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Exploring and describing alcohol harm reduction interventions: a scoping review of literature from the past decade in the western world

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Abstract

Context Regular alcohol use is a predominant risk factor for disease, injury, and social harm. While robust evidence is advocating for implementing interventions to reduce the harms of illegal substance use, less literature is dedicated to identifying and understanding interventions aiming at reducing the various harms associated with alcohol.

Objectives This review describes how alcohol harm reduction (AHR) interventions are currently conducted and analyzes the facilitators and barriers identified by the studies on their efficacy.

Method This scoping review with evidence appraisal included articles published between 2011 and 2022, addressing one or more AHR interventions for population of at least 18 years (including alcohol user who have an addiction but also alcohol user with harmful drinking), conducted in North industrialized countries (Europe, Nort America, Australia).

Results Among the 61 articles selected, we identified several forms of support (face-to-face or remote, support in residential settings, structural interventions, and interventions created upon spontaneous initiatives), and strategies of intervention were also analyzed (the ones based upon learning and skill development, the ones based upon psychological support, the ones focusing upon socio-economic conditions, strategies focusing on the coordination and adaptation of the care system, and those strategies based on peer support). The facilitators linked to fundamental characteristics of the interventions were the promotion of empowerment and autonomy of beneficiaries, setting objectives tailored to individual needs, professionals harmonizing their values, evidence-based interventions taking into account cultural contexts, and comprehensive and holistic support. Practical facilitators from the intervention process consist of increasing the number of sessions, involvement, and formation of members of staff, disposing of the necessary resources, and using technological tools.

Discussion The sheer variety of AHR interventions demonstrates that this is a fertile field in terms of intervention design and innovation. This work illustrates the importance of designing effective, adapted harm reduction interventions, prioritizing interventions that make support more accessible to more people. This also prompts us

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to consider the potential benefits of invoking proportionate universalism in the design of AHR interventions in order to operationalize alcohol harm reduction philosophy. accessible to more people.

Keywords Alcohol harm reduction, Interventions, Harm reduction, Addiction, Scoping review, Public health, Alcohol

Introduction

Rationale

Alcohol use is a significant risk factor for disease and injury, contributing substantially to the burden of alcohol use disorders (AUDs) and ranking as the second leading cause of preventable cancers. People with addiction (or substance use disorders) have an increased risk of social harm, a higher mortality (for men, the relative risk (RR) among clinical samples was estimated at 3.38 and for women it was 4.57 [1]) with a life expectancy shortened by up to 20 years compared to the general population [2]. Moreover, some studies suggest that the prevalence of secondary harm from alcohol use follows an exponential curve as a function of alcohol consumption [3].

Harm reduction (HR) is defined a philosophy aiming to reduce the negative effects of health behaviors without any requirement for a commitment to stop substance use or to a care or integration approach [4]. Harm reduction includes a wide range of strategies and interventions targeting illicit and licit substances from syringe exchange programs, safer injection facilities, e-cigarette substitution programs to programs to reduce the harms associated with alcohol. The HR philosophy [5] contrasts with moral or medical models based on abstinence, emphasizing principles such as suspending moral judgment on substance use, adopting a proximity approach to reach individuals 'where they are,' and providing unconditional acceptance of individuals with their current consumption habits. HR "attemps to reduce the adverse consequences of drug use among persons who continue to use drugs, (…) in response to the excesses of a 'zero tolerance approach'" [4]. Additionally, HR values the expertise of people who use substances in the decision making [6].

While some literature reviews investigated interventions dedicated to alcohol use, in particular brief interventions [1, 7], online alcohol interventions [8] and alcohol interventions aiming to reduce intimate partner violences [9] and there is robust evidence for interventions to reduce harms of illicit substance use, a lower literature is dedicated to describe interventions aiming at reducing the various harms associated with alcohol use (such as heavy episodic drinking, chronic use, and illicit and non-beverage alcohol use) [10] Alcohol harm reduction (AHR) interventions are diverse and could include pharmaceutical alternatives, use of cannabis as a substitution, social support where alcohol use is tolerated, safer drinking education, and programs that provide alcohol for example [11–15] but we lack information on the type of interventions and their active components in order to create and implement relevant interventions. Therefore in order to fill this gap a knowledge synthesis that uses a systematic and iterative approach to identify and synthesize an existing or emerging body of literature on this topic.

Objectives

This review aims to describe how AHR interventions are currently conducted, assess their efficacy and analyze the barriers and facilitators identified by studies regarding their effectiveness.

In this article, we included studies that clearly mentioned the term "harm reduction" and "alcohol" in their title or abstract. The objectives of the interventions identified in this article are diverse, as are the objectives of harm reduction, which can range from the management of drug use to abstinence [16]. Indeed, we consider, as other research has demonstrated [17], that abstinence can be an objective of the people who use harm reduction services, and that the opposition between abstinence and harm reduction is more theoretical than empirical. We "challenge the agency-driven dichotomy of being either a harm-reduction or an abstinence-based program" [18]. Indeed, the opposition between abstinence and harm reduction is linked to the history of harm reduction, which was constructed on a political and militant level in opposition to the proponents of beliefs in the postulate that abstinence is the only possible path for all dependent persons [19]. This stance can be viewed as a normative or moral ideology. However, if we move beyond these moral considerations, abstinence—when seen as a personal goal—can be considered just another objective. Thus, it can be included among the objectives targeted by users within harm reduction interventions.

Some alcohol users assert that aiming for total withdrawal is easier than managing their consumption [20], and their goals may evolve over time. For instance, users might aim for abstinence for a period, then shift to managing their use, and later focus on reducing consumption. Therefore, this review includes interventions targeting both abstinence and reduction of alcohol use. However, interventions that exclusively demand abstinence from all users were excluded. Abstinence can be

a proposed goal of interventions and should reflect the users' desires, but it must not be a mandatory prerequisite, as this would fall outside the philosophical framework of harm reduction. The interventions can target both alcohol users with an addiction and those with harmful drinking habits without a diagnosed addiction.

Methodology

This scoping review with evidence appraisal aims to provides a panorama of the interventions on AHR. We used the Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping reviews guidelines (PRISMA-ScR) 2020 statement to report the method section [21] see additional file n°1.

Eligibility criteria

The following key words have been included: "alcohol", "addiction", "intervention", "harm reduction" and "manage alcohol" (see additional file 2). For inclusion, the intervention goals needed to be concerned with reducing harm, not only reducing alcohol use. The articles had to mention "harm reduction" in their title or abstract or topic. There were no restrictions on study types included.

