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Prevention of alcohol related harm though preconception care: A scoping review of barriers and enablers

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ABSTRACT

Objective: To understand the perspectives of healthcare practitioners and women of reproductive age regarding addressing prevention of an alcohol exposed pregnancy before conception.
Methods: A scoping review of mixed methods, qualitative and quantitative research was conducted. Medline, CINAHL, EMBASE and PsychInfo databases were searched for literature published by March 2022. Data were extracted and synthesized.
Results: Twenty-three studies were included. Views varied between healthcare practitioners and women about addressing alcohol with women before pregnancy. Healthcare practitioners agreed prevention was important but believed they were ill-prepared to provide support, and that it might be intrusive if women were not contemplating pregnancy. Whereas women would welcome advice from healthcare practitioners, particularly if offered during appointments or visits for services related to reproductive health. A knowledge deficit about pregnancy and fetal harms from alcohol was expressed by both healthcare practitioners and women.
Conclusions: Investment in alcohol education and skills training for healthcare professionals is required to ensure a coherent message is communicated across services, and that shared decision making about healthcare between service users and health professionals is facilitated. Future research should explore implementation of interventions to prevent alcohol exposed pregnancy in settings where women are seeking reproductive health support.

1. Introduction

The time period before conception is recognised as a critical phase for optimising health through disease prevention and modification of risk factors that can affect pregnancy outcomes and the future health of any offspring [1–3]. The preconception period is commonly defined as the three months before conception. However, individuals cannot know how long it may take to conceive, and many pregnancies are unplanned. Recently, a broader definition has been proposed which conceptualises preconception according to whether a biological, individual or public health perspective is taken. A biological perspective views preconception as the weeks covering maturation of oocytes and sperm, fertilisation and embryonic/fetal development. For an individual, preconception starts when they contemplate pregnancy, whereas taking a broader public health perspective, preconception can be viewed as any timepoint during the reproductive life course before a pregnancy occurs [1]. Preconception care (PCC) is therefore relevant for anyone who might conceive one day in the future, and not just for individuals who are actively planning pregnancy.

PCC aims to promote behaviour change to modify risk factors such as alcohol consumption to optimise health before conception thus improving maternal and child health outcomes and reducing inequalities [3–6]. Alcohol is a teratogen and exposure during periconception and during pregnancy increases the chance of miscarriage, small for gestational age, preterm birth and Fetal Alcohol Spectrum Disorders (FASD) [7]. Alcohol drinking guidelines produced by government bodies worldwide recommend alcohol abstinence for women who are planning pregnancy or currently pregnant [8]. The guidelines are underpinned by evidence collated in systematic reviews reporting that interventions are effective at modifying risk factors for alcohol exposed pregnancy (AEP) before conception. A recent review of preconception interventions, the majority of which used motivational interviewing techniques to support behaviour change regarding the use of effective contraception and reduction of alcohol

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consumption, reported that interventions were effective mainly through preventing unplanned pregnancy and may lower risky drinking [9].

Evidence from large surveys shows that not all women stop drinking before pregnancy whether pregnancy was intended or not [10,11]. In a sample of 5,000 women in the USA, the prevalence of alcohol consumption before pregnancy recognition was similar between those with intended (55%) and unintended pregnancies (56%) [10]. In a cross-sectional survey of 3,300 Swedish women, the prevalence of weekly alcohol consumption was not significantly different between women with 'very planned pregnancy' (11%) compared with women with 'very unplanned pregnancy' (14%) [11]. A survey of 258 Danish women reported 77% of their pregnancies were very or fairly well planned with one out of five reported binge drinking early in the pregnancy. Among women with unplanned pregnancies, one out of three reported binge drinking early in the pregnancy [12].

Healthcare professionals (HCPs) have a key role in promoting preconception health and implementation of preconception recommendations would facilitate health-promoting behaviour for women who may become pregnant [13]. However, the extent to which these recommendations are delivered by health professionals, in what settings and contexts and what barriers they may face to doing so is unclear. To date, three systematic reviews have examined the perceptions and experiences of service providers and/or service users of PCC across multiple domains which include: family planning; nutrition and physical activity; tobacco, alcohol and substance use; occupational and environmental exposures; family history and genetic risks; infectious diseases and immunization; medical and psychosocial conditions; and medications [14–16]. The reviews included few studies that addressed alcohol and additional studies have since been published. It remains unclear what barriers HCPs face regarding addressing alcohol and pregnancy with women whether they are consciously planning pregnancy or not. Moreover, shared decision making between service users and HCPs underpins evidence-based clinical practice, so perspectives of HCPs should not be considered in isolation from the perspectives of women about preconception health and behaviour change. This review therefore, brings together both perspectives to inform future policy, practice and research to improve pregnancy outcomes.

The review had two objectives: to summarise the attitudes, beliefs and knowledge of 1) HCPs regarding addressing risks of AEP during preconception with women of reproductive age; and of 2) women about receiving advice from HCPs regarding risks of AEP during pre-conception whether consciously planning for pregnancy or not.

