Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Perspectives of Women and Healthcare Professionals in High-Income Countries on How to Frame, Communicate and Deliver Preconception Health: A Meta-Aggregative Systematic Review

Dominic Shepherd
Arden University https://orcid.org/0009-0000-0559-5646
Nancy Coulson
ncoulson@arden.ac.uk

Arden University
Alessandro Tridico
Arden University

Systematic Review

Keywords: preconception, healthcare, health communication, women's health, healthcare professionals, qualitative evidence synthesis

Posted Date: October 27th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11274829/v2

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: The authors declare no competing interests.

Perspectives of Women and Healthcare Professionals in High-Income Countries on How to Frame, Communicate and Deliver Preconception Health: A Meta-Aggregative Systematic Review

Dominic Shepherd[a], Nancy Coulson*[b] and Alessandro Tridico[c]

[a]School of Health and Care Management, Arden University, Coventry, UK; [b]School of Health and Care Management, Arden University, Coventry, UK; [c] School of Psychology, Arden University, Coventry, UK.

*Corresponding author, contact details: ncoulson@arden.ac.uk

Abstract

Purpose: Understanding, engagement with and delivery of preconception health (PCH) remains challenging. This meta-aggregative systematic review synthesized women's and healthcare professionals' perspectives on how PCH is understood, experienced and received, alongside barriers and facilitators to delivery and communication, to inform future PCH communication and delivery approaches.

Methods: The Joanna Briggs Institute Meta-Aggregation approach to qualitative evidence synthesis was used. Peer reviewed and grey literature were searched across seven databases (PubMed, CINAHL, PsycInfo, Google Scholar, CORE, BASE and OATD). Studies meeting the inclusion criteria were identified and screened. Studies were appraised and data extracted using the JBI checklist and extraction tool. Findings were categorised and synthesized with synthesized findings translated into recommendations through a communication framework.

Results: 34 studies were included in this final review from screening 1346 papers. Six synthesized findings emerged: (1) limited conceptualisation and awareness of PCH, (2) perceived relevance and motivations for engagement, (3) preferences for accessible, timely and tailored information (4) burden of gendered responsibility, (5) social and cultural influences on engagement and, (6) structural barriers within healthcare systems.

Conclusion: PCH messaging requires reframing in ways that are ethically sound, meaningful and tailored to women's circumstances, health status and cultural backgrounds. Communication should be delivered through accessible channels and integrated into routine healthcare.

Keywords: preconception; healthcare; health communication; women's health; healthcare professionals; qualitative evidence synthesis

Introduction

Preconception health defined as the health behaviours, risk factors and wider determinants of health for women and men of reproductive age (15-49) in the months and years prior to a pregnancy, plays an important role in the ability to conceive, a healthy pregnancy and long-term offspring health (Shawe et al., 2020; PHE, 2018). Across the United States, Canada and countries in Northern Europe, a growing proportion of women are entering pregnancy with obesity, Type 1 and Type diabetes 2, consequently increasing the risk of stillbirth, congenital anomalies, preeclampsia and the likelihood of their offspring developing obesity later in life (Murphy et al., 2021; Mannino et al., 2022; Lundborg et al., 2024; Righton et al., 2024). For example, in England 9 in 10 women enter pregnancy having at least one indicator that increases the risk of poor birth outcomes such as not taking folic acid supplementation, obesity, smoking around the time of conception, pre-existing mental health conditions and pre-existing physical health conditions (Schoenaker et al., 2023). In the UK over half of maternal deaths between 2021-2023 were in women with pre-existing medical conditions excluding obesity (Felker et al., 2025). Analysis of modifiable factors contributing to infant deaths under 1 in the UK, identified high maternal BMI, parent/carer smoked tobacco/e-cigarettes and smoking/e-cigarette use in pregnancy as the most commonly recorded factors (National Child Mortality Database, 2025). Such health behaviours are established well before conception (PHE, 2018).

Whilst knowledge of the importance and need for a greater focus on preconception health has been advocated for and increasingly referenced within policy, in practice it remains challenging to engage women in and for clinicians, practitioners and health promotion specialists across the world to deliver (Steel et al., 2025; Hall et al., 2023). Factors such as lack of awareness and comprehension, low perceived seriousness, lack of agency over

outcomes, limited coverage in routine healthcare appointments and prevailing perceptions of the topic applicable only when fertility concerns arise, have been found to hinder engagement (Puliani et al., 2024; Welshman et al., 2023; Poels et al., 2016). Conceptually preconception health remains difficult to grasp by women of childbearing age. In a recent public consultation, it was concluded that people of reproductive age in the UK have little understanding of preconception health, calling for more to be done to effectively communicate the topic to the public including development of meaningful public health messages that have been co-developed with the target audience (Schoenaker et al., 2024). At present the field lacks a robust systematic framework through which to communicate preconception health messages that are rooted in the perspectives of women and healthcare providers.

Critically health promotion of preconception health could, if not informed by those it intends to reach and carefully framed, continue to have little impact or worse impart negative consequences. For example, framing of preconception health has been critiqued for being communicated in ways that may not adhere to bioethical principles, such as respect for autonomy, non-maleficence, justice and health equity (Waggoner and Pentecost, 2025). Undue harm may arise from perpetuating stereotypes, pronatalist ideologies and reducing women to being important only in their capacity to reproduce, creating a significant 'reproductive burden' (Waggoner, 2017). An appropriate framework through which to effectively communicate preconception health and avoid such concerns remains absent. Without this, preconception health could continue to alienate individuals and disengage the public. In the UK popular discourse, it has been found that the media positions preconception health through a gendered and thus imbalanced lens, defining women in relation to their reproductive potential, increasing the likelihood of self-blame and guilt as well as restricting

autonomy (Budds, 2021). Indeed, whilst both women's and men's health prior to conception are important for pregnancy outcomes and infant health, research, health promotion and the public health field has largely focussed on women (Carter et al., 2026). Several qualitative studies have identified harmful unintended consequences on women arising from the existing framing of preconception health interventions and promotion efforts, consequently impacting receptivity and engagement (Budds et al., 2025; Gardiner et al., 2025; Jenkinson et al., 2025; Mello et al., 2020).

To ensure future preconception health promotion and practice improves awareness, reach, engagement and ultimately behaviour change while minimising harm, it is essential to first understand *how* preconception health is interpreted and perceived, in addition to identifying the barriers and facilitators to engagement for both receivers (people of reproductive age) and likely deliverers (healthcare professionals).

To date a systematic review which incorporates both accounts, through the lens of a health communication framework translating findings for practice and service delivery remains absent. A recognized health promotion and communication framework through which public health communication can be designed and structured is Berlo's S-M-C-R framework (Berlo, 1960). By organising and structuring qualitative insights through the optimal source (who is most appropriate to convey the message), message (how should the message be conveyed in what terms, words and framing), channel (by what mediums ought preconception health be communicated through and where) and receiver (who to target, recognising the different reproductive intentions women have, cultural contexts and universal versus targeted approaches), promotion efforts that balance equity and ethical dilemmas inherent within preconception health can be appropriately deployed.

Therefore, the aim of this systematic review was to synthesize the voices of women and healthcare professionals on how preconception health is understood and interpreted by women of childbearing age, alongside barriers and facilitators to engagement, delivery and communication (for both women and healthcare professionals), translating such phenomena into recommendations for preconception health communication and promotion strategies.

Materials and Methods

The chosen qualitative synthesis approach was the Joanna Briggs Institute (JBI) Meta-Aggregation approach (Aromataris et al., 2024). The essence of meta-aggregation is an integrative, illustrative approach that does not seek to re-interpret authors findings but rather through assimilating studies and their findings provide a practical and trusted representation of themes, metaphors, categories or concepts arising (Pearson et al., 2011; Grover et al., 2023). Aligned to the aims of this systematic review, it is grounded in the research philosophy of pragmatism and transcendental phenomenology in that the utility of the research is in its ability to be practical and usable for healthcare practice (Hannes & Lockwood, 2011; Lockwood et al., 2015). The outputs are defined as 'lines of action' or synthesized statements that directly inform health related policy and practice (Pearson et al., 2011; Lockwood et al., 2015).

The latest iteration of the JBI Manual for Evidence Synthesis (Aromataris et al., 2024) was followed. The review was reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021), where relevant to the methodology. The review was not prospectively registered. A review protocol was developed prior to commencement of the review but was not formally published.