We identified the inclusion and exclusion criteria with the PICo (population-phenomena of interest-context) framework (see Table 1) which is an adaptation of the PICO (population-intervention-comparison-outcomes) framework for review including qualitative reviews [22] (i.e. searching for research evidence from primary qualitative studies and drawing the findings together [23]) (Table 1).

Information sources

We searched the following electronic databases: EBSCOHOST (APA PsycInfo, APA PsycArticles, Psychology and Behavioral Sciences Collection), Web of sciences, Pubmed. Reference lists of key publications have also been hand searched by the review team to capture any paper missed in the electronic searches.

Search methods

The search strategy was developed by 3 of the authors (NS, SP and JMF) with regular meetings with the other authors. It was implemented on January, 2023.

To capture as many relevant publications as possible, the list of terms was iteratively revised after searching the databases and discussing with the other authors. The strategy is detailed in an additional file (additional file 3). The different syntaxes are detailed in additional file (additional file 3).

Selection of sources of evidence

In this scoping review we included various sources of evidence: protocol papers, literature reviews and research papers (such as cohort studies, qualitative studies, Randomized Controlled Trials and Case control studies).

The study selection process consisted in three stages: (i) Title screening, (ii) Title and abstract screening, (iii) Full-text screening. Title and title/abstract screening were conducted independently by two reviewers (NS and JMF), while full-text screenings were conducted

Table 1 Inclusion and exclusion criteria for the scoping review

Inclusion criteria	Exclusion criteria
Year of publication	
Between 2011 and 2022	
Population	
Population included in the study are at least 18 years old	
Phenomena of interest	
The study addresses one or more alcohol harm reduction intervention(s) directly directed to users The study focuses on intervention stakeholders (users/patients/beneficiaries or professionals)	The study focuses only on pharmaceutical intervention The study is about intervention which aim only to reach abstinence The study isn't about alcohol intervention The intervention is not targeting individuals but general population for example The study doesn't describe the intervention (with a method section)
Context	
The study takes place in North industrialized countries (Europe, North America, Australia)	

independently by three reviewers (SP, AF, and JMF). Covidence (a review software program) has been used to identify and screen the studies.

Data charting process

Data extraction has been carried out once we had a final list of all the studies to be included in the review. We generated a form for the extraction and tested it before its systematic use. Extraction was made by four independents reviewers (NS, SP, AF and JMF) and discussed during consensus meetings.

The calibrated forms contained 2 main dimensions: the intervention and the study.

i) Interventional items

For the intervention, we utilized the TIDIeR tool [24] including the following categories: nature of the intervention, objectives, creation or replication, frequency or duration, characteristics of the intervention, population, context of the intervention, consumption goals and resources.

ii) Study items

The following elements regarding the study were extracted: description of the study (design objectives, place, duration, inclusion and exclusion criteria), number of participants, number of "lost of sight", recruitment, population, main outcome, secondary outcome, tool for data collection, methods for data collection, main results, potential bias and suggested improvements.

In addition, we also extracted the general presentation of the article (title, authors, date of publication, type of the article) the keywords in relation to harm reduction used, the definition of harm reduction (if available).

Critical appraisal of individual sources of evidence

Quality of included articles was systematically assessed by 4 authors (SM, LT, AA, LLT, AA and FS) using *Critical Appraisal Skills Program (*CASP) checklists to evaluate risk of bias, according to each included article study design [25]. For protocol articles, only items about introduction and method sections have been evaluated. Based on a previous study [26], a traffic light system was devised to visually describe the articles in terms of each of the CASP criteria; that is, addressed (green), not addressed (red), or unclear (orange).

Synthesis of results

Two steps were followed to analyze the results: (i) Description of the included studies and intervention, (ii) Data analysis referring to the research questions and the main purpose of the scoping review.

The first author (SP) conducted the two steps, the analysis was discussed and refined with the other authors.

Data were analysed to help answer the following:

- What kind of studies (i.e. the purpose of the study; the target population; the characteristics of the study; the study designs) were conducted regarding AHR interventions? Completed with an appraisal of their quality. details of the intervention implemented.
- How AHR are currently designed and implemented: the aim of these interventions; the identified effects of the intervention; and the facilitators or barriers associated with these interventions (i.e., what condition or interventions' modalities can lead to the success of the intervention?). Regarding this point we separated elements related to the principles, theories or perceptions of the users and the role of the professionals from those related to the action model [27].

Results

Selection of sources of evidence

We identified 409 articles. After selection, based on inclusion and exclusion criteria, and elimination of the duplicates, 61 articles were selected (see Fig. 1).

Characteristics of sources of evidence

Among the 61 papers selected, 8 are protocol papers, 11 are literature reviews and 42 are research papers. Among these 42 studies, 8 are cohort studies, 14 are qualitative studies, 15 are Randomized Controlled Trials (RCT), 5 are Case control studies. The majority of interventions analyzed in the articles included took place in North America, then in Europe, and to a lesser extent in Australia. Some articles offer a comparison between an European and a North American countries.

Critical appraisal within sources of evidence

The results of the CASP assessments are presented in the tables in Appendix X. Overall quality was good, as the most part of studies demonstrated a minority of criteria not addressed (in red in the tables). The greatest limitation in assessing quality was the lack of information to assess some of the criteria (shown in orange in the tables). Here is a summary of the main pitfalls by type of study: there was a frequent lack of information and/or failure to address confounding factors (criteria incomplete/absent/not specified in 6/8 studies) or to ensure that follow-up was complete or long enough in cohort studies (criteria incomplete/absent/not specified in 5/7 studies); lack of information concerning the consideration of the relationship between researcher and participants in qualitative studies (criterion incomplete/absent/not specified in