2. Methods

2.1. Design

We carried out a scoping review with a systematic search strategy guided by the framework for scoping reviews described by Arksey and OMalley [17]. The scoping review had a broad aim to identify published research on preconception health and alcohol consumption.

2.2. Search strategy and inclusion criteria

Following an initial scoping search, a sensitive search strategy was developed and modified for each database by LA (Supplementary file 1). Two broad concepts (alcohol and preconception) were used to generate search terms. Synonyms within each concept were combined with the Boolean operator "or"; the search strings for each concept were then combined with "and". No date restrictions were applied, but non- English language articles were excluded. The following databases were searched; Medline, CINAHL, EMBASE and PsychInfo initially during April 2020 and updated 31st March 2022.

Citations were downloaded to Rayyan©, an online collaborative research platform [18] to enable duplicate removal and blind screening. All titles and abstracts were screened for potential inclusion, then full texts of articles potentially meeting inclusion criteria (Table 1) were obtained and screened. All screening was carried out by two reviewers independently.

Table 1
Review inclusion/exclusion criteria

	Include	Exclude
Participants	Objective 1 Healthcare professionals and other professionals that women come into contact with for reasons related to health.	
	Objective 2 Females of reproductive age. This can include interventions for a woman and her partner as a couple. This includes studies on women seeking assisted reproductive technology (ART)	Studies focused solely on pregnancy or post-partum that did not also include a pre-conception or inter-partum period. Studies solely on partners that did not include the woman.
Outcome	Objective 1 Attitudes, beliefs and experiences of providing health advice involving alcohol and pregnancy.	
	Objective 2 Knowledge of risks of alcohol on fetal/infant health and/or pregnancy complications. Attitudes and/or intentions towards pregnancy and/or pregnancy planning. Attitudes and experiences of receiving advice on pregnancy planning and/or health/lifestyle advice.	
Design	Objective 1 and 2 Empirical studies involving qualitative and quantitative designs.	Protocols, expert opinion, editorial and discussion articles, animal or lab-based studies. Meta-analysis, secondary analysis.

LS screened all and JW, LA and AH each screened a quota, and any disagreements were resolved through discussion with a third reviewer.

Reference lists of all included articles were reviewed, and forward citation searches were carried out to identify additional studies not retrieved by the database searches.

2.3. Data extraction

A structured approach was followed for data extraction using a proforma in an excel database. Data were extracted from each paper by LS, LA, JW, LS and AA independently and checked by a second reviewer. We recorded the study aims and objectives, geographic location where and time period when the study was carried out, methodological design features including study design, setting, sample size, sample characteristics (age, gender, role for health care professionals, pregnancy intentions for women), and study findings for attitudes, beliefs, and knowledge in relation to alcohol harms during pregnancy being addressed.

2.4. Data synthesis

The narrative synthesis process involved reading each paper several times then developing a preliminary description and synthesis of the results from each study in line with the review objectives [19]. The results from the included studies were interrogated to explore relationships, similarities, and differences across the articles, then themes were developed which described the relationships and emerging patterns across the papers.

3. Results

3.1. Search

Electronic database searches captured 8,180 unique citations following removal of duplicates. After screening titles and abstracts of all citations, 523 were obtained as full text articles. Of 523 full texts screened against eligibility criteria, 473 articles were excluded and 50 were shortlisted for inclusion. During a further iterative process of screening and data extraction

focussing solely on articles that reported data addressing the two review objectives, 20 were finally included from the pool of 50. A further potential 49 articles were identified from the reference lists of the 20 included articles. These were screened by reading the abstract or full text if unclear (n = 8) resulting in another three included articles, bringing the total to 23. The selection process is shown in Fig. 1 with reasons for exclusion.

3.2. Study characteristics

Of the 23 included articles (Table 2), three solely involved health professionals [20–22]. A further five elicited the attitudes and beliefs of HCPs and women within the same study [23–27], and 15 solely involved women [28–42].

The studies were published between 1987 and 2021 with 20 in the last 10 years. Ten were carried out in the USA [23–25,29,30,32,38,40–42]; four the UK [22,26,33,35]; two in Australia [20,31]; and two in Sweden [36,39]. Single studies were carried out in India [28]; Brazil [37]; Canada [21]; the Netherlands [27] and Nigeria [34].

Studies gathered data through in-depth interviews [35]; focus groups [28,32,33,39,40] or questionnaires [20–22,27,29,31,34,36–38,41,42]. Eight used mixed-methods which involved focus groups and interviews [23–25] or questionnaires and interviews [26,30].

The studies involved a diverse range of health and social care professionals: general medical practitioners, health visitors, practice nurses, nurse managers, sexual health specialist nurses, midwives, physicians from obstetrics, gynaecology and paediatrics and social service professionals. Studies primarily involved adult women or adolescents during preconception [23–25,28–30,32,36,38,39–41]. Five involved adolescents or women who were pregnant but the preconception period was the topic enquired about [26,34,35,37,42] and three involved men and women [27,31,33].