Study Eligibility

Articles were included if they were published between January 1st 2018 – 31st January 2025, of qualitative design (including but not limited to, phenomenology, grounded theory, ethnography, and action research), published or grey literature (dissertations, theses, reports and conference proceedings) or pre-print studies of sufficient quality and written in the English language. Quantitative and mixed methods studies were not included. Studies were included that explored either or both the views of healthcare professionals and women of childbearing age. Studies focusing on preconception health as an overarching concept or specific behaviours/interventions were included. The age range of women of reproductive age 15-49 was used as defined by the World Health Organisation. Where studies included women under 15 or over 49 careful attention was given to extract only data pertaining to participants within this age range. No limiters were applied on pregnancy intention of participants in the studies. Studies involving solely male participants were excluded. Where studies included both men and women, only those that provided sufficient insights into perspectives of women were included.

In line with the qualitative synthesis approach, a Population, phenomena of Interest and Context (PICo) mnemonic was developed to aid in the screening of articles.

Population

Women of childbearing age, aged between 15-49 years with or without a pre-existing chronic illness, of any ethnicity and socio-economic status. Healthcare professionals were defined as recognised healthcare providers such as (but not limited to) doctors (GPs), physicians, nurses, midwives, health visitors, obstetricians and gynaecologists.

Phenomena of interest

The review included studies which explored 1) attitudes, beliefs, perspectives, interpretations and understanding of preconception health and/or 2) barriers and facilitators to engaging in and delivery of preconception health, advice and promotion for women of childbearing age and/or healthcare professionals.

Context

Only studies conducted within high-income countries (as classified by the World Bank) were considered for inclusion in the final review. Healthcare professionals working in both primary and secondary care were included.

Search Strategy

A search strategy was developed from preliminary scoping searches of literature relevant to the systematic reviews aim. This identified key terms, synonyms and phrases relevant to the topic. These search terms were then refined and tested within PubMed utilising Boolean operators, truncation and Medical Subject Headings (MeSH) through an iterative approach which sought a balance between sensitivity and specificity. Subsequently one final search strategy was developed and tailored to each database searched.

Both published literature through bibliographic databases and grey literature (dissertations, theses, reports and conference proceedings) were sought. Bibliographic databases searches for published articles were PubMed/MEDLINE, CINAHL, PsycInfo and Google Scholar. Grey literature was obtained from CORE, BASE and Open Access Theses & Dissertations (OATD). All final database search terms, strategies, dates conducted and results can be found in Supplementary Material (1). Forward and backward citation chaining was undertaken to identify further relevant citations through both Google Scholar and review of reference lists of citations already identified.

References identified were collated, organised and stored in Mendeley. Search results from each database were extracted and uploaded into the software. Before screening and applying the inclusion and exclusion criteria, references were de-duplicated.

A screening and selection tool was created to arrive at the final selection of studies for inclusion. The tool available in Supplementary Material (2) mirrored the PICo and inclusion/exclusion criteria. This was applied in two stages – informally at first to screen titles and abstracts only, excluding those not meeting the criteria and then used formally to complete for full text screening of all individual studies remaining. Screening was completed independently by two of the reviewers.

Quality Appraisal

The JBI Qualitative Appraisal tool (JBI, 2020) was used to critically appraise the included studies. This was facilitated through the JBI SUMARI software where the checklist is embedded. Each study was appraised according to the 10 questions which broadly assesses congruency between research methodology adopted to each stage of the study, accurate representation of study participants voices, acknowledgement of the researchers influences on the study and the validity of conclusions reached in relation to the findings. The tool identifies how methodologically rigorous studies are and the credibility of their findings. It was decided that no studies would be excluded based on critical appraisal scores. This was done as the meta-aggregation approach does not specify what constitutes a 'low', 'medium' or 'high' quality study or whether 'low' and 'medium' quality studies ought to be discarded (Hannes et al., 2017). Therefore, defining a threshold based on the JBI appraisal tool appeared somewhat subjective, resulting in potentially rich data being missed based on an arbitrary cut-off for quality. Quality control at the level of extraction and synthesis of

findings ensured robust supporting qualitative data for practice recommendations.

Data Extraction and Synthesis

Data extraction took place in two phases. Firstly, study characteristics were extracted from each study and documented in the JBI SUMARI Qualitative Data Extraction Tool which captures key study details.

As per the second phase of the JBI meta-aggregation extraction process, findings from all studies were collated, then merged into categories and finally into synthesized findings. This stage was completed by one author initially for all included studies and subsequently reviewed by another author to check accuracy, rigour and consistency of all findings, allocated categories and resulting synthesized findings, helping improve validity. Findings were identified through re-reading of each of the individual studies, paying particular attention to the results sections. Themes, metaphors and concepts were identified, whichever took the form of the primary researcher's analytical interpretation or conclusion reached (Pearson *et al*., 2011; Aromataris *et al*., 2024). Each finding captured was then paired with a corresponding element of the raw data defined as 'illustrations' in meta-aggregation. These were verbatim quotes or similar observations where this was not documented, supporting the finding. A level of credibility was assigned to each finding based on the how well supported they were by illustrations. Unequivocal (U) defined findings that were supported beyond a reasonable doubt, Credible (C) if the finding was open to challenge or interpretation. Unsupported findings were not included in the synthesis. This assurance process ensured only reliable findings congruent between the researcher's interpretation of their results and the voice of the participants were extracted (Lockwood *et al*., 2015; Hannes *et al*., 2017).

Findings of similar meaning were then grouped and allocated to a category which defined

and comprised of at least two or more findings. This was achieved through analysis and repeated reading of all the findings to identify similarities and patterns. In the final stage, categories were aggregated into synthesized findings, defined as an overarching representation of two or more categories and their respective collective meaning and translated into 'lines of action' (Pearson *et al*., 2011; Aromataris *et al*., 2024).

Results

Study selection

Database searches were conducted and re-run between March 2025 – April 2025. Figure 1 shows the PRISMA flow diagram detailing the search process (Page et al., 2021). A total of 1954 records were identified from the seven databases. Following de-duplication 1346 papers remained which were screened at the Title/Abstract level. 1232 papers were excluded at this stage, leaving 114 papers for full text paper retrieval. Seven records were unable to be retrieved. A further six papers were identified through citation chaining.

113 papers retrieved from databases and citation chaining were assessed against the full screening tool. 79 were excluded due to a) wrong study population (n=15), participants were either men, not healthcare professionals, or outside the age range b) wrong phenomena of interest studied (n=51) focussing solely on pregnancy, sexual and reproductive health, contraception or other phenomena not directly related to preconception health and the participants beliefs, perspectives, understanding or barriers and facilitators c) wrong study design (n=9), being either quantitative or mixed methods. 34 studies were deemed eligible and included in this systematic review.