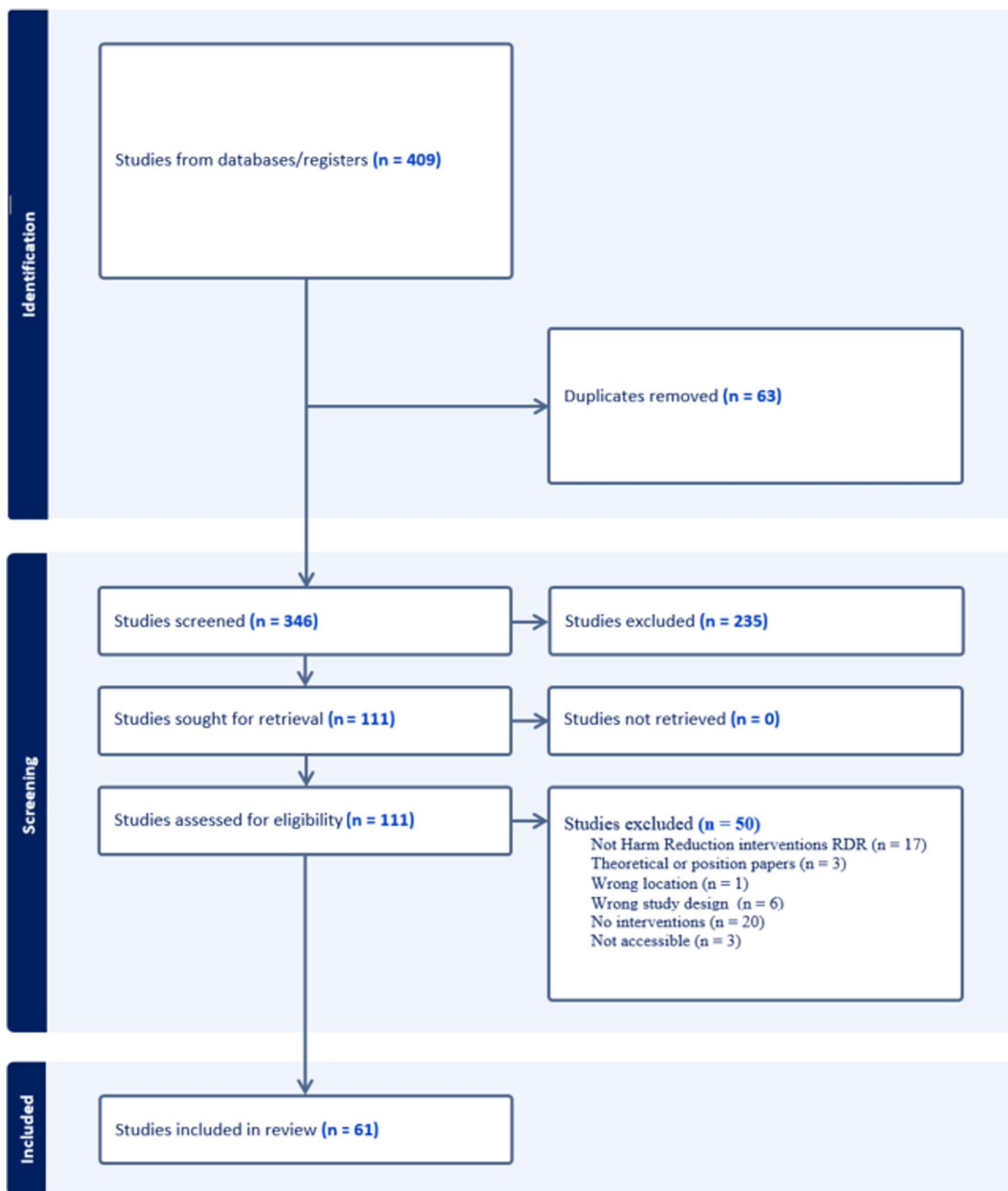

Fig. 1 Flow chart

9/16 studies); lack of information about the evaluators/investigators blinding in RCT (criteria incomplete/absent/not specified in 16/19 studies); lack of information about selection of controls in case–control studies (criterion incomplete/absent/not specified in 4/6 studies); and difficulty to conclude concerning the generalizability (criterion incomplete/absent/not specified in 5/9 studies) and benefits (criterion incomplete/absent/not specified in 4/9 studies) of results in systematic reviews.

Description of the interventions

The interventions described in the articles included in our literature review all have similar objectives, namely to reduce alcohol consumption and control usage habits.

i) Forms of support

The different forms of support available may be categorised on the basis of their organisational format: in person or remote, individual or in groups, residential, structural or dependent upon spontaneous, individual initiatives.

Face-to-face or remote support

Support may take the form of face-to-face sessions: this was the case of 23 interventions identified in the 61 articles analysed as part of our scoping review. In these interventions, users meet directly with healthcare professionals [28, 29], social workers [13], trained professionals [30] or peers [31] in person, in a care environment [32, 33] or a community setting [31, 34]. For instance, Antwerpes and al. [28] study and intervention in which healthcare professionnals teach people with alcohol use disorder psychosocial skills to help them to manage their consumptions and reduce alcohol-related harms. Ilgen and al. [32] focus on an intervention in a care environment targeting pain management to prevent relapses, with discussions about nutrition and addiction's évolutions. Gilburt and al. [34] analyze an assertive community treatment mobilizing, during one year, contact at least once a week, with over 50% of contacts in the participant's home or local community, with consideration of the health and social needs of individuals.

15 of the interventions identified were organised remotely, with the use of digital tools and new technologies: this includes web-based interventions (n = 4) [34–37], telephone calls (n = 4) [33, 38–40], mobile applications (n = 8) [40–47),]emails and text messages (n = 3) [38, 48, 49], chat functions (n = 2) [38, 40], videos or television programs (n = 4 [38, 46, 50, 51] and voicemail message (n = 1) [38]. Some interventions make use of multiple technologies: Kruse et al. (2020) analyse telemedicine interventions combining telephone calls, emails, text messages, chat functions, voicemail messages and videos. Tofighi et al. (2018) also include interventions making use of webinars, telephone calls, a mobile application and a chat tool for healthcare professionals and service users.

Some interventions can be described as mixed, combining in-person and remote forms of support. They might involve face-to-face motivational interviews backed up with cognitive and behavioral therapy conducted over the telephone [33], or else interventions combining in-person appointments with psychiatric, medical and social professionals with telephone therapy sessions aimed at boosting motivation [39].

Individual or collective support

11 of the articles in our corpus look at support programs conducted exclusively in group format: these may include mindfulness-based relapse prevention sessions (MBRP – [30], psycho-educational support (32) and group therapy (11), working sessions and peer support [12, 15, 52] and online training sessions aimed at healthcare professionals [37].

17 of the articles in our corpus focus on support provided exclusively on an individual basis. Such programs generally involve psychological support [51, 53, 54] or skills development initiatives [28, 55] for alcohol users; this category also includes a number of training courses for healthcare professionals [34]. For instance, Darker and al. [54] focus on a brief intervention targeting the reduction of harmful alcohol consumption in opiate-dependent methadone-maintained patients. Collins and al. [55] highlight that chronically homeless individuals with alcohol dependence, during the individual interventions studied, do not necessarily seek abstinence, and may have objectives linked to alcohol consumption, but also more broadly to quality of life and health.