Individuals were recruited from a diversity of settings: professional databases or membership lists [20,21], participants in a panel survey [31]; family practices [22,27]; substance use services [23] maternity units in hospital [26,34,35,37] or multiple settings such as family planning clinics, private practice, a health maintenance organisation; professionals' offices or clinics and non-profit organisations in the community [24,25], [28–30,32,33,36,38,39,40–42].

In relation to the context in which alcohol consumption during preconception was addressed in these studies, one focused on alcohol and other substance use [23], one on alcohol and sexual health [30] four solely on alcohol [24,32,39,40] and a further seventeen focussed on alcohol along with other general lifestyle topics such as smoking and diet as part of a broader PCC package [20–22,25–29,31,33,34–38,41,42].

3.3. Thematic findings – healthcare professionals

3.3.1. Recognising a window of opportunity for prevention

HCPs were supportive of the concept of prevention and recognized the opportunity for promoting behaviour change during the preconception period. HCPs working in reproductive health services believed that providing preconception alcohol advice was important and that it would improve the health and well-being of women and future offspring [26]. These beliefs were shared by HCPs working in specialist addiction services who were supportive of family planning being offered within the alcohol treatment centre [23], primary care clinicians [22] and health and social service professionals [24]. Jensen et al [24] found that professionals believed that sexual activity and alcohol should be addressed in school among adolescents in order to prevent AEP and teenage pregnancy, and that prevention activities should be embedded into other milieus such as summer camps, sports programmes, coming of age ceremonies or other cultural events.

3.3.2. Embracing professional responsibility for pre-conceptual care

This theme encapsulated the extent to which professionals recognised addressing alcohol pre-conception as part of their professional role or responsibility. Maternity, child and family health nurses in Australia agreed it was part of their role to provide PCC that explicitly includes prevention of FASD in the inter-conception period [20]. In contrast there was a general lack of interest in providing alcohol pre-conception care among general practitioners and addiction specialists [23,26,27] and missed opportunities and confusion about whose responsibility it was to deliver PCC [26]. Poppelaars et al [27] reported fewer than 50% of general practitioners favoured the idea of incorporating alcohol preconception care into their day-to-day role. This was supported by findings in another study that reported that PCC was placed lower on the list of workload priorities [22]. Although, paradoxically the same participants also suggested that general practice settings, and not hospitals, were the most suitable for providing PCC and that these settings had staff with the required skillset to do this [22].

3.3.3. Needing resources to carry out PCC

The need for additional resources in order to carry out PCC was commonly expressed by different HCPs. Constrained resources in particular were recognised by HCPs in general practices. These resources related to lack of time to carry out what is perceived as an additional task to the standard provision of care [20–23], but also insufficient workforce and budget to cover any additional costs that would be incurred to add PCC to standard care provided and having the space and/or facilities to carry it out [22,26]. Additional financial remuneration to practitioners was seen as a means of improving current provision of care [26]. Other required resources were the need for specific training [22] to improve confidence and knowledge [26] and tools to support discussions with women relating to PCC [21] which should be from trusted sources [20] and clear policy-level guidance to inform clinical practice [22,26].

3.3.4. Beliefs and barriers

Lack of comfort with the subject of family planning was a barrier to HCPs working in an addiction service implementing PCC. There was also a concern expressed by HCPs that the delivery of PCC may be viewed as being judgmental about the number of children a woman should have and infringe women's choices [23]. It was recognised that the incidence of unplanned pregnancies meant that women did not have the time to access PCC and change harmful behaviours before conception [22,26].

3.4. Thematic findings – service users

3.4.1. Positive attitudes towards receiving advice and support

Positive attitudes to receiving alcohol advice to minimise harms during pregnancy were notable in three groups of individuals. These were women in treatment for drug and alcohol problems [23], adolescents in schools in communities with a high incidence of alcohol problems and FASD [24], and a general population sample of men and women of reproductive age [31]. Women in treatment expressed that they were more pro-active in planning their futures while in treatment [23]. Stakeholders such as community elders and parents agreed that it was essential to address alcohol and sexual activity in schools with adolescents as this is a high-risk period for unplanned pregnancy [24]. Men and women of reproductive age were receptive to making changes to behaviour when planning pregnancy including reducing alcohol consumption and being asked about pregnancy intentions [31] and women attending reproductive health service clinics would not find it intrusive or embarrassing to be asked about alcohol [36,38]. Adolescents agreed with the principal of preparation for pregnancy but almost all did not know what to do [37]. Skagerström et al [39] reported participants would be receptive to receiving information about the effects of alcohol but this could be received in schools and through campaigns. They would not independently seek out this information, and therefore it needed to be "brought to them" (see also 'sources of information' theme). Women of reproductive age believed HCPs should be required to discuss the effects of alcohol with women intending pregnancy [40]. In women attending community pharmacies in California, almost all (98%) had at least one appointment for PCC , and 60% of the sample had an appointment for alcohol use. When asked if they were interested in learning more 56% agreed, and 19% agreed to make an appointment [29] (see also 'window of