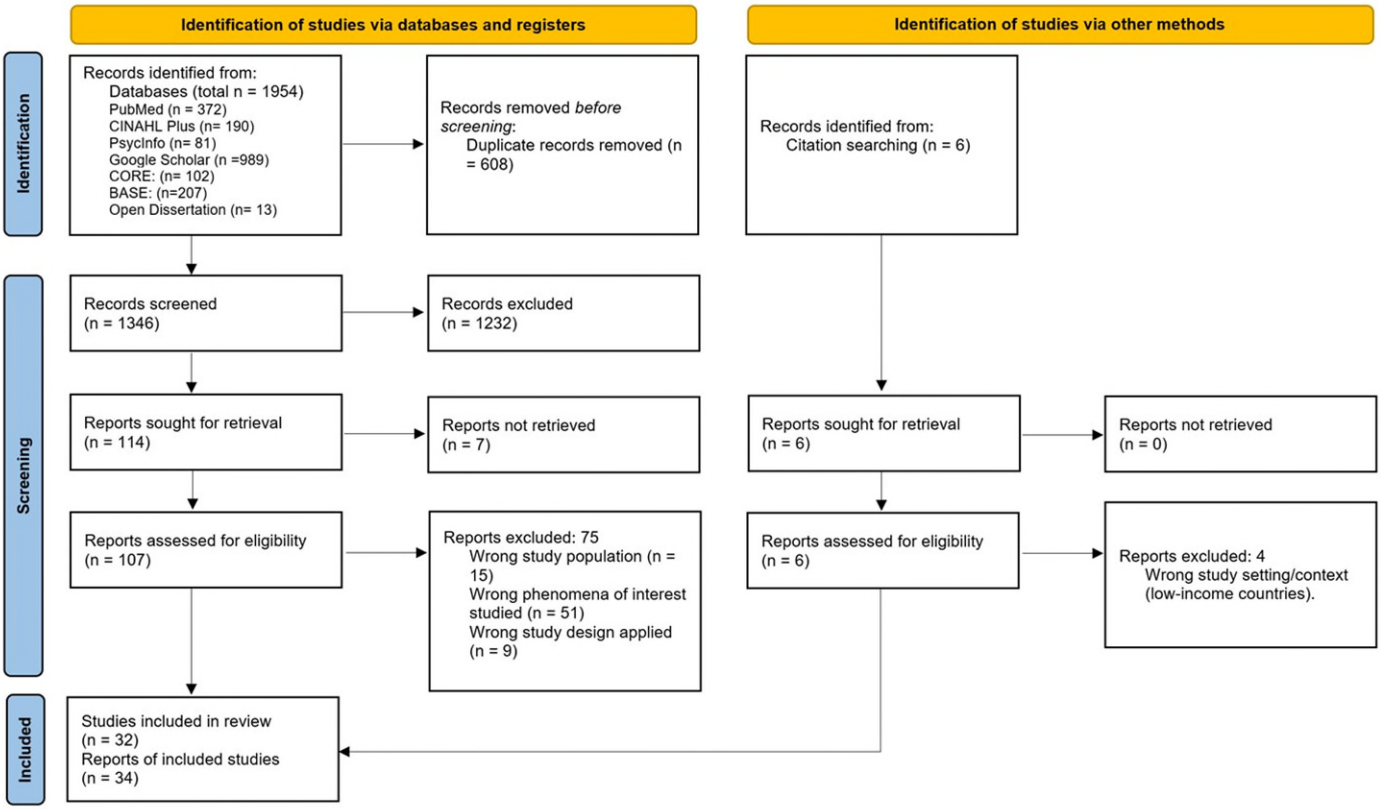


Figure 1: PRISMA Flow diagram

Methodological Quality

Based on the JBI Qualitative Critical Appraisal tool overall quality of the studies was high. All studies fulfilled the first five appraisal areas indicating strong congruency between research methodology and research questions or objectives, philosophical perspectives, interpretation of results, representation and analysis of data and methods used to collect data. Five studies clearly met all ten criteria. For the 29 studies that did not, the main weakness was 'locating the researcher culturally or theoretically' (n=27) and/or identifying the 'influence of the researchers on the research, and vice versa' (n=19) not being addressed. Full details of quality assessment scores are available in Supplementary Material (3).

Characteristics of included studies

Full study characteristics for the 34 studies are presented in Supplementary Material (4). Studies were published between 2018-2025 and of qualitative design with the majority using semi-structured interviews and/or focus group methodology. Sample sizes ranged from 9 to 197 for women of childbearing age and 10-24 for healthcare professionals. Studies were conducted across nine countries: UK (n=12), Australia (n=10), United States (n=4), Saudi Arabia (n=2), Canada (n=2), Norway (n=1), Sweden (n=1), Netherlands (n=1), and Bulgaria (n=1). 23 studies had women as the sole participants, 6 healthcare professionals, and 5 sampled both. GPs/family physicians were the most represented healthcare professionals featuring in nine studies, followed by nurses (n=7), midwives (n=6), obstetricians/gynaecologists (n=4), consultants (n=2) and endocrinologists (n=2). Several other professions were represented across one of the eleven studies including healthcare professionals. Studies with healthcare professionals were situated across primary (n=9) and secondary care (n=4).

Ages of women varied between 16-49, with ages between 25-39 being the most common. One study focussed specifically on adolescents aged 16-18 (Ragnar et al., 2018) and another on university students aged between 18-25 (Quayyum et al., 2021). A range of ethnicities was represented where this was reported (11 out of the relevant 28 studies). Women of Black ethnicity (including African American/Latina/Caribbean/British) were in nine studies, White in nine studies, Asian British in five studies and mixed race in four studies.

Five studies were purposively conducted with women of low socio-economic status and/or living within socially deprived areas (Garcia et al., 2018; M'hamdi et al., 2018; Balogh et al., 2019; Forde et al., 2020; Forde et al., 2021). Eight studies had women with health conditions

as their sample, including two studies focussing on overweight and/or obese women (Balogh et al., 2019; Benton et al., 2020), five on women with Type 1 and/or Type 2 Diabetes (Forde et al., 2020; Nwolise et al., 2020; Forde et al., 2021; Britton et al., 2023; Dyer et al., 2024) and one on women with Poly-Cystic Ovary Syndrome (Holton et al., 2018).

Synthesized Findings

339 findings were extracted from the 34 studies, grouped into 26 categories and aggregated to six synthesized findings. These synthesised findings reflect perspectives from women of childbearing age, healthcare professionals, or both, depending on the focus of the primary studies and the phenomenon under consideration. The findings can be viewed at three levels. First, the individual level, (1) Conceptualisation and awareness of preconception health (2) Perceived relevance and motivations for engagement (3) Accessible, timely and tailored information. Second, the societal level, (4) Social and cultural influences (5) Gendered burden of responsibility and thirdly at the system level (6) Structural barriers within healthcare systems. Whilst perspectives of both women and healthcare professionals featured across findings, findings (1), (2), (3), (4) and (5) are primarily related to women's perspectives with synthesized finding (6) underpinned by healthcare professional's perspectives.

Synthesized Finding 1 | Conceptualization and awareness of preconception health

Limited understanding and awareness of preconception health was apparent across included studies. Women had rarely come across the term and if they had, the majority mentioned only taking folic acid (Lang et al., 2020; AlWatban et al., 2023; Hristova-Antanasova et al., 2023). Studies identified how women conceptualise preconception health as being synonymous with either being currently pregnant or actively planning a pregnancy (Lang et al., 2020). The

concept was reported across studies as being confined to the ability to conceive and only necessary and encountered if women were having difficulty conceiving (Alamer et al., 2020; Lang et al., 2020; McGowan et al., 2020).

Women associated preconception health with broader preparation constructs such as a stable relationship, living in a suitable home and environment, stable job and financial circumstances (Ragnar et al., 2018; Balogh et al., 2019; Britton et al., 2023; Jenkinson et al., 2025). Where women did identify health concepts relevant to the term, studies repeatedly found these to centre on alcohol and smoking reduction, good diet, physical activity, mental health, weight management and pre-pregnancy supplements (M'Hamdi et al., 2018; Walker et al., 2021; Silverio et al., 2023; Jenkinson et al., 2025).

In several studies women reported a perceived lack of control over pregnancy outcomes in that it was deemed not possible to influence health outcomes prior, with faith or fate playing a stronger role. Subsequently this manifested in scepticism regarding the need for and importance of focussing on preconception health and therefore limited women's engagement (Balogh et al., 2019; Aw-Nuur et al., 2024). A lack of early education in school settings around preconception health appeared in several studies to contribute to low levels of awareness and importance being attributed (Ragnar et al., 2018; Dorney et al., 2025; Caut et al., 2025b).

Synthesized Finding 2 | Perceived relevance and motivations for engagement

A large number of findings encompassed how women sought preconception health advice and healthcare professionals came across women seeking support, in the event they were unable to fall pregnant or wanted to proactively improve their chances of conceiving,

otherwise it was deemed irrelevant (Holton et al., 2018; M'Hamdi et al., 2018; Lang et al., 2020; Silverio et al., 2023; Daly et al., 2024b). Preconception health advice was sought and interpreted from a place of "being fit for conception" or to make "conceiving quicker and a more straightforward process" (Alamer et al., 2022; Jenkinson et al., 2025). Engagement and uptake of preconception health behaviours was therefore spoken of in terms of solely optimising chances of conceiving (Khan et al., 2019; Lang et al., 2020; Budds et al., 2024; Schoenaker et al., 2025). Prior adverse pregnancy outcomes were identified as a reason to seek preconception health advice (Aw-Nuur et al., 2024). In multiple studies, women who viewed themselves as living a generally healthy lifestyle, predominantly defined in terms of good diet, exercise and not smoking or drinking, did not feel the need to do any specific preparation prior to pregnancy (Ragnar et al., 2018; Khan et al., 2019; McGowan et al., 2020; Quayyam et al., 2021; Dorney et al., 2025; Jenkinson et al., 2025). In two studies, women with specific health conditions reported the need and benefit of personalised, dedicated preconception health support such as pre-pregnancy clinics to adequately meet their needs (Forde et al., 2020; Benton et al., 2020). Further, such participants reported a greater desire and concern for preconception health support, often wanting tailored specific advice to feel assured prior to pregnancy (Holton et al., 2018; Nwolise et al., 2020). A strong emphasis on tailored and individualised approaches was highlighted with differences required in approaches for women depending on age, sexual orientation, health conditions and whether they currently have children or not (Quayyum et al., 2021; Walker et al., 2021; Daly et al., 2024b).