6 interventions utilize mixed formats, combining individual and collective forms of support. Such programs may focus on skills development and learning [29]) or improving the socio-economic conditions of alcohol users [13] combined with long-term psychological follow-up [33, 56–58], peer support [31] or targeted coordination and adaptation of care provision [39, 59].

Support in residential settings

8 of the interventions are conducted in residential settings, i.e., within the facilities (hospitals, communities, emergency housing, sheltered accommodation etc.) housing the participating alcohol users. All of the residential-based interventions we analyzed seek to improve the socio-economic conditions faced by alcohol users. Several of these residential interventions aim to help users by providing accommodation [60–62]. This category includes Managed Alcohol Programs (MAP) conducted in users' home environments [15, 63–65], as well as MAPs offering controlled access to alcohol along with housing solutions [66].

Structural interventions

3 of the selected interventions operate at a structural level; that is to say that these interventions do not involve individual or collective exchanges, in person or remotely, between alcohol users and healthcare professionals. Instead, they focus on providing access to housing for alcohol users [67] or coordinating, scheduling and adapting healthcare responses [68, 69].

Interventions dependent upon spontaneous, individual initiatives

Finally, there is one category of intervention which involves neither collective nor individual exchanges, nor in person nor remote meetings, nor structural interventions. This category corresponds to the alcohol protective behavioral strategies (APBS) spontaneously established by students, without external interventio [70].

iii) Strategies used in interventions

We identified 5 major types of intervention strategy, defined in terms of their key priorities: (1) Learning and skills development; (2) Psychological support; (3) Socio-economic conditions; (4) Coordination and adaptation of healthcare systems; and (5) Support from peers. We also identified two strategies regularly deployed as secondary strategies, but never as primary strategies in their own right: financial and material incentives (observed in 7 interventions) and treatments involving medication (in 6 interventions) (Tables 2 and 3).

Strategies based upon learning and skills development

Strategies based on learning seek to nurture the acquisition of new knowledge; strategies based on skills

Table 2 Types of support available

			Number of references	References
Remote or in person	Face to face		34	[11–13], [15], [28–34], [39], [51, 53–59], [64], [71–75], [77–79], [82–85], [88]
	Digital	Web	4	[35–37], [40]
		Telephone	4	[33], [38–40]
		Application	8	[40–43], [44–47]
		Email/SMS	3	[38], [48, 49]
		Voicemail	1	[38]
		Chat	2	[38], [40]
		Television/video	4	[38]; [46, 50, 51]
Collective or individual		Group	18	[2], [11–13], [15, 28], [30–32], [37], 74], [56–59], [64], [79], [84]
		Individual	25	[28, 29], [31], [33, 34, 39], [51], [53–59], [7, 77], [13, 44], [71, 72], [75, 77], [82, 83], [85], [88]
		Residential	8	[15, [60–64], [66], [79]
		Structural	3	[67–69]
		Individual initiatives	1	[70]
		Mix	9	[13], [29], [31, 33, 39], [56–59]

Table 3 Summarizing the strategies utilized by interventions

Stategies		Number of references	References
Strategies based upon learning and skills development	Learning and information (knowledge)	13	[28, 29], [35], [40–45], [48, 50]
	Skills (know-how)	18	[28, 29], [36], [40–46], [49–51], [55], [67, 70–72]
Strategies based upon psychological support	Motivational interview	9	[33], [51, 54, 56, 58], [73–75], [77]
	Mindfulness-based relapse prevention	3	[30, 53, 58]
	Cognitive behavioral therapy	3	[33], [57, 58]
	Other therapies	6	[11, 32], [58], [77, 78], [88]
Strategies focusing upon socio-economic conditions	Employment	2	[12], [71]
	Housing	6	[12], [60–62], [66, 84]
	Managed Alcohol Programs	8	[13, 15], [63, 64, 66], [79], [80, 81]
Coordination and adaptation of of the care system		13	[34], [38, 39], [47, 59], [68, 69], [82–85], [88], Minian et al., (2018)
Strategies based on peer support		5	[15, 31], [62, 79, 84]
Financial or material incentives		7	[12, 15], [36, 45, 46, 49, 70]
Drug-based treatment		6	[11, 55, 57, 73, 77, 88]

development are more focused on developing know-how. Two of the interventions in our corpus, both digital in format, are exclusively focused on the acquisition of new knowledge. The intervention studied by Braitman et al. [48] involves the sending of *booster emails* containing information designed to prolong the impact of another online intervention aimed at university students with concerns around drinking. The intervention studied by Larimer et al. [35] makes use of descriptive and injunctive *personal normative feedback* (PNF); these PNF messages provide students with information regarding recommended weekly consumption limits, average individual consumption, behavior under the influence and the alcohol intake of students. The aim of such interventions is to encourage alcohol users to modify their behavior on the basis of the new knowledge acquired.

Nine interventions in the corpus are focused entirely on the development of new skills. These skills can relate to handling unexpected problem and reinforcing positive social experiences [36]. Interventions can also target the development of skills in terms of access to employment [71], resource [67] and alcohol use management [45, 48, 50, 69], with in one case the administration of naltrexone [55]. Interventions aimed at alcohol use management can target a reduction of the consumption, or a reduction of the negative consequences associated with consumption. Some interventions offers financial and material incentives by means of a prize system [36]. These interventions targeting development of new skills can be brief interventions [72].

Nine articles are devoted to interventions which simultaneously foster the learning of new knowledge and the development of new skills. Antwerpes et al. [28] study an intervention defined as therapeutic patient education (TPE), making use of both collective sessions and individual meetings to help individuals better understand the risks associated with alcohol consumption, and develop the necessary skills to act. Costa et al. [29] also describe a TPE intervention focusing on techniques of self-control and the development of coping strategies in order to improve self-image, reduce self-stigma, strengthen people with problematic alcohol use's autonomy and improve their knowledge about alcohol consumption. Hawkins et al. [43] take as the object of their study an application which includes the development of coping and motivational strategies, as well as risk reduction skills. The A-CHESS intervention [41, 42] is based on the theory of self-determination and cognitive-behavioral relapse prevention: it uses a mobile application to appeal to users' sense of capability, relations with others and intrinsic motivation to improve their quality of life, providing relaxation exercises, reminders, information on products and medication, trauma, discrimination and stigma, as well as a messaging tool and forum, testimonies and recovery education tools. The A-CHESS application, used in conjunction with Telephone Monitoring and Counseling [44], also encourages users to learn more about alcohol and its negative effects, as well as developing patients' capacities as part of the follow-up support they receive after leaving hospital. In certain cases, A-CHESS interventions may involve financial or material incentives [45]. Pettigrew et al. [50], meanwhile, look at a television program whose goal is to inform viewers of the risks associated with alcohol consumption, and to assist with APBS. Finally, Tofighi et al. [40] discuss a web-based intervention which seeks to encourage the uptake of healthcare services and improve people's understanding of alcohol usage and its attendant risks.