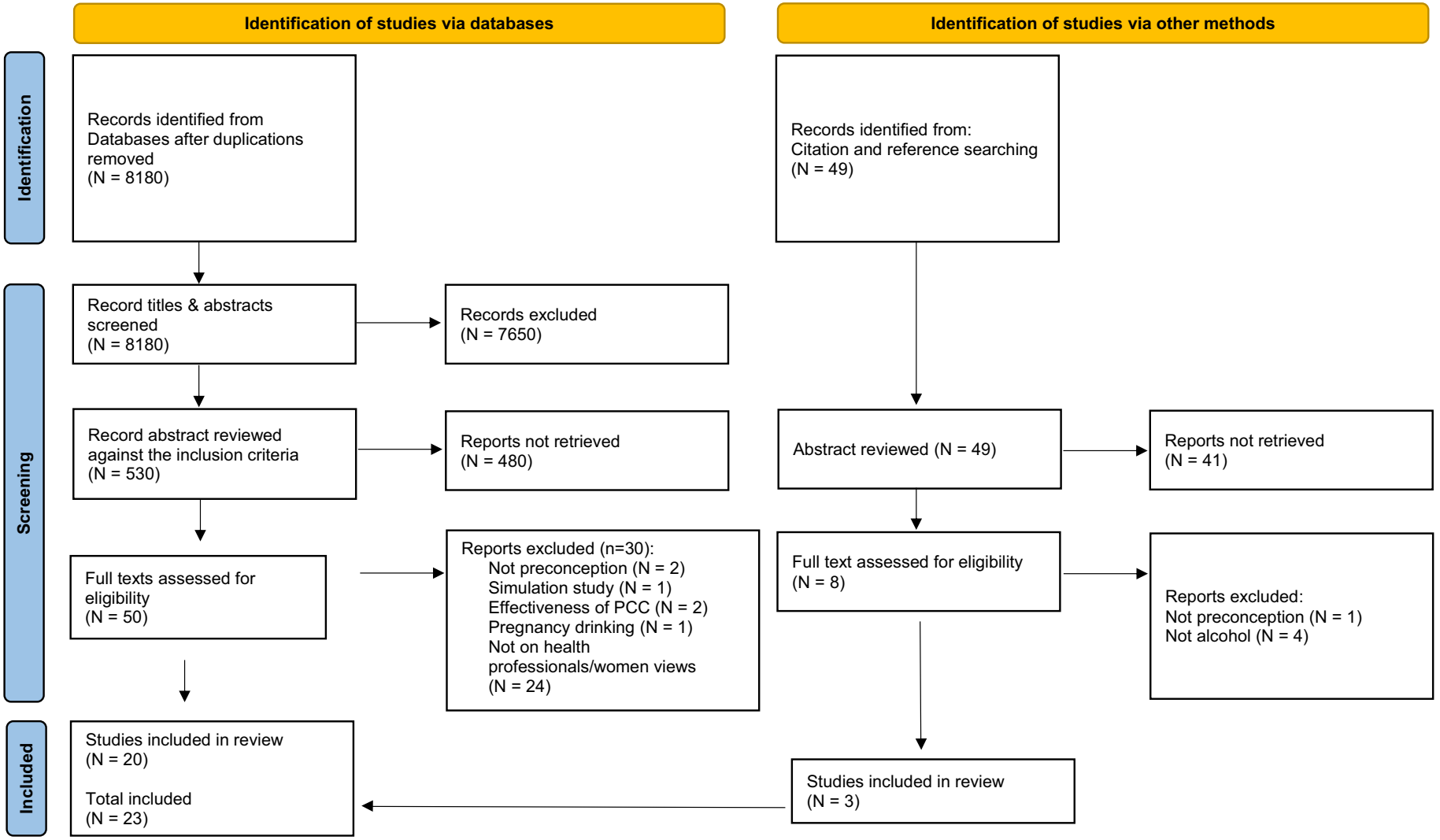

Fig. 1. Study selection process

Table 2
Characteristics of included studies.