Synthesized Finding 3 | Accessible, timely and tailored information

Women frequently cited utilising and a strong preference for digital tools to find out about preconception health related topics, including websites, apps and social media with most

participants searching for information through ‘Google’ first (McGowan et al., 2020; Lang et al., 2020; Daly et al., 2024b; Hall et al., 2024; Jenkinson et al., 2025; Dorney et al., 2025). Women frequently emphasised the need for reputable, reliable and trustworthy sources. Whilst this was framed as a possible facilitator to engaging with preconception health content and messaging, women often described difficulties in deciphering reliable preconception health information online (Holton et al., 2018; Hristova-Antanasova et al., 2018; M’Hamdi et al., 2018; Khan et al., 2019). In studies involving women with diabetes, phone apps were identified to be highly favourable and acceptable to increase engagement and facilitate convenient knowledge acquisition of preconception health information (Nwolise et al., 2020; Forde et al., 2021). Women were also found to be more responsive and accepting of preconception health messaging delivered during routine sexual and reproductive care (Walker et al., 2021; Daly et al., 2024b, Hall et al., 2024). Studies identified how women were surprised the topic was not raised as standard practice and normalised into existing care (Clark and Mager, 2022; Daly et al., 2024a; Dorney et al., 2025). Healthcare interactions and conversations that were sensitive, had an appropriate introduction and adopted a neutral tone were seen to facilitate engagement, whereas when the topic was raised sporadically without context or rationale, this was viewed as judgemental and subsequently off-putting (Molinaro et al., 2021; Hall et al., 2024; Dorney et al., 2025). Information was highlighted to be better processed when it was ‘simple’, ‘easy to read’ and ‘to the point’ (Schoenaker et al., 2024). Women described predominantly waiting on and feeling it was a healthcare professional’s responsibility to raise the topic and that when they did in the right context, this was viewed as positive (Alamer et al., 2022; Britton et al., 2023; M’Hamdi et al., 2018; Walker et al., 2020). The preconception phase was understood as a ‘discrete’ and ‘private’ time, which is not openly talked about until an actual pregnancy is confirmed. This was primarily identified to

be driven by a fear of adverse outcomes and cultural norms (Khan et al., 2019; McGowan et al., 2020; AlWatban et al., 2023; Daly et al., 2024a).

Positively framed risk communication messages were identified by women and healthcare professionals as facilitators to improving receptivity and engagement. However, in studies with women with diabetes, current framing and messaging was felt to overly focus on the negative and 'scare tactics' such as the risks of conceiving with a pre-existing health condition. This manifested in such participants experiencing occasions where their autonomy to plan for pregnancy on their own terms was restricted until they were healthier (Forde et al., 2020; Forde et al., 2021). Women with diabetes and obesity reported a sense of guilt from messaging which warned of a definitive causal link between a health condition and poor birth outcomes. In the same studies, women highlighted that such information would often come without explanation of what they could do specifically to improve their health in preparation for pregnancy (Nwolise et al., 2020; Forde et al., 2020; Britton et al., 2023; Daly et al., 2024a; Caut et al., 2025b). Depending on framing of preconception health risk factors, including implicit narratives around responsibility, women felt meaning could be construed as perpetuating a reproductive burden and lead women to "think that they are the problem" (Daly et al., 2024a).

Synthesized Finding 4 | Burden of gendered responsibility

Women and healthcare professionals across studies felt the concept of preconception health unfairly and overwhelmingly placed a focus on women with a lack of emphasis on men. This in turn was highlighted in several studies as leading to feelings of guilt, pressure and being 'all-consuming', placing direct responsibility for conceiving, a healthy pregnancy and mitigating adverse pregnancy outcomes on women (Quayyum et al., 2021; Budds et al., 2024; Jenkinson et al., 2025; Caut et al., 2025). In some instances, this led to some women

feeling motivated and ‘morally obliged’ to do all they could to prepare for a healthy pregnancy and have a healthy child, combatting a later sense of regret that may arise if they hadn’t done all they could prior (Walker et al., 2022; Jenkinson et al., 2025). In two studies, women described a delicate balance of preserving autonomy and ‘not feeling restricted’ whilst simultaneously acknowledging a need to modify lifestyle factors in preparation for pregnancy (Budds et al., 2024; Jenkinson et al., 2025). Studies including women who had experienced adverse pregnancy outcomes and complications identified blaming oneself for such outcomes related to lifestyle factors they felt were responsible (Forde et al., 2020; Budds et al., 2024; Jenkinson et al., 2025). Across numerous studies, women and healthcare professionals highlighted how the absence of men and partners in preconception health conversations, reinforces gendered norms around reproductive health and contributes to the disproportionate responsibilisation of women in preparing for pregnancy (Daly et al., 2024b; Caut et al., 2025b).

Synthesized Finding 5 | Social and cultural influences

Women across the studies described seeking preconception health guidance from close family and friends. Both offline and online networks were viewed as either being positive or negative for preconception health related behaviours. Across several studies women described obtaining knowledge, understanding and engaging with preconception health mediated by what was shared with them and witnessed of parents, grandparents and friends (Balogh et al., 2019; Clark and Mager, 2022; Dorney et al., 2025; Jenkinson et al., 2025). Preparation or not was identified as being determined by interactions with others who had given birth, what they had done or not done and their outcomes – even if this meant family members and friends hadn’t necessarily followed a healthy lifestyle prior to pregnancy, as they had experienced no complications at birth (Khan et al., 2019; McGowan et al., 2020;

Alamer et al., 2022). Women expressed a common need for community based social groups where they could meet and talk with other women to gain information and learn further about preconception health, navigating what to do and not to do (Quayyum et al., 2021; Daly et al., 2024b). Social networks were identified as the first point of call to discuss preconception health related topics (Walker et al., 2020). Participants who were part of a religion or faith, described how associated cultural norms dictated pregnancy planning or not (Lang et al., 2020; Alamer et al., 2022). For example, women from migrant and refugee backgrounds where marriage is a prerequisite before giving birth and pregnancy found pregnancy often occurred quickly after marriage with no separate or specific attention given to a planning stage (Lang et al., 2020). Consequently, preconception health was deemed a topic not openly discussed within this community.

Synthesized Finding 6 | Structural barriers within healthcare systems

Across studies healthcare professionals repeatedly reported that preconception health requires a whole system approach with services, professionals and routine care pathways singing in concert with each other. Healthcare professionals felt a uniform approach integrated into healthcare systems was required for women of reproductive age with specific support needs such as diabetes and for those without (Forde et al., 2020; Alamer et al., 2022). This was highlighted in three UK based studies regarding the absence of preconception health in the national Type 2 Diabetes Mellitus (T2DM) structured education programme (Diabetes Education and Self-Management for Ongoing and Newly Diagnosed (DESMOND)) (Forde et al., 2020; Forde et al., 2021; Dyer et al., 2024).

Both healthcare professionals and women felt this was a significant but easily rectifiable gap to facilitating greater preconception health awareness amongst women with diabetes. From

both practitioners and women's point of view, there were multiple "missed opportunities" to raise the topic in routine sexual and reproductive health conversations such as cervical screening, contraception discussions or annual health check reviews (Nacev et al., 2022; Dyer et al., 2024; Daly et al., 2024a). Whilst deemed favourable by women and healthcare professionals, both reported not witnessing this translated into practice (Nwolise et al., 2020; Walker et al., 2021; Daly et al., 2024b). In studies involving healthcare professionals in England, barriers to prioritising and leading on preconception health included a lack of financial incentives and targets within the Quality Outcomes Framework used in Primary Care, which was felt to direct where care attention goes, coupled with no easily computable and automated ways to capture preconception health on electronic patient records (Forde et al., 2020; Walker et al., 2021).