Strategies based upon psychological support

Psychological support is based on listening and helps reassure the patients and relieve their anxiety. The objective is to relieve suffering, and to allow the patient to have a new approach of the health problem.

We were able to identify 4 sub-categories of strategies which form part of a broader program of psychological support: motivational interviews; mindfulness-based relapse prevention; cognitive and behavioral therapy (CBT) and various other forms of therapy. We found five articles devoted to interventions relying exclusively upon motivational interviews. The purpose of motivational interviews is to encourage discussion without judgment, based on a relationship of collaboration between users and professionals, with a view to defining risks and objectives, providing encouragement to users along with medical advice and risk reduction recommendations, and involving patients in their own treatment by helping them to modify their consumption habits [54, 56, 73–75]. Motivational interviews require face-to-face meetings, which may be individual [54, 76], collective [74] or a combination of both [56, 73]. In some cases, motivational interviews may be used in parallel to drug-based treatments [73].

MBRP is utilized by just two of the interventions included in our corpus. MBRP may be useful in identifying the role played by post-traumatic stress in relapses by women with alcohol issues [30]. MBRP may also be combined with more traditional relapse prevention strategies, with a view to reducing alcohol intake and improving quality of life for alcohol-dependent patients hospitalized on psychiatric wards [53].

CBT and other types of therapy are less frequently-encountered than motivational interviews. In the two interventions we identified where CBT was utilized, it was always combined with another intervention strategy.

CBT may thus be used in combination with motivational interviews in order to prevent relapse [33], or combined with medication to promote abstinence [57]. Finally, other forms of therapy (conversational therapy, psychoanalysis etc.) are occasionally encountered in some interventions, combined with medication [11], motivational interviews [77] or without any particular intervention strategy, as part of the psycho-educational support provided in residential settings [32] or else psychosocial interventions aimed at reducing alcohol consumption and related problems, in parallel to drug-based therapies [78]. It is worth noting that one intervention uses all four of these forms of psychological support (motivational interviews, MBRP, CBT and other forms of therapy) concomitantly [58], within the framework of a collective and individual therapy program aimed at achieving total abstinence from all substances except nicotine and caffeine.

Strategies focusing upon socio-economic conditions

Socio-economic conditions can be perceived through a certain numbler of well-being factors, which can include sufficient food, drinking water, safe shelfter, safe environmental and social environment, resource access… Among those strategies concerned primarily with socio-economic conditions, we distinguish between strategies focusing on access to employment, strategies focusing on access to housing, and strategies involving controlled alcohol distribution (Managed Alcohol Programs – MAPs). Four articles in the corpus deal with interventions which strategically prioritize access to housing. These include programmes such as Housing First, whose first goal is to providing beneficiaries with stable accommodation in order to have a positive impact on alcohol use trajectories and quality of life, and to attenuate the negative effects of homelessness and substance abuse. These programs provide immediate and permanent access to supervised housing for homeless people with alcohol issues but no other substance consumption [60, 61]. Residential programs also seek to resolve housing problems. The rules of such residential programs may be restrictive: the self-governed Oxford Houses, a network of recovery homes in the USA, require residents to pay rent and abstain from alcohol [62]. Day centers also provide a more temporary form of shelter for homeless people. In some such centers users are permitted to consume alcohol, while still participating in leisure activities and "survival" support services (personal hygiene, food, clothing etc.); some interventions involve financial or material incentives [12].

Eight of the articles in our corpus deal with interventions such as Managed Alcohol Programs (MAPs), which provide users with regular, controlled doses of alcohol in order to stave off withdrawal symptoms while avoiding intoxication. MAPs may take a variety of forms: the programs generally involve both collective and individual sessions [63], and include access to shelters or housing [66], or at least day centers. Some of these interventions are conducted by multidisciplinary teams, while others are peer-led [65, 79–81]. MAPs sometimes involve various secondary intervention strategies, such as psychosocial recovery [13] or substituting cannabis for alcohol, along with financial or material incentives [15].

Finally, two articles look at strategies primarily concerned with access to employment. Marsden et al. [71] analyse an intervention which involves providing bespoke individual support to alcohol and/or drug-dependent beneficiaries, helping them to find work, access training and retain steady employment. Some day centres also offer paid work: the Veeg Project, for example, enables participants to work three days each week as part of street cleaning teams. They are provided with breakfast, lunch and beer, and paid ten euros per day [12].

Strategies focusing on the coordination and adaptation of the care system

Coordination and adaptation of the care system aim to limit barriers to care and encourage the use of care, notably by reducing treatment times and costs, and facilitate the work of professionals. We identified 13 articles focusing on interventions which seek to coordinate and adapt care systems. These include Assertive Community Treatment (ACT), a model of care designed for patients whose primary dependency is upon alcohol [34]. ACT ensures that patients are in contact with a professional from a community-based addiction centre at least once per week, with more than half of these sessions taking place in the home or within the patient's community setting, backed up with comprehensive social and healthcare for a one-year period.

Alcohol Case Management (ACM) and Chronic Case Management (CCM) also seek to coordinate and adapt the care system to better meet the needs of alcohol-dependent people. ACM aims to tackle one of the priorities of the health system, namely facilitating access to care and social services for patients with alcohol use disorder. The goal of this patient-oriented approach is to improve the coordination and continuity of care provision [69, 82], helping the patient and/or the primary care provider to tackle problematic drinking in an autonomous fashion [83]. In certain cases, ACM may incorporate drug-based treatments for alcohol-dependent patients [82]. Intensive Case Management (ICM) fulfils the same objectives as ACM, with the difference that it is also open to patients with multiple addictions [84], whereas ACM is restricted

to patients who are alcohol-dependent only. CCM is aimed at people with addictions to alcohol and other drugs, and seeks to facilitate access to long-term care (motivational therapy, relapse prevention counseling, medical and psychiatric treatment, social work), in collaboration with a primary care practitioner [39].

Other interventions, which do not explicitly define themselves as ACM or CCM but which share similar goals and methods, also aim to facilitate access to care. The intervention studied by Srivastava et al. [68] seeks to simplify the process of making appointments at short notice (one to three days) with specialist addiction doctors working at clinics within easy reach of patients' homes. Patients are accompanied to their first appointment, and given public transport tokens to help them attend future appointments. Upshur et al. [85] also detail an intervention which involve primary care providers redirecting patients to addiction treatment services, with support from a case manager. Interventions aimed at adapting care provision may also use digital formats, making use of telemedicine to simplify access to care providers and reinforce coordination between facilities [38], improving the organisation of care pathways for patients with AUD [47] or bringing in a primary care provider to conduct a brief intervention on the subject of alcohol for patients already undergoing treatment for tobacco addiction [37].

Finally, we also find interventions devoted to training healthcare professionals (nurses and assistant nurses) in motivational approaches, making them more capable of identifying and approaching patients with AUD, in order to steer them towards specialist professional care, for instance through the modification of a traditional motivation interviewing-based brief intervention training for hospital staff [59].

Strategies based on peer support

Peer support is based on mutual assistance between people suffering or having suffered from the same health or social problem. Sharing your experience allows everyone to progress beyond their personal history. Peer support is funded on experience and reciprocal exchanges rather than professional expertise. Five articles look at peer support strategies, but only two of these focus on peer support as the principal intervention strategy; in the three other cases, peer support constitutes a secondary strategy. Kelly et al. [31] look in detail at Alcoholics Anonymous (AA) and the twelve-step program, designed to help participants recover from alcohol dependency, remain sober and improve their quality of life. AA meetings are held in community spaces, are run by members (with a current or past AUD) and last for between 60 and 90 min; professionals from outside the group may be called in at the participants' request, in order to provide more specialist advice [31]. Parkes et al. [52] also describe an intervention organized by and for homeless people with drug and/or alcohol use.

With regard to the 3 articles which address peer support as a secondary strategy, these interventions are tailored to the socio-economic conditions of alcohol users, for example an intervention focusing on housing [62, 84] and a MAP based on peer-to-peer support [80].

Effectiveness of interventions

In this section we propose to consider the effectiveness of the intervention i.e. the different results observed and the degree of beneficial effects reported the studies included in this literature review. As this review is not a meta-review, this paragraph present how interventions are reported to be effective or not by the studies analyzed. As the majority of the studies included are quantitative studies, their effectiveness criteria are often based on the frequency of consumption and the quantity of alcohol consumed [1].

All of the interventions analyzed in these studies are presented as being effective, with the exception of certain psychosocial interventions, specifically CCM and AHCM, where the studies do not provide any results which can be considered significant when compared with other types of intervention [39, 67, 77].

More specifically, digital interventions, interventions focused on psychological support, interventions prioritising socio-economic conditions and those based on peer support, are all reported as having an impact on addiction severity [30], alcohol intake [35, 38, 48, 53, 54, 70, 75] limiting at-risk behavior [42, 52, 84], encouraging abstinence [31, 51, 86] and nurturing feelings of physical and psychological well-being [29, 32, 38, 61, 61, 65, 80, 87]. Interventions involving day centers or residential centers serve to reduce relapse rates, time spent in hospital [66] and social inequalities in healthcare [15], while helping to keep beneficiaries in employment or education [52, 62]. Interventions focused on treatment engagement are effective at reducing alcohol use [82, 83] and keeping users in treatment [88], as are digital interventions [45, 50], which are presented as both viable and acceptable [49]. Interventions focused on facilitating the access and adhesion to addiction medicine also help to improve the social service referral rate [68, 69, 85] and improve the training available to professionals [59, 68]. Interventions focused on tackling users' socio-economic conditions and improving the healthcare system, along with peer-led interventions, also help to reduce the need for social service involvement and the associated costs [31, 61].

Interventions involving multiple therapeutic strategies are regarded as being particularly effective. By way

of examples, we might cite peer-led interventions which incorporate motivational support, relapse prevention and self-efficacy [31]; interventions utilizing both personalized normative feedback and multicomponent personalized feedback interventions [35]; interventions combining medication and therapeutic education [36] or behavioral cognitive therapy [57]; and digital interventions employing different materials and strategies [49, 50].

Interventional facilitators and barriers

Cross-comparative analysis of the different types of intervention designed to reduce the risks and harm associated with alcohol can help us to identify various facilitators and barriers to intervention. These facilitators and barriers fall into two categories: some are consequences of the fundamental characteristics of interventions (that is to say the structural elements which underpin the forms and active manifestations of interventions, as well as the positioning of the professionals in relation to users, or their attitudes to users), while others are practical concerns arising from the intervention process itself.

Facilitators and barriers linked to fundamental characteristics of interventions

Several studies highlight the need to refrain from imposing too many constraints on users if an intervention is to be both acceptable and effective. Personal autonomy and a spirit of collaboration must be prioritized, helping users to make their own choices [33, 84]. The objective is to promote the empowerment and autonomy of beneficiaries [64] while establishing a relationship of trust in order to engage patients more effectively. Paternalist relations, implying a condescending attitude on the part of the carers and a degree of asymmetry between patient and professional, are regarded as a barrier to successful intervention [12]. This relationship of trust may be fostered by interventions led by peers, and by involving beneficiaries in the design and deployment of interventions [52].

Establishing a relationship of trust with users makes it possible to set objectives tailored to individual needs [73], taking into account alcohol users' own point of view on their intake [60]. The very fact of setting objectives is regarded as an inherently positive thing [33]. Such objectives must be adapted to the level of consumption, the support requirements and the specificities of each user [64]. Setting objectives which do not match the individual goals expressed by users (for example, demanding total abstinence from alcohol) tends to reduce the efficacy of interventions [12].

Several articles highlight the fact that, in order for an intervention to be implemented effectively, it is crucial that all of the professionals and structures involved should harmonize their values: is it possible to treat alcohol and tobacco abuse at the same time [33]? How can cannabis be used as a substitute if a MAP forbids the consumption of marijuana within its center [15]? Several studies have discovered tensions between professionals on various subjects (e.g. the consumption guidelines issued to users [37]. It is essential that professionals should consult one another and seek consensus in order to establish clear rules [64, 80]. This ties in to the need, detailed hereunder, to involve staff in the implementation of interventions. This harmonization of professional values, which will of course never be complete and absolute, cannot be done without taking into account the needs and objectives of users, which must be integrated into this approach.

On the subject of harmonisation, several studies insist on the need for evidence based interventions [33, 89], as this increases their legitimacy and is conducive to greater cohesion in professional discourse and practices. Harmonization of values cannot be achieved without properly taking account of the cultural contexts in which interventions are conducted [70, 77]. Depending on the context, cultural representations of alcohol and harm reduction can vary significantly, with consequences for the efficacy of interventions [12, 37, 62].

Interventions enabling comprehensive, holistic support, for example by offering help managing personal finances as part of a peer-led intervention [84], or efforts to be more attuned to anxiety during brief interventions focused on protective behavioral strategies [72], are presented as having positive results for example on linking with and staying engaged (retention) in care services [33, 50, 69], since they help to establish positive environments and empowering resources to reduce harmful behaviours, positive service engagement, and improvements in physical and mental health [64].

Practical facilitators and barriers arising from the intervention process

Increasing the number of sessions appears to increase intervention efficacy, in the case of interventions involving individual and/or collective sessions, interventions focused on psychological support [11] and learning and skills development [45, 49]. The impact of interventions (reduced addiction severity, attenuation of harm arising from alcohol abuse etc.) is greater for beneficiaries attending a greater number of sessions [30, 73].

Studies have also highlighted the importance of involving members of staff in the implementation of interventions, for example by systematically discussing interventions in team meetings, convening internal working groups and putting in place financial strategies for interventions [41]. The roles of all parties must be clearly

defined (particularly in the case of interventions involving both peers and professionals, cf. Parkes et al., 2022) and managers must clearly support interventions [33]. Staff must be trained (in terms of initial training before starting work, as well as training on the job) to handle the specific challenges faced by the intervention's target audience, for example in terms of intake levels, the distribution of alcohol, or how to deal with victims of violence presenting symptoms of post-traumatic stress [52].

It is also indispensable to ensure that all of the necessary resources are in place for the intervention to be implemented correctly, i.e., time, manpower, financial resources, training, technologies, administrative support, facilities etc. [33, 37]. For example, some MAP programs run into problems because they do not have the resources required to keep users in their centres for longer than initially expected [64]. In another case, professionals who had received training on motivational interviews were unable to put those lessons into practice, due to a lack of time [59]

As regards the use of technological tools (smartphone, telephone, computer etc.), they can be effective as means of enroll hard-to-reach users. These tools can also help to circumvent the stigma which may be attached to actually attending addiction support centres, and to reduce appointment waiting times and other such barriers and to improve patients' autonomy [38]. Combined with other intervention strategies, technological tools may improve the scope and flexibility of interventions, facilitating communication with participants [49]. Nonetheless, such tools (particularly telephone consultations) can also present certain challenges for those conducting interventions, who may find it difficult to gauge participants without seeing them face-to-face [33]. Technological tools such as applications, emails etc. appear to require a degree of human intervention in order to ensure that they are truly adapted to the needs of individuals [36].

Discussion

Summary of evidence

In this literature review, 61 articles from the past 11 years provide us with a considerable mass of information regarding AHR interventions. The general quality of the included articles was good. The articles in our corpus encompass a wide variety of support formats (in person and remote; individual and group; residential; structural; and based upon spontaneous, individual initiatives). We also identified 6 main types of strategies mobilized by interventions: learning and skills developments, psychological follow-up, socio-economic conditions, coordination and adaptation of healthcare systems and peer support. 2 strategies were regularly encountered as secondary strategies: financial or material incentives, and drug-based treatments. The majority of interventions studied are reported to be effective at reducing addiction severity, intake and risky behaviours, while improving feelings of physical and psychological well-being and increasing abstinence. We also identified various facilitators and barriers linked to fundamental characteristics of interventions and those connected to the intervention process.

Limitations

This review thus yields a number of invaluable lessons which can help us to achieve a more precise understanding of AHR interventions as a field. Nevertheless, certain limitations must be acknowledged: firstly with regard to the formulation of our search equation which, despite being designed to be as exhaustive as possible, may not have succeeded in capturing all of the published references to this domain in their entirety. Moreover, we included papers in this review if they mentioned AHR or any of its components. Given that there is no universally accepted definition of AHR, this decision may have unintentionally led to the exclusion or inclusion of some articles that employed slightly different definitions of harm reduction. Specifically, we excluded a number of articles that did not directly refer to AHR or any of its components, while including others (such as Kelly et al., 31) based on the keyword 'reducing alcohol-related harm,' which we interpreted as an element of alcohol harm reduction. It is also important to note that while AHR was the focus of this review, the inclusion of these interventions does not imply that they are officially recognized as AHR interventions, as this was not the objective of the review.

Nonetheless, we designed our search criteria to embrace the broadest possible definition of AHR, thus including a broad variety of interventions. Also, we analyzed articles published between 2013 and 2022, with the aim of having a representative vision of what is currently being done in the field of alcohol harm reduction; de facto, the interventions presented are not exhaustive of everything that has been done in the field of AHR. The exclusion of geographical areas not belonging to Europe, North America and Australia, and the exclusion of people under 18 also generates biases. We also have to note that we do not have a previously published protocol to describe this study, which constitutes a limitation in itself. One final limitation is the fact that some interventions are not described or analyzed in a comprehensive, detailed manner, which naturally has consequences for our attempt to catalogue approaches, strategies, facilitators and barriers.

Discussions and perspectives

This literature review raises several points which we feel are worth highlighting. Firstly, the sheer variety of AHR interventions demonstrates that this is a fertile field in terms of intervention design and innovation. Nevertheless, despite the high rate of addiction among the general population, the percentage of person with addiction in the world who receive treatment is estimated at below 25% for all conditions, and under 10% for alcohol and tobacco, including France [90]. This illustrates the importance of prioritizing interventions which make support more accessible to more people.

Another point worth considering is the difference in the stated objectives of interventions. The indicators used to assess the efficacy of interventions in the articles are testament to the lack of consensus on this point. Indeed, most indicators are based on the reduction or cessation of consumption. It would therefore be profitable to establish an analytical framework capable of integrating factors ranging from perceived well-being to reduction of risky behaviour. We must also question the role of abstinence as an outcome of AHR interventions as we saw in some studies. We could then turn our attentions to establishing an accepted definition of AHR, in order to achieve clearer consensus on the scope of such interventions. Indeed, we define, as said in the introduction, harm reduction as "a philosophy aiming to reduce the negative effects of health behaviors without any requirement for a commitment to stop substance use or to a care or integration approach [4]".

This broad definition is quite vague and encompasses a wide range of actions: from continuing to consume in a safer manner, to reducing consumption, or even stopping altogether. We can view harm reduction interventions as a spectrum [16], encompassing various objectives (such as managing alcohol use, achieving abstinence, providing information to users) and methods (including psychological or financial support, substance analysis, and disseminating information on products and safer consumption practices), ultimately aiming to enhance the well-being of users [91]. We therefore adhere to the definition of harm reduction provided on the website of the Harm Reduction Journal, which focuses on reducing harms without necessarily reducting behaviors: "We define 'harm reduction' as 'policies and programs which aim to reduce the health, social, and economic costs of this range of behaviors without necessarily reducing the behaviors themselves'. There are various harm reduction strategies, practices and programs that aim to reduce the adverse impact of policies, laws and regulations on both individuals and communities" [92]. What primarily distinguishes the philosophy of harm reduction from an abstinence-based moral ideology is its ability to adapt to the individual objectives of users, respecting their autonomy and promoting their empowerment [20, 93].

Numerous studies also highlight the need to conduct more evaluations [45], randomized controlled trials [30, 53, 65, 77, 84] and cost-effectiveness analyses [50, 84] in order to prove the efficacy of interventions. We would like to emphasize here that there are ethical issues concerning randomized controlled trials in connection with alcohol harm reduction interventions, linked to the loss of opportunity for individuals included in the control group. Other studies call for more researches involving more diverse populations, in a greater variety of cultural contexts [80] and over longer periods of time [42] particularly qualitative studies engaging directly with beneficiaries [33]. Indeed, most existing studies are quantitative and use criteria such as quantity of alcohol consumed and alcohol use's frequency [1]. The existing qualitative analyses deal primarily with professionals. Hence the need for more evaluations, randomized controlled trials and cost-effectiveness assessment of AHR interventions, along with more qualitative surveys aimed at beneficiaries and alcohol users. It would therefore be fruitful to set up qualitative studies using criteria such as quality of life, the positive (such as pleasure) and negative effects linked to alcohol consumption, and the maintenance of a social and professional life. Enhancing our understanding of existing interventions thus remains a crucial priority in order to ensure that future AHR interventions are viable, effective and transferable [94–96]

The use of financial and material incentives raises questions as to the long-term viability and efficacy of interventions after the researchers are gone. Six articles in our corpus describe interventions making use of financial or material incentives [12, 36, 45, 46, 49, 70, 80], and questions thus remain over their long-term viability and efficacy.

The target audience of these various interventions also merits further consideration: for example, interventions with a strategic focus on socio-economic conditions are aimed primarily at more vulnerable alcohol users [46, 61, 71], whereas digital interventions, if they do not involve the distribution of free telephones or computers or a specific training to avoid a digital literacy gap [97], are better-suited to more socially-included alcohol users who already have access to such digital equipment [38, 40–43, 47, 65].

Ultimately, there do not appear to be many interventions capable of being tailored to the precise needs of different categories of people exposed to alcohol harm, which prompts us to consider the potential benefits of invoking proportionate universalism in the design of AHR interventions. Proposed in 2010, the principle of

proportionate universalism (PU) is a useful approach to tackling health inequalities [98]. The essence of this principle is that "actions should be universal, but with an intensity and a scale that is proportional to the level of disadvantage". Despite a growing interest within the academic field, this principle is not widely applied [99]. The first evaluated UP interventions had several forms, especially concerning the combination of universal and proportionate elements: some combined a universal component to different specific component tailored to each identified population, or combined with an increased dose of the same intervention adapted to individuals' needs [100–102]. To our knowledge, this principle has never been formalized within the Alcohol Harm Reduction field. Yet, knowing that people concerned with AUDs could be found in every socio-economical categories and are experiencing various type and level of disadvantage or needs (linked to their gender or their working, geographical, housing situation, or the cognitive impact of long term use, or even the use of various products…) the need for a proportionate, adapted intervention is crucial. It is therefore essential to design UP interventions in collaboration with users and field experts in order to implement interventions that are acceptable. Proportionate universalism would thus appear to offer a pertinent theoretical framework for the development of AHR interventions capable of using universal strategies or facilitators and tailored ones according to different characteristics of beneficiaries from more vulnerable to those who are more socially included.

Conclusions

To conclude, this review highlighted the wide range of interventions implemented for AHR. The main active components of these strategies were learning and skills development, psychological support, socio-economic conditions prioritization, coordination and adaptation of healthcare systems, and support from peers. Several of them demonstrated efficacy with improvement on addiction severity, alcohol intake, at-risk behavior and feelings of physical and psychological well-being. The detailed analysis of the literature has identified some facilitators related to intervention implementation, and suggests that, to be properly deployed, interventions require sufficient resource from the structure (financial, time), and involvement of trained staff members. On the contrary, important efficacy facilitators have been identified, including use of evidence-based interventions, comprehensive and holistic support, use of technological tools, promotion of empowerment and autonomy, and setting objectives tailored to individual needs.

Abbreviations

AA	Alcoholic anonymous
ACM	Alcohol case management
ACT	Assertive community treatment
AHCM	Addiction/housing case management
AHR	Alcohol harm reduction
APBS	Alcohol protective behavioral strategies
AUD	Alcohol use disorder
CASP	Critical appraisal skills program
CCM	Chronic case management
CBT	Cognitive and behavioral therapy
HR	Harm reduction
MAP	Managed alcohol programs
MBRP	Mindfulness-based relapse prevention
PICO	Population-intervention-comparison-outcomes
PNF	Personal normative feedback
PRISMA	Preferred reporting items for systematic reviews and meta-analyses guidelines
QUIT	Quit using drugs intervention trial
RCT	Randomized controlled trials
STIs	Sexually transmitted infections
TPE	Therapeutic patient education

Supplementary Information

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Additional file 1.

Additional file 2.

Additional file 3.

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Author contributions

SP, AF and JMF drafted this article and all authors revised the manuscript. This literature review was conceived by JMF and NS. SP, AF, FS, SM; LLT, AA, JMF, NS were involved in collecting and analyzing the data. All authors read and approved the final manuscript.

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Declarations

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Availability of data and materials

No datasets were generated or analysed during the current study.

Competing interests

The authors declare no competing interests.

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