, effect estimates for outcomes of interest, heterogeneity diagnostics, sample size and effect from the largest primary study, quality assessment)
- Discussion (e.g. policy recommendations, recommendations for future research, limitations)
- Sources of bias (e.g. conflict of interest, publication bias, funding source)
- Comments or notes that umbrella review authors may have on any study

Before starting data extraction, the data extraction form will be piloted and all reviewers trained on the finalised form. After half the systematic reviews have been extracted, and at the end of data extraction, each pair of reviewers will compare their answers to ensure all components of the form have been interpreted in the same way and will finalise the entry for each component of the data collection form. If information for any element of the data extraction form cannot be identified, it will be noted as not present. Study authors will be contacted to clarify any missing information and, if needed, original studies included in the identified systematic reviews will be

retrieved. Extracted information will be presented in the 'Table of Included Review Characteristics' in the final report.

Assessment of methodological quality

Included systematic reviews will be assessed for methodological quality using A MeaSurement Tool to Assess systematic Reviews (AMSTAR) 2, which comprises 16 domains and provides an overall confidence rating in results of the review from 'High' to 'Critically low' [34]. Two reviewers will appraise studies independently, with any conflict resolved by a third reviewer. All reviewers will pilot the AMSTAR2 study by testing it on two excluded systematic reviews before starting study appraisal, in order to ensure consistency in interpreting each domain of the AMSTAR2 instrument.

Data synthesis

We will present a narrative synthesis of the interventions identified and evidence for their effectiveness. Firstly, we will consider whether any intervention categories defined in Table 1 are missing from the systematic reviews identified, as well as comparing the number of reviews focussed on single treatment versus the number assessing interventions for recovery management. We will then structure our narrative synthesis of study characteristics, supported by use of tables, by intervention (as defined in Table 1) and outcome measure (as defined in Figure 1). To present overall results from the umbrella review, we will report the number of reviews and primary studies for each intervention, as well as outcome(s) measured. We will additionally present in narrative and grid form on the effect size for each intervention against certainty of benefit, assessed by limitations at the level of primary studies (as reported by each systematic review), quality of the systematic review (from AMSTAR2 assessment), and level of concordance between different systematic reviews. Due to the potential differences across selected reviews, statistical pooling may not be possible. We are not planning to consider sub-group analyses beyond the two research questions unless provided by authors of the systematic reviews. We will additionally generate an intervention options table, as proposed by Glasziou et al [35]. Such a table will focus on important considerations for policymakers when considering the most effective interventions identified in our umbrella review, including the applicability of findings given context/setting, an assessment of feasibility based on the details of the intervention provided, and major limitations in available evidence.

Discussion

The aim of this umbrella review is to describe the body of evidence on effectiveness of (i) approaches for screening and brief interventions to prevent harmful alcohol use, and (ii) treatment interventions for alcohol use disorder. We will critically appraise the quality of evidence and review the feasibility of implementing interventions in Thailand and other LMIC settings, in order to support policymakers in Thailand and other LMICs to identify interventions that merit further evaluation for introduction into their universal benefits package scheme. We will aim to provide recommendations to improve the quality of systematic reviews on interventions related to harmful alcohol use in future, as well as identifying any gaps in the literature for classes of interventions to prevent or treat harmful alcohol use.

A potential limitation of this study is that we do not include health outcomes (in terms of alcohol-attributable mortality, morbidity, accident and injury) in the search terms, although a major strength is that the review will provide a broad overview of available evidence on interventions for the prevention and treatment of harmful alcohol use, which can inform policy in Thailand and other LMICs. We will disseminate the results from this study

through publication in a peer-reviewed journal, accompanied by a summary report to the Thai Health Promotion Foundation and stakeholder dissemination meetings in Thailand.

Abbreviations

AMSTAR - A MeaSurement Tool to Assess systematic Reviews

GDP – Gross Domestic Product

LMIC – Low-income and middle-income country

PICOS - population, intervention, comparator, outcome, study design

PRISMA-P - Preferred Reporting Items for Systematic review and Meta-Analysis Protocols

PROSPERO - International Prospective Register of Systematic Reviews

RCT – randomised controlled trials

TIDieR - Template for Intervention Description and Replication

UNODC - United Nations Office on Drugs and Crime

WHO – World Health Organization

Declarations

Ethics approval and consent to participate

Not applicable

Consent for publication

Not applicable

Availability of data and materials

Not applicable

Competing interests

All authors report grants from ThaiHealth, during the conduct of the study. No other interests declared.

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Authors' contributions

SB is the guarantor of the review. RK, WI and PK conceptualised the study. All authors contributed to the development of the research question, methods for the study, and selection criteria. SB, PK, JS and TA developed the search terms and search strategy. SB and JS developed the methods for risk of bias assessment, data extraction and synthesis, and drafted the manuscript. All authors revised the manuscript critically for important intellectual content and approved the final manuscript.

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Figures

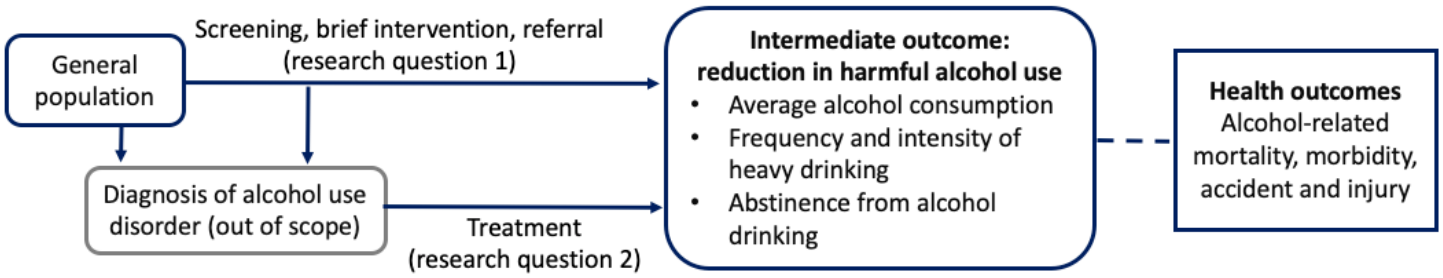

Figure 1

Analytical framework for this review, adapted from US Preventive Services [36].

Supplementary Files

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- Supplement2Searchstrategy.docx