Multiple studies reported that training and development was lacking in the topic amongst healthcare professionals and consequently this was seen to stifle promotion and discussion with patients owing to a feeling of unease in bringing preconception conversations up sensitively and at the right time (Forde et al., 2020; Walker et al., 2021; Silverio et al., 2023; Dyer et al., 2024). Role ambiguity was identified in several studies with healthcare professionals reporting preconception health sat better with alternative professions or were unsure whom it best sat with (Forde et al., 2021; Walker et al., 2021; Dyer et al., 2024). Midwives, GPs, Practice Nurses and Obstetricians and Gynaecologists were most frequently cited as having an active role in preconception health, with nurses felt to have more time and relevant opportunities to discuss the topic (Walker et al., 2020; Hristova-Antanasova et al., 2023; Caut et al., 2025b). The preventative, precautionary and upstream approach inherent within preconception health was reported by healthcare professionals to clash with the perceived primary care model of treatment at the point of illness and downstream

interventions, in addition to the limited time available within patient appointments (Khan et al., 2019; Forde et al., 2021; Alamer et al., 2022; Nacev et al., 2022; Silverio et al., 2023). Studies conducted in the UK, Australia and Bulgaria, found women perceived Primary Care services and GPs to be "inaccessible" and "stretched", with preconception health unworthy of taking up healthcare professionals time (McGowan et al., 2020; Daly et al., 2024a; Khan et al., 2019; Hristova-Antanasova et al., 2023).

Discussion

This meta-aggregative systematic review synthesized qualitative findings to understand how preconception health can be more effectively communicated, delivered and embedded in practice. Across six synthesized findings, the review identifies insights relating to how preconception health is understood, when, where, how and by who it is best delivered alongside factors that enable or restrict delivery in practice. Findings are now discussed in relation to the existing literature with a focus on their implications for the delivery and communication of preconception health. Following this, the findings have been translated into recommendations for practice and delivery within Table 1, structured and presented by the Berlo communication framework of Source, Message, Channel and Receiver.

How preconception health is understood and interpreted

The findings uncovered insights into how women interpret and perceive preconception health alongside how current framing resonates, providing considerations for the way in which preconception health messages are framed and channelled.

Findings revealed that women had a fundamentally poor understanding of preconception health and associated components. Women interpreted and perceived the term to be related to

being pregnant or fertility health, optimising chances of conceiving and pursued only when having difficulties conceiving. This finding is consistent with Welshman et al (2023) who found preconception health was more readily understood in the context of *once* pregnant and health behaviours were viewed as important at this stage but rarely *before* pregnancy. Poels et al (2016) similarly found preconception health was viewed important and relevant only when fertility concerns arose. This highlights the importance of universal approaches to preconception health and communicating the importance of preconception health behaviours whether planning to conceive or not. Conceptually preconception health was defined within a social determinant's framework by women, in that the concept was interpreted as having a stable job, family, home and finances ahead of conceiving. Interestingly, this appears a novel finding of the underlying connotation and interpretation of preconception health. It is well known that the conditions a child is born into, grows and develops within significantly impacts their physical and mental health through the wider determinants of health model (Marmot & Wilkinson, 1999). Such external factors have a strong influence on the ability to be healthy and engage in preconception health behaviours (Kandel et al., 2021). Women appeared to identify with ensuring these factors were established to bring a child into the world than biomedical factors. Such preparation is equally important to incorporate into preconception health strategies, as social determinants of health prior to pregnancy have been found to play a significant role in birth outcomes (Malin et al., 2025). In practice this underscores the need to broaden the focus of preconception health both in terms of messaging and the support services provided to women of reproductive age.

Waggoner & Pentecost's (2025) cautionary position on preconception health in that it may further exacerbate gender inequalities, erode autonomy and lead to maleficence in the sense of guilt, self-blame, and anxiety, was apparent in synthesized finding 4 'burden of gendered

responsibility'. Welshman et al (2023) similarly identified preconception health to be perceived as a women-led responsibility with related health messaging viewing women purely in their capacity to reproduce. In a study of both men and women by Mello et al (2020), more responsibility was placed on women regarding preconception health by both genders, indicating such social and cultural norms remain persistent and carefully crafted preconception health communication is required. In a qualitative study of preconception health messaging, it was found that for both those delivering the intervention and receiving, a more appropriate and faciliatory frame was general health across the life course, rather than using the term 'preconception health' directly or similar framing centred on women's reproductive capacities (Gardiner et al., 2025). Such framing was found to amplify gendered norms and entrenched views of women as solely responsible for their children's health and disease. Conversely, this review also found some women viewed the concept as motivating and autonomy enhancing to influence their future child health outcomes. This is analogous with Poels et al (2016) who found optimisation of health for mother and a future child an important driver for women engaging with preconception health. Additionally, this aligns to the 'principle of preconception beneficence' described by Bonte et al (2014) in that prospective parents may be morally inclined and wanting to do all they can to bring a healthy child into the world. These findings have important implications for the content of communication messages and underpin recommendations within Table 1 regarding framing and communication of preconception health.

Participants poorly understood why and how preconception health was an important phase for future health and thus expressed difficulty in defining and relating to it. Consistent with Poels et al (2016) this review found that preconception health as a term is seen as 'jargon' and 'medical', with relevance only to those decided on or actively planning for pregnancy.

This suggests moving away from preconception health as a term and related constructs towards wording that reduces the likelihood of the public automatically disengaging with the topic. Wording that may increase engagement and receptivity has been identified by Schoenaker et al (2024) as 'health and wellbeing during the child-bearing years', 'health and well-being before pregnancy and parenthood' and 'planning for parenthood'.

Delivery relevant barriers and facilitators to engagement and communication

Barriers and facilitators were identified at the individual, interpersonal, community, organisational and societal level, with implications for shaping preconception health communication and delivery.

At the individual level, beliefs and attitudes of women appeared to act as a significant barrier to engaging with preconception health. Specifically, perceptions that outcomes are uncontrollable, down to fate or faith and pregnancy as a natural process not requiring any prior preparation appeared to stifle receptiveness and perceived relative importance. This echoes findings of a scoping review that found religious beliefs discouraged women seeking healthcare before pregnancy and that pregnancy should be a natural process free from 'interference' (Puliani et al., 2024). Poels et al (2016) also found perceived lack of control over outcomes to be a barrier to engagement. Linked to this, women expressed scepticism regarding the impact of preconception health on health outcomes due to seeing limited evidence within the popular discourse demonstrating direct causal effects. Additionally, knowing others who engaged in risky health behaviours but had a positive pregnancy appeared to hinder engagement. Aligned with the Health Belief Model which describes factors that influence recommended health actions or behaviours being adopted or not (Rosenstock, 1974), such experiences may have the effect of reducing the perceived

susceptibility to, and perceived seriousness of, the consequences associated with not engaging in positive preconception health behaviours. In practice, these findings indicate preconception health communication should seek to articulate evidenced based health information which demonstrates the *importance* of preconception health behaviours in the immediate (ability to conceive) and long term (future child health) as well as the *agency* people have in influencing future health outcomes.

That the phase prior to pregnancy was seen by some women, particularly in studies with women from ethnic minority backgrounds, as private or discrete and not talked about within their cultural and social spheres, mirrors qualitative findings of taboos surrounding the preconception stage among women from ethnically diverse communities (Tuomainen et al., 2013). Women and healthcare professionals awaiting on the other to initiate preconception health advice created a barrier to communication, adding to previous reviews identifying expectations of the other to raise the topic (Goosens et al., 2018; Puliani et al., 2024; Caut et al., 2025a). Yet as identified in these reviews and this review, when healthcare professionals raised the topic, women noted this as a facilitator to engagement, given, they are the more likely of the two to be unaware. Further, the finding that promoting preconception health advice during routine, relevant sexual and reproductive health conversations was a significant facilitator but often neglected, appears a novel finding. However, this is broadly consistent with an integrated community-based model of preconception health and care proposed by Hall et al (2023) and Khekade et al (2023). Together, these findings underpin the recommendations in Table 1 for where and who may be best placed to deliver preconception health messaging.

Interpersonal and social relationships alongside cultural norms emerged across findings as a barrier and facilitator to engaging with, preconception health. Puliani et al (2024) similarly identified that friends and family can act as a significant barrier, with negative views regarding the need for preconception health support reinforced and followed through social desirability bias. Conversely as Kandel et al (2021) found, this review identified uptake and engagement with preconception health advice was positively correlated with supportive social groups. Whilst this underlines the need for equipping wider networks of women with accurate information and more broadly challenging perceived misconceptions, it sits opposed to the finding of pre-pregnancy being a discrete and private phase, therefore different mediums may be required.

Technology and digital platforms strongly emerged as both a facilitator and barrier to preconception health engagement, and this may in part mediate the above paradoxical finding. Social media, apps and websites, were seen as 'go-to' sources of preconception health information. The absence of this in earlier systematic reviews on the topic, but apparent here and in recent reviews by Welshman et al (2023) and Puliani et al (2024), indicates a growing reliance on electronic health (eHealth) and mobile health (mHealth) platforms as central information sources. Efficacy of such tools as a unique facilitator to improving engagement and awareness of preconception health has been identified (Van Dijk et al., 2017; 2020). Additionally, a preconception health virtual patient assistant 'Gabby' has been found effective in improving awareness and engagement amongst Black African women in a randomised control trial (Jack et al., 2020). Taken together these findings highlight the need to make preconception health readily available outside of traditional healthcare settings to both the online and offline social spheres women of reproductive age routinely inhabit. However, like the review by Puliani et al (2024) online information in this review was often

found to be overwhelming with difficulty identifying what was reliable, consequently, creating a barrier through increased distress and health anxiety. Therefore, clear, concise information from reputable sources should be made available.

Systemic and structural healthcare barriers and facilitators ranged from professional role ambiguity, training and development, missed opportunities in routine care and limited appointment time. These findings build on previous systematic reviews of Steel et al (2016) and Caut et al (2025a) who identified insufficient clinical time, lack of reimbursement and a need for dedicated training and development around preconception health. Difficulty in defining whose role preconception health sat with acted as a barrier, mirrors previous systematic review findings of role confusion amongst healthcare professionals as to who is best placed to lead on and deliver preconception health (Goosens et al., 2018). The discord between the preventative focus of preconception healthcare and the reactive treatment of illness model of primary care has previously been identified as a barrier to preconception health promotion in primary care (Goosens et al., 2018; Welshman et al., 2023). This perception appeared to extend to women not seeking advice as they perceived it a poor use of healthcare professionals time, as has been similarly highlighted in the systematic review by Poels et al (2016). Combined, these findings highlight the need for delivery approaches that normalise preconception health within routine care rather than relying on ad hoc clinician or patient led initiations. The identification of easily rectifiable gaps within the structured health education programme for women with diabetes (DESMOND) as highlighted in synthesized finding six, is a finding that does appear to have been reported in previous systematic reviews. This could in part be due to their focus on primary healthcare professionals as opposed to secondary and wider healthcare professionals who support women with diabetes.

Nevertheless, this underscores the importance for reviewing both routine and specialist care pathways to identify areas where preconception health advice could naturally be raised.

Recommendations for practice

From these six synthesized findings, recommendations for healthcare professionals, public health teams and healthcare providers in optimising delivery, communication and health promotion of preconception health are presented in Table 1. Recommendations are structured and categorised by the communication framework of Source, Message, Channel and Receiver (SMCR). The related synthesized finding supporting the recommendation is denoted.

Table 1. Recommendations for practice and delivery

Communication aspect	Recommendations for practice	Related synthesised finding(s)
Source	Work with local communities and religious groups to identify culturally sensitive ways to raise awareness and communicate the importance of planning ahead of pregnancy.	(1)
	Consider co-producing materials with women of childbearing age to incorporate language that most resonates.	(3), (5)
	Utilise testimonials of peers through promotion materials who have engaged with preconception health and care.	(4)
	Equip healthcare professionals with guidelines, information and resources (such as the NICE pre-conception advice and management), ensuring these are readily available via regularly used local healthcare organisational intranet repositories or databases.	(6)
Message	Promote and normalise preconception health as a concept beyond fertility and only if having difficulties conceiving.	(1), (2)
	Make clear the distinction between pregnancy and pre-pregnancy including appropriate timeframes to ensure healthy lifestyles are adhered to ahead of pregnancy.	(1)
	Devise clear and easily understood message in plain language, including facts and statistics of the importance of the preconception phase on pregnancy outcomes and future health of baby.	(1), (2)
	Consider the ethical paradigm promotion is operating from and may be subconsciously re-enforcing. Carefully craft messages that allow	(5)

	choice, promote autonomy, and avoid inducing self-blame or guilt if not followed. Avoid individualisation of responsibility within messages.	
	Place equal emphasis on the broader determinants of health (through pairing health messages with structural support services i.e. financial, housing and mental health) which equally influence pregnancy outcomes and future child health.	(1)
	Review language and inclusivity of messages particularly wording such as 'preconception', 'women of childbearing', 'pre-pregnancy' which promote a gendered view of the concept and are inferred to be relevant to only those planning a pregnancy.	(1), (5)
	Frame preconception health messages as socially normal, expected and relatable as opposed to *"x do not currently consume folic acid before pregnancy"*.	(4)
	Support healthcare professionals to proactively raise the topic sensitively through training and development in methods such as the One Key Question® (Allen et al., 2017).	(6)
	Provide easy to understand and clear information on health behaviours required specifically in preparation for pregnancy over and above leading a healthy lifestyle i.e. folic acid supplementation.	(1), (2)
Channel	Consider engaging women through group-based formats both online and offline to increase engagement.	(4)
	Consider promoting materials on social community network sites including Mumsnet and Facebook.	(4)

	Consider health promotion messaging through non-healthcare locations such as Children and Family Centres, Nurseries and Early Years settings.	(1), (4)
	Utilise healthcare organisational social medial channels to promote preconception health.	(3)
	Ensure up-to-date resources are available on organisational websites and GP practice webpages that are from or signpost to, trustworthy and reliable sources such as NHS and Tommy's.	(3)
	Review opportunities within universal routine sexual and reproductive health conversations across Primary and Secondary care to promote and build preconception health into conversations (i.e. cervical smears, contraception counselling, annual health checks).	(3), (6)
Receiver	Focus on the universal applicability of preconception health, by promoting health across the reproductive years as important regardless of planning a pregnancy or not.	(1), (2)
	Create discrete and private options, preferably online, for women to anonymously request and ask about preconception health.	(3), (4)
	Review care pathways for women with diabetes and obesity (and other health conditions related to adverse pregnancy outcomes) to embed preconception health, for example within the structured education for women with diabetes.	(2), (6)
	Include partners and men in preconception health promotional materials (including wording and images).	(5)

Strengths and Limitations

Strengths of this review include the rigorous meta-aggregative approach which preserves original authors findings and pooling them to reveal overarching synthesized findings. Papers included were of good quality and mostly published within the last five years. Whilst a strength of the review is the heterogeneity of women included in the primary studies by age, pregnancy intention and health conditions, specific differences by homogenous characteristics were not explored. This may yield more granular insights and tailored health promotion approaches. This review included studies conducted only in high-income countries, therefore generalisability is limited, given other countries will have different social and cultural contexts and healthcare systems. Finally, the population of interest was women and healthcare professionals. Further research is necessary to ascertain the perspectives of men and non-healthcare professionals to ensure preconception health is equitably promoted and is not constrained to within healthcare settings as many preconception health behaviours and related services lie outside such settings.

Conclusion

This systematic review synthesized qualitative findings related to women's and healthcare professional's understanding of preconception health alongside related barriers and facilitators to engagement. The findings highlight that women's understanding of preconception health is multi-faceted but rarely defined in the public health definition of the concept and mostly constructed in a 'only if necessary' light, required for those actively planning a pregnancy or having difficulties conceiving. Perceptions and views of existing preconception health framing perpetuating a 'reproductive burden' require careful attention and highlight ethical tensions

undermining a seemingly worthy cause. Missed opportunities to embed preconception health into routine healthcare practice exist both for women with and without health conditions. The review underscores the need to design and reframe preconception health messaging and associated promotion efforts, campaigns and programmes in ways that are ethical, accessible and appropriate to women. The insights and practical recommendations of this review may help in designing such efforts.

Disclosure statement: The authors report there are no competing interests to declare.

Funding details: No funding was obtained.

Data availability statement: Data sharing is not applicable to this article as no new data were created or analysed in this study. Data supporting the findings are available within the article or its supplementary materials. Detailed coding of individual findings, categories and synthesized findings is available upon reasonable request.