Study ID	Location	Design & data collection	Time period	Service/Setting	Participants	Sample Size	Topic evaluated	Pre-conception topic(s)
Characteristics of studies including only healthcare professionals								
Hammarberg & Taylor 2019	Australia	Online questionnaire	Not stated	Membership lists from professional registers	Maternal Child and Family Health Nurses	192	Attitudes towards PC health promotion	Alcohol & general pre-conception lifestyle/health
Tough et al., 2007	Canada	Paper or online questionnaire	October 2001 to October 2002	Membership lists from professional societies & colleges	Obstetric, gynaecology, paediatric, and family practice physicians	1,700	Knowledge & prevention practices	Alcohol & general pre-conception lifestyle/health
Heyes et al., 2004	UK	Questionnaire	July 2000	Primary care practices	GP's, health visitors, practice nurses & midwives	163	PCC practices, beliefs & attitudes	Alcohol & general pre-conception lifestyle/health
Characteristics of studies including healthcare professionals and women of reproductive age within the same study								
Robinowitz et al., 2016	USA	9 focus groups (6 with women, 3 with HCPs) 9 Interviews (HCPs)	December 2013 to April 2014	3 SUD treatment centres (2 residential, 1 outpatient)	Clinical & programme directors, nurses, managers & physicians. Women aged 18-50 accessing SUD treatment centres	32 (HCPs) 41 (women)	Attitudes, knowledge & beliefs about family planning, integration into SUD treatment	Substance use
Jensen et al. 2016	USA	Interviews (HCPs) Focus groups (women & men)	Not stated	Professionals' offices, clinics and non-profit community organizations	Women & men, and 'elders' aged 18 and above HCPs	25 (HCPs) 58 (women & men)	Views & knowledge	Alcohol
Hanson & Jensen 2015	USA	Interviews (HCPs) Focus groups (women and men)	Spring/ summer 2013	Healthcare centres serving American Indian population, tribally run non-profit organizations	HCPs Women & men aged 18 and above	25 (HCPs) 58 (women & men)	Views & knowledge	Alcohol
Stephenson et al., 2014	UK	Interviews (HCPs) Paper questionnaire (women)	November 2011 to May 2012 (questionnaire) August 2011 to Jul y 2012 (interviews)	Maternity units in 3 hospitals	Obstetricians, SRH consultants & nurses, GPs gynaecologists, midwives Women attending maternity services	21 (HCPs) 1,173 (women)	Knowledge & views on preconception health and pregnancy planning	Alcohol & general pre-conception lifestyle/health
Poppelaars et al., 2004	Netherlands	Questionnaire	Not stated	Questionnaire distributed to GP's selected by Netherlands Institute of Primary Care Research, and to married couples using addresses provided by 6 municipalities.	GPs Women & men (recently married couples planning pregnancy and where the women were under 36 years old)	102 (GPs) 381 (women & men)	PCC activities of GPs; and views of prospective parents and GPs regarding introduction of PCC clinics	Alcohol & general pre-conception lifestyle/health
Characteristics of studies including only women of reproductive age								
Doke et al. 2021	India	8 focus groups	June 2018	Community, 8 randomly selected villages in North Maharasta State, all women invited	Women within a year of desiring pregnancy, mean age 25 years, low level of literacy	76	Perceptions, knowledge, behaviours	PCC including alcohol
Luli et al. 2021	USA	Paper questionnaire	September 2017 to March 2018	2 community pharmacies and 1 neighbourhood pharmacy outreach event	Women aged 18-50 attending one of the study pharmacies	43	Behaviours & interest in receiving PCC	Alcohol & general pre-conception lifestyle/health
Wernette et al. 2020	USA	Online questionnaire & interviews	August 2017 to July 2018	Urban family planning clinic for under-served population; university campus in the midwest, and social media sites	Females 15-19 years unprotected sex or risky drinking	374	Attitudes about sexual health & alcohol; preferences for app content	Alcohol and sexual health
Hammarberg et al., 2020	Australia	Online & telephone questionnaire	February to March 2019	Life in Australia (panel survey)	Women & men aged 18-45 years	716	Planned preconception health behaviours and attitudes to being asked about pregnancy intention	Alcohol & general pre-conception lifestyle/health
Hanson et al., 2020	USA	3 focus groups	Not stated	Local healthcare centres, non-profit agency services, and tribally run organizations	Adolescent females aged 15-19 years living in communities where CHOICES occurred & CHAT was proposed	15	Knowledge, attitudes & views on acceptability of CHOICES to teen AI/AN females	Alcohol only pre-conception
McGowan et al., 2020	UK	5 focus groups	July 2018 to July 2019	2 Rural and 3 urban locations	Males and females of childbearing age, 18-45 years	21	Beliefs, attitudes & knowledge on preconception health	Alcohol & general pre-conception lifestyle/health

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Table 2 (*continued*)

Study ID	Location	Design & data collection	Time period	Service/Setting	Participants	Sample Size	Topic evaluated	Pre-conception topic(s)
Ekem et al., 2018	Nigeria	Interviewer administered questionnaire	December 2014 to May 2015	Hospital obstetrics unit	Pregnant women aged 15-44 years attending antenatal clinic	450	Knowledge, awareness, views & utilisation of PCC services	Alcohol & general pre-conception lifestyle/health
Barrett et al., 2015	UK	Interviews	Not stated	Antenatal services	Pregnant or recently pregnant women aged 23–40 years, high and low investors in pre pregnancy care	20	Attitudes, knowledge, experiences and views regarding women investing in prepregnancy health & care	Alcohol & general pre-conception lifestyle/health
Claesson et al., 2015	Sweden	Questionnaire	6 months during 2010	Family planning clinic	Women aged 19-40 years visiting a midwife in a family planning clinic	535	Views about being engaged in discussions about alcohol, tobacco use & weight status.	Alcohol & general pre-conception lifestyle/health
DeCastro Nascimento et al., 2015	Brazil	Interviewer administered questionnaire	January to July 2012	Public maternity hospital	Pregnant, parturient and puerperal adolescent females aged 13-19 years	126	Knowledge and practice regarding PCC	Alcohol & general pre-conception lifestyle/health
Hattema et al., 2015	USA	Questionnaire	July 2012 to October 2012	13 Virginia State Department of Health public clinics providing women's services	Women aged 18-44 years, attending FP or STI services	199	Attitudes & beliefs towards receipt of SBIRT services	Alcohol & general pre-conception lifestyle/health
Skagerstrom et al,. 2015	Sweden	7 focus groups	September 2013 to February 2014	3 locations in south east Sweden	Women aged 17-34 years, not pregnant & no children	34	Perceptions about alcohol & pregnancy	Alcohol
Elek et al., 2013	USA	20 focus groups	2010	Chicago & Atlanta (participants drawn from a focus group database company)	Women aged 18-35 years	149	Beliefs & knowledge about alcohol consumption and its risks during pregnancy	Alcohol
Harelick et al., 2011	USA	Paper questionnaire	February 2009	2 community health centres serving lower income, racially diverse population, Westchester county, NY	Women aged 18-44 years, seeing a HCP in the community health centres	340	Knowledge of preconception risk factors & current health behaviours	Alcohol & general pre-conception lifestyle/health
Coonrod et al., 2009	USA	Paper questionnaire	Spring & Winter 2008	Women's care clinic at a public hospital serving low income and indigent population in Phoenix, Arizona	Women aged 18-45 years and attending an appointment at women's care clinic. 68% currently pregnant	305	Pre-conception knowledge and attitudes	Alcohol & general pre-conception lifestyle/health

Abbreviations: United States of America (USA); United Kingdom (UK); General Practitioner (GP), Pre-conception Care (PCC); Substance Use Disorder (SUD); African Indian/Alaska Native (AI/AN); Changing High-Risk Alcohol Use and Increasing Contraception Effectiveness Study (CHOICES); CHOICES for American Indian/Alaska Native Teens (CHAT); Screening Brief Intervention and Referral Treatment (SBIRT); Family Planning (FP); Sexually Transmitted Infections (STI)

opportunity…' theme). Adolescent females aged 15-19 years attending urban family planning clinics for under-served populations in the Midwest USA and university students wanted positive messaging about alcohol re-framed to give information on how to be a healthy drinker rather than reducing risky drinking [30].

3.4.2. Window of opportunity 'piggy backing' onto other contacts with healthcare professionals

Women were more likely to seek advice if they had a relevant medical condition or experience of previous miscarriage, stillbirth or termination [26]. Claesson et al [36] recognised in their study how most of the women (85.5%) stated that a discussion concerning alcohol habits is important at a contraceptive counselling session, or at a sexual health clinic [30]. Jenson et al [24] in recognition of the high-risk period in youth, suggested taking advantage of other school or college activities or events as an opportunity to address pre-conception care. Coonrod et al [42] concluded in terms of timing, 55% of women indicated the most favourable time for this education was either before pregnancy or at every medical examination; however, interestingly 30% of women felt it should be during pregnancy. This is reflected too in McGowan et al [33] where advice is welcomed in the period of planning a pregnancy not specifically at other times in the participants life journey. Also, an opportunity to focus on prevention of AEP was also recognised by women receiving alcohol treatment services [23].

3.4.3. Trusted sources

The importance of 'trust' was highlighted. The role of social support was acknowledged as a facilitator of preventing AEP, with family, community, culture, trust, respect and passing down of wisdom all being of paramount importance [25], however in the study by Hanson et al [32] participants (teenagers) preferred to receive birth control/health advice from professionals like midwives rather than from their parents. HCPs were viewed as trusted sources of information about health [40], and the women participants in Robinowitz et al [23] outlined for example, that their substance use counsellors would be best placed to also provide family planning education as they had already established a relationship based on trust with them. Women not only desired education, but they wanted their health professionals (doctors for example), to be able to provide this [42]. However, in McGowan et al [33] participants stated a preference for the information coming from social media, blogs and "influencers", and valued the anonymity that online resources offered [32].

Furthermore because of that relationship of trust, women said they would respond honestly to HCPs discussing alcohol consumption and its associated health risks with them [38]. Interestingly, these results contrasted with practitioner assumptions and reservations about whether patients would be open to talking about their drinking [38]. However, it is important to consider the way in which healthcare systems are set up, as the Poppelaars et al [27] suggests only 22% of women would visit their GP pre-pregnancy for advice regarding risk factors, and this was related to how the current healthcare system was designed.

3.4.4. Knowledge gap regarding risk of AEP

Findings varied regarding knowledge about the effects of alcohol on pregnancy outcomes. Women had knowledge that lifestyle factors such as alcohol consumption, smoking and obesity could affect pregnancy outcomes [34], and knew about alcohol and birth defects [28,42]. They were also aware of the concept of preconception health to optimise infant health [34]. This was in contrast with participants in McGowen et al [33] who stated that they were aware that alcohol could have an effect on foetal development during pregnancy, but were unaware that this was an issue in the pre-contraception period and a male partners' consumption was not considered a risk to pregnancy health [28]. Participants within Skagerström et al [39] had scant knowledge about the effects of alcohol exposure during pregnancy, were unaware of FASD as a consequence of drinking alcohol and desired more information on its impact on fertility, pregnancy outcomes and health of the offspring.

Adolescents were less informed on the topic. They conceptualised preconception health in three dimensions: emotional, social and physical. Physical health covered changes in daily habits such as sleep, physical activity, socialising at night less frequently, and avoiding alcohol, tobacco and drugs [37]. In young women who were desiring pregnancy within a year who were from a state with high deprivation in India, knowledge of PCC was largely restricted to contraception, and did not acknowledge that alcohol consumption was something that was relevant to their lives, but it is something that the elder women in their community may do [28].

In one study, none of the women's healthcare providers linked potential risks to a fetus with women's consumption of alcohol while sexually active and not using contraception [40]. They focused instead on excessive alcohol use leading to higher risks of pregnancy or acquiring sexually transmitted diseases. Even women who told their healthcare providers that they were trying to conceive did not get clear messages about abstaining from alcohol. Only a few of the participants' healthcare providers mentioned eliminating or decreasing alcohol consumption while trying to conceive, and no participants stated that their provider discussed more in-depth information on the potential effects of alcohol use when trying to get pregnant [40]. There was acknowledgment that knowledge alone is not sufficient to change behaviours. Behaviours not influenced by providers recommendations particularly in relation to alcohol [41].

4. Discussion

This narrative synthesis provides a coherent summary of the perspectives of HCPs and women of reproductive age regarding the risks of AEP being addressed during the preconception period. HCPs agreed that promotion of a healthy pregnancy and addressing health risks such as alcohol was important and could bring health gains. However, within primary care, views varied as to who should deliver such care. Women were receptive to receiving information to promote having a healthy pregnancy and would like to receive this advice and support from health professionals. This could be at appointments or occasions when they were being seen for another topic if it was related to sexual and reproductive health, but others would prefer to seek out the information for themselves from other sources. There was no evidence that they would find the enquiry or advice intrusive or unwelcome.

Studies were disparate in terms of research design, sample populations and the beliefs and knowledge of HCPs and women regarding addressing alcohol pre-conceptually for harm prevention/minimisation relating to fetal health outcomes. This has impacted on the richness of the data as some themes had sparser data, thus limiting the conclusions that can be drawn from the available evidence.

4.1. Comparison with existing literature

Finding that HCPs lack time, guidelines and information to inform their practice is not new or surprising. Numerous studies collated in systematic reviews also show these as barriers to providing evidence-based care [43–45]. Fortunately, they are amenable to strategies to improve implementation such as education and communication skills training; local guidelines and care pathways, the use of local opinion leaders and patient mediated interventions e.g. alcohol questionnaire scores with multi-component interventions comprising several strategies being the most effective [46].

The studies involving women of reproductive age included women from diverse backgrounds including women from ethnic minorities, and women with low income who were at different stages of the lifecourse: either currently not intending pregnancy, planning pregnancy, recently pregnant or between pregnancies. However, in our review few studies sought the perspectives of men about PCC. Preconception approaches that engage men in optimising reproductive health have the potential to improve health and wellbeing for men, their partners and offspring [47].

How strategies to reduce the risk of an AEP are embedded within a preconception care package remains unclear. The studies we included that were carried out in Canada specifically addressed prevention of FASD as a pre-conception "model", whereas in the studies from Australia, FASD prevention was within the context of a pre-conception model to improve overall health in which alcohol was specifically addressed. More data are needed on the optimal model of service delivery. Whether it has a specific focus on alcohol, or alcohol is one of several risk factors addressed in a wider care package.

While targeting interventions for women of childbearing age is a promising strategy to reduce fetal harm caused by alcohol exposure, wider population-based approaches to prevention are also of relevance [48]. Three population-based cost-effective interventions to reduce the harm from alcohol have been identified as 'best buys'. These are raising taxes on alcohol, restricting marketing and advertising, and limiting availability by controlling when and where alcohol can be purchased [49]. Recent additions to the three best buys are reducing and preventing drink-driving and improving access to screening for risk of alcohol-related harm, alcohol brief interventions, and alcohol misuse treatment services [50]. The importance of having effective approaches that can reduce alcohol consumption of the population has been recognised through the development of a framework for FASD prevention in Canada [51]. The framework illustrates how supportive alcohol policy strengthens all levels of prevention efforts – from broad awareness raising and health promotion to specialised treatments or interventions for women with alcohol problems [51]. Adopting supportive alcohol policies might be particularly important in countries where population-level interventions are not currently adequately implemented [52], as specific preconception interventions might be less likely to effective within such contexts.

People are more receptive to health messaging when it is salient to their lives [53,54]. Many women do plan pregnancy and this is one such occasion when they may be more receptive to an AEP intervention. Research studies indicate that not all women stop drinking until pregnancy is confirmed even when they have planned their pregnancy [10,11], making it worthwhile to deliver interventions to reduce AEP in such women. Reaching women who are consciously planning pregnancy, particularly where pre-conception health services are not part of routine care, remains a challenge. One promising approach from the USA involves asking women who attend a healthcare appointment 'One Key Question' to screen for pregnancy intention. This then offers an opportunity to provide interventions to improve health for pregnancy [55]. Other approaches to reaching women include through social media and local ambassadors and at infertility appointments [56]. A systematic review of interventions to reduce risk of AEP [9] found interventions were most effective at improving contraception adherence with only small reductions in drinking across a range of studies mainly carried out in the USA. Prevention of pregnancy through contraception adherence may reduce the risk of an AEP risk in women who are not consciously planning pregnancy, but it remains unknown to what extent an AEP would be prevented when women stop using contraception with a view of becoming pregnant.

There are some promising approaches to promoting and monitoring preconception health being implemented. These include a programme launched by The Queen's Nursing Institute Scotland (QNIS) in 2021,

'Healthier Pregnancies, Healthier Lives', which aims to raise awareness of neurodevelopment disorders such as FASD, and to encourage healthcare professionals to identify opportunities to make a positive difference before a first or next pregnancy [57]. In England, a new system has been introduced in 2022 to monitor preconception health through the routine recording of indicators of risk of complications in pregnancy such as smoking, risky alcohol use, dietary intake of key nutrients and mental health disorders [58].

4.2. Implications for policy

Preconception care to improve maternal and infant health outcomes is recognised as an important goal evidenced by guidance from professional bodies such as the Royal College of Obstetrics and Gynaecology (RCOG) [5] and Public Health England (PHE) [3,4] in the UK, and internationally by the CDC [7] in the USA and the WHO [6,50,52,53]. However, they fall short of giving specific recommendations on how it can be implemented or pathways for delivery in current healthcare systems. The projected rising per capita alcohol consumption in Africa and Asia, coupled with slow progress in achieving specific targets within Sustainable Development Goals (SDGs) of improved access and uptake of modern contraception in many low- and middle-income countries [59], is likely to have an adverse impact on maternal and infant health outcomes, therefore policy is required to address future alcohol harm in these countries. Clearly, implementing PCC has resource implications with requirement for budget to be allocated for this activity and training resources developed and tailored for each professional group. Given this is an emerging area of research and health relevance, it is important to keep guidance up to date so that evidence informed policy is facilitated.

4.3. Implications for research

Despite this collation of 23 studies, it remains unclear how healthcare interventions that aim to reduce the risk of AEP can be delivered, in what settings, who could deliver such interventions and for whom. The current body of research is from high income countries where maternal and infant mortality are lower and general health indices are higher than in LMICs. However, per capita alcohol consumption is higher in many high-income countries with the European region having the highest estimated consumption by women during pregnancy [60]. Furthermore, within HICs there are health inequalities due to social determinants of health and health gains could be made by focusing prevention efforts on these sectors of the population. Research codesigning strategies could facilitate this and needs to focus on implementation and behavioural science. Health professionals seem to be hesitant about discussing alcohol with women for fear of causing offence. Further research is needed to explore which health care professionals could be involved in the delivery of interventions from both service users and service providers perspectives.

4.4. Strengths and limitations

One strength of this review is the inclusion of perspectives from both HCPs and women of reproductive age which facilitated drawing out common and complementary viewpoints arising from the synthesis. Another strength is the comprehensive search we carried out using multiple sources, minimizing the number of relevant articles not identified. It also used a robust approach to systematically examining the literature including using at least two independent researchers to screen citations and review papers across all stages of the work. The use of Rayyan was an enabling factor in the application of this approach. Although scoping reviews usually take a less formal approach than systematic reviews [61] we maintained high rigour in the process by transparent reporting of search terms used, databases searched and articulation of inclusion and exclusion criteria.

One limitation is the use of preconception as a search term. This would have potentially missed relevant articles that involved women of reproductive age that did not specifically mention preconception or associated synonyms in the title or abstract. However, using a term for women of reproductive age would have resulted in a search that lacked specificity and we judged this as an acceptable tradeoff in order to increase the sensitivity of the search to generate a manageable number of titles and abstracts to screen. Another limitation is the lack of formal appraisal of the studies. However, we present characteristics of the studies in Table 2 and took these characteristics into account during interpretation of findings.

5. Conclusion

This narrative synthesis has identified some key factors that could inform efforts regarding prevention of AEP with women during preconception. HCPs are well placed to support opportunistic provision of alcohol harm reduction advice as part of care in the preconception period. It is important for organisations to support HCPs to undertake this role by having clear practice guidelines and allocating budget to required resources. Further research should evaluate implementation strategies for HCPs to support them addressing alcohol with women in the context of optimizing health for pregnancy, and clarify who could deliver interventions to reduce AEP, in what settings and who could receive such an intervention and how frequently.

This review shows women want information on the risks of alcohol to pregnancy/fetal health before conception and would find this acceptable particularly if it is provided during clinical encounters when it is salient to their current health seeking circumstance such as contraceptive advice. This approach would align with UK health policy which encourages HCPs to "make every contact count" (MECC) during routine interactions with service-users. MECC is an approach to promoting an individual's behaviour change to improve their health and wellbeing [62]. In order for HCPs to implement preconception alcohol advice, they need adequate resources such as skills training, policy guidelines to steer practice and explicit organisational support for the practice.

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Declaration of Competing Interest

The authors have no conflicts of interest to declare.

Appendix A. Supplementary data

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