References

Alamer, E., Al-Watban, L., & Nafisah, F. I. (2022). Understanding primary health care physicians' perspective and approach to pre-conception care in Saudi Arabia. *Family Practice, 39*(1), 137–143. https://doi.org/10.1093/fampra/cmab065

Allen, D., Hunter, M. S., Wood, S., & Beeson, T. (2017). One Key Question®: First Things First in Reproductive Health. *Maternal and child health journal*, *21*(3), 387–392. https://doi.org/10.1007/s10995-017-2283-2

AlWatban, L., & Alamer, E. (2023). Are physicians creating a barrier to pre-conception care access? A qualitative study exploring patients' experiences and perspectives around pre-conception care. *BMC Women's Health, 23*(1), 651–660. https://doi.org/10.1186/s12905-023-02820-3

Aromataris, E., Lockwood, C., Porritt, K., Pilla, B., & Jordan, Z. (Eds.). (2024). *JBI manual for evidence synthesis*. JBI. JBI Manual for Evidence Synthesis - JBI Global Wiki

Aveyard, H., Payne, S., & Preston, N. (2016). *A post-graduate's guide to doing a literature review in health and social care* (1st ed.). Open University Press.

Aw-Nuur, H. A., Diriye, N. A., Aasheim, V., Engen, T., Mehrara, L., & Vik, E. S. (2024). Somali immigrant women's knowledge of and experiences with folic acid supplement use before and during pregnancy: A qualitative study from Norway. *Sexual & Reproductive Healthcare, 39*, Article 100946. https://doi.org/10.1016/j.srhc.2024.100946

Balogh, V. N. (2019). *Meanings of Preconception Health to Overweight Women in an Economically Depressed County* (Publication No. 6818) [Doctoral dissertation, Walden

University]. Walden University ScholarWorks. https://scholarworks.waldenu.edu/dissertations/6818/

Barker, M., Dombrowski, S. U., Colbourn, T., Fall, C. H. D., Kriznik, N. M., Lawrence, W. T., Norris, S. A., Ngaiza, G., Patel, D., Skordis-Worrall, J., Sniehotta, F. F., Steegers-Theunissen, R., Vogel, C., Woods-Townsend, K., & Stephenson, J. (2018). Intervention strategies to improve nutrition and health behaviours before conception. *The Lancet, 391*(10132), 1853–1864. https://doi.org/10.1016/S0140-6736(18)30313-1

Benton, M., Tape, N., Deussen, A. R., Turnbull, D., & Dodd, J. M. (2020). Barriers to and facilitators for addressing overweight and obesity before conception: A qualitative study. *Women and Birth, 34*(5), 493–497. https://doi.org/10.1016/j.wombi.2020.09.025

Berlo, D. (1960). *The process of communication: An introduction to theory and practice*. Holt, Reinhart and Winston.

Bonte, P., Pennings, G., & Sterckx, S. (2014). Is there a moral obligation to conceive children under the best possible conditions? A preliminary framework for identifying the preconception responsibilities of potential parents. *BMC Medical Ethics, 15*(5). https://doi.org/10.1186/1472-6939-15-5

Britton, L. E., Arcia, A., Kaur, G., Sontan, O., Marshall, C. J., & George, M. (2023). "A patient should not have to ask": Women's experiences of patient education about preconception care for type 2 diabetes. *Patient Education and Counselling, 112*, Article 107739. https://doi.org/10.1016/j.pec.2023.107739

Budds, K., Eldred, L., & Murphy, C. (2024). Promoting empowerment or intensifying reproductive burden? Accounts of preconception health adjustments among women trying to conceive. *Psychology & Health, 40*(11), 1812–1832. https://doi.org/10.1080/08870446.2024.2359454

Carter, T., Schoenaker, D., Adams, J., Steel, A. (2026). The health beliefs, attitudes, and intentions of males toward pregnancy planning and preconception health and care: a systematic review. *BMC Public Health, 26*(1), 555. https://doi.org/10.1186/s12889-026-26238-2

Caut, C., Schoenaker, D., McIntyre, E., & Steel, A. (2025). Health professionals' beliefs and attitudes towards preconception care: A systematic review. *BMC Health Services Research, 25*(1), 1023. https://doi.org/10.1186/s12913-025-13246-y

Caut, C., Schoenaker, D., McIntyre, E., & Steel, A. (2025b). *Opportunities for preconception care in Australia: A qualitative study of the perspectives of primary care professionals* [Preprint]. medRxiv. https://doi.org/10.1101/2025.01.16.25320705

Clark, A. D., & Mager, N. A. D. (2022). "Nobody talks about it": Preconception health and care among women in the rural Midwestern United States. *Women's Health, 18*, 17455057221097563. https://doi.org/10.1177/17455057221097563

Daly, M. P., Kipping, R. R., White, J., & Sanders, J. (2024a). Women's views on content and delivery methods for interventions to improve preconception health: A qualitative exploration. *Frontiers in Public Health, 12*, Article 1303953. https://doi.org/10.3389/fpubh.2024.1303953

Daly, M. P., Kipping, R. R., White, J., & Sanders, J. (2025). What support is needed for preconception health improvement, and by whom? A qualitative study of women's views. *SSM – Qualitative Research in Health, 8,* Article 100482. https://doi.org/10.1016/j.ssmqr.2025.100607

Dorney, E., Cheney, K., Musgrave, L., Hammarberg, K., Rodgers, R., & Black, K. I. (2025). Understanding preconception health in Australia through the lens of people of

reproductive age: Implications for care providers. *Women and Birth, 38*(1), Article 101857. https://doi.org/10.1016/j.wombi.2024.101857

Dyer, E., Bell, R., Graham, R., & Rankin, J. (2024). Healthcare professional perspectives on improving inter-pregnancy care after a baby loss for women with type 1 and type 2 diabetes. *Diabetic Medicine, 41*(10), Article e15401. https://doi.org/10.1111/dme.15401

Fleming, T. P., Watkins, A. J., Velazquez, M. A., Mathers, J. C., Prentice, A. M., Stephenson, J., Barker, M., Saffery, R., Yajnik, C. S., Eckert, J. J., Hanson, M. A., Forrester, T., Gluckman, P. D., & Godfrey, K. M. (2018). Origins of lifetime health around the time of conception: causes and consequences. *The Lancet, 391*(10132), 1842–1852. https://doi.org/10.1016/s0140-6736(18)30312-x

Forde, R., Collin, J., Brackenridge, A., Chamley, M., Hunt, K., & Forbes, A. (2020). A qualitative study exploring the factors that influence the uptake of pre-pregnancy care among women with Type 2 diabetes. *Diabetic Medicine, 37*(6), 1038–1048. https://doi.org/10.1111/dme.14040

Forde, R., Collin, J., Brackenridge, A., Chamley, M., Hunt, K., & Forbes, A. (2021). An integrated pre-pregnancy care programme framework theoretically modelled from the perspectives of women with type 2 diabetes and healthcare professionals. *Midwifery, 103*, Article 103130. https://doi.org/10.1016/j.midw.2021.103130

Garcia, R., Ali, N., Griffiths, M., & Randhawa, G. (2018). Understanding the consumption of folic acid during preconception among Pakistani, Bangladeshi and White British mothers in Luton, UK: A qualitative study. *BMC Pregnancy and Childbirth, 18*(1), 234. https://doi.org/10.1186/s12884-018-1884-0

Goossens, J., De Roose, M., Van Hecke, A., Goemaes, R., Verhaeghe, S., & Beeckman, D. (2018). Barriers and facilitators to the provision of preconception care by healthcare providers: A systematic review. *International Journal of Nursing Studies, 87*, 113–130. https://doi.org/10.1016/j.ijnurstu.2018.06.009

Grover, S., Sandhu, P., Nijjar, G. S., Percival, A., Chudyk, A. A., Liang, J., McArthur, C., Miller, W. C., Mortenson, W. B., Mulligan, K., Newton, C., Park, G., Pitman, B., Rush, K. L., Sakakibara, B. M., Petrella, R. J., & Ashe, M. C. (2023). Older adults and social prescribing experience, outcomes and processes: A meta-aggregation systematic review. *Public Health, 218*, 197–207. https://doi.org/10.1016/j.puhe.2023.02.016

Hall, J., Chawla, M., Watson, D., Jacob, C. M., Schoenaker, D., Connolly, A., Barrett, G., & Stephenson, J. (2023). Addressing reproductive health needs across the life course: An integrated, community-based model combining contraception and preconception care. *Lancet Public Health, 8*(1), 76–84. https://doi.org/10.1016/s2468-2667(22)00254-7

Hall, J. A., Wilkinson, K., Haddon, C., & Barrett, G. (2024). How, when, and who should ask about pregnancy intention in primary care? A qualitative study of women's preferences. *Family Practice, 41*(2), 131–138. https://doi.org/10.1093/fampra/cmad114

Hannes, K., & Lockwood, C. (2011). Pragmatism as the philosophical foundation for the Joanna Briggs meta-aggregative approach to qualitative evidence synthesis. *Journal of Advanced Nursing, 67*(7), 1632–1642. https://doi.org/10.1111/j.1365-2648.2011.05636.x

Hannes, K., Petry, K., & Heyvaert, M. (2017). The meta-aggregative approach to qualitative evidence synthesis: A worked example on experiences of pupils with special

educational needs in inclusive education. *International Journal of Research & Method in Education, 41*(3), 291–305. https://doi.org/10.1080/1743727X.2017.1299124

Holton, S., Hammarberg, K., & Johnson, L. (2018). Fertility concerns and related information needs and preferences of women with PCOS. *Human Reproduction Open, 2018,* (4), hoy019. https://doi.org/10.1093/hropen/hoy019

Hopper, H., Husk, K., Maslin, K., Kent, B., Wanner, A., & Shawe, J. (2023). Preconception care for people with health conditions: What approaches work, for whom, and in what circumstances? A realist review. *Women's Reproductive Health, 10*(3), 436–459. https://doi.org/10.1080/23293691.2022.2132841

Hristova-Atanasova, E., Iskrov, G., Raycheva, R., Mandova, V., & Stefanov, R. (2023). Preconception-health-related attitudes of Bulgarian women of reproductive age. *Healthcare, 11*(7), 989. https://doi.org/10.3390/healthcare11070989

Jack, B. W., Bickmore, T., Yinusa-Nyahkoon, L., Reichert, M., Julce, C., Sidduri, N., Martin-Howard, J., Zhang, Z., Woodhams, E., Fernandez, J., Loafman, M., & Cabral, H. J. (2020). Improving the health of young African American women in the preconception period using health information technology: A randomised controlled trial. *Lancet Digital Health, 2*(9), e475–e485. https://doi.org/10.1016/s2589-7500(20)30189-8

Jenkinson, B., Riek, M., de Jersey, S., Buckley, L., Nabi, S., Irvine, C., Liu, S., Mihrshahi, S., Baird, K., Doust, J., & Mishra, G. (2025). The need for preconception care: Australian women's health beliefs, expectations, and trust in healthcare. *Sexual & Reproductive Healthcare, 44*, 101092. https://doi.org/10.1016/j.srhc.2025.101092

Joanna Briggs Institute. (2020). *Checklist for qualitative research*. JBI. https://jbi.global/sites/default/files/2020-08/Checklist_for_Qualitative_Research.pdf

Kandel, P., Lim, S., Pirotta, S., Skouteris, H., Moran, L. J., & Hill, B. (2021). Enablers and barriers to women's lifestyle behavior change during the preconception period: A systematic review. *Obesity Reviews, 22*(7), e13235. https://doi.org/10.1111/obr.13235

Khan, N. N., Boyle, J. A., Lang, A. Y., & Harrison, C. L. (2019). Preconception health attitudes and behaviours of women: A qualitative investigation. *Nutrients, 11*(7), 1490. https://doi.org/10.3390/nu11071490

Khekade, H., Potdukhe, A., Taksande, A. B., Wanjari, M. B., & Yelne, S. (2023). Preconception care: A strategic intervention for the prevention of neonatal and birth disorders. *Cureus, 15*(6), e41141. https://doi.org/10.7759/cureus.41141

Lang, A. Y., Bartlett, R., Robinson, T., & Boyle, J. A. (2020). Perspectives on preconception health among migrant women in Australia: A qualitative study. *Women and Birth, 33*(4), 334–342. https://doi.org/10.1016/j.wombi.2019.06.015

Lockwood, C., Munn, Z., & Porritt, K. (2015). Qualitative research synthesis: Methodological guidance for systematic reviewers utilizing meta-aggregation. *International Journal of Evidence-Based Healthcare, 13*(3), 179–187. https://doi.org/10.1097/xeb.0000000000000062

M'Hamdi, H. I., Sijpkens, M. K., de Beaufort, I., Rosman, A. N., & Steegers, E. A. P. (2018). Perceptions of pregnancy preparation in women with low to intermediate educational attainments: A qualitative study. *Midwifery, 59*, 62–67. https://doi.org/10.1016/j.midw.2018.01.004

Malin, K. J., Vance, A. J., Moser, S. E., Zemlak, J., Edwards, C., White-Traut, R., Koerner, R., McGrath, J., & McGlothen-Bell, K. (2025). The impact of social determinants of health on infant and maternal health using a reproductive justice lens.

BMC Pregnancy and Childbirth, 25(1), 577. https://doi.org/10.1186/s12884-025-07693-y

Marmot, M., & Wilkinson, R. G. (Eds.). (1999). *Social determinants of health*. Oxford University Press.

McGowan, L., Lennon-Caughley, E., Chun, C., McKinley, M. C., & Woodside, J. V. (2020). Exploring preconception health beliefs amongst adults of childbearing age in the UK: A qualitative analysis. *BMC Pregnancy and Childbirth, 20*(1), 41. https://doi.org/10.1186/s12884-020-2733-5

Mello, S., Stifano, S., Tan, A. S., Sanders-Jackson, A., & Bigman, C. A. (2020). Gendered conceptions of preconception health: A thematic analysis of men's and women's beliefs about responsibility for preconception health behaviour. *Journal of Health Communication, 25*(5), 374–384. https://doi.org/10.1080/10810730.2020.1775728

Molinaro, M. L., Evans, M., Regnault, T. R. H., & de Vrijer, B. (2021). Translating developmental origins of health and disease in practice: Healthcare providers' perspectives. *Journal of Developmental Origins of Health and Disease, 12* (3), 404–410. https://doi.org/10.1017/s2040174420000483

Nacev, E. C., Greene, M. Z., Taboada, M. P., & Ehrenthal, D. B. (2022). Factors influencing provider behaviour around delivery of preconception care. *Maternal and Child Health Journal, 26*(7), 1567–1575. https://doi.org/10.1007/s10995-022-03411-8

Nwolise, C. H., Carey, N., & Shawe, J. (2020). Exploratory study of clinician and patient views regarding the use of a preconception care app for women with diabetes. *Health Informatics Journal, 26*(4), 2673–2688. https://doi.org/10.1177/1460458220921707

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C.D, Shamseer, L., Tetzlaff, J.M., Akl, E.A., Brennan, S.E., Chou, R., Glanville, J., Grimshaw, J.M., Hrobjartsson, A., Lalu, M., Li, T., Loder, E.W., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ (Clinical research ed.)*, *372*, n71. https://doi.org/10.1136/bmj.n71

Pearson, A., Robertson-Malt, S., & Rittenmeyer, L. (2011). *Synthesizing qualitative evidence*. Lippincott Williams & Wilkins.

Poels, M., Koster, M. P., Boeije, H. R., Franx, A., & van Stel, F. H. (2016). Why do women not use preconception care? A systematic review on barriers and facilitators. *Obstetrical and Gynaecological Survey, 71*(10), 603–612. https://doi.org/10.1097/ogx.0000000000000360

Public Health England. (2018). *Making the case for preconception care*. Public Health England. https://www.gov.uk/government/publications/preconception-care-making-the-case

Puliani, R., Bhatt, Y., Gupta, S., Agnita, R. N., Tejaswini, B. D., & Krishnamurthy, J. (2024). A scoping review of barriers and facilitators for preconception care: Lessons for global health policies and programs. *Asia Pacific Journal of Public Health, 36*(6–7), 531–541. https://doi.org/10.1177/10105395241252867

Quayyum, F., & Dombrowski, S. U. (2021). Barriers to nutritional pregnancy preparation and support needs in women and men: A qualitative study based on the Theoretical Domains Framework. *Women's Health, 17*, 17455065211042182. https://doi.org/10.1177/17455065211042182

Ragnar, M. E., Grandahl, M., Stern, J., & Mattebo, M. (2018). Important but far away: Adolescents' beliefs, awareness and experiences of fertility and preconception health. *European Journal of Contraception & Reproductive Health Care, 23*(4), 265–273. https://doi.org/10.1080/13625187.2018.1481942

Rosenstock I.M. (1974). The health belief model and preventive health behavior. *Health Education Monographs*, *2*(4), 354-386. https://doi.org/10.1177/109019817400200405

Schoenaker, D., Gafari, O., Taylor, E., Hall, J., Barker, C., Jones, B., Alwan, N. A., Watson, D., Jacob, C. M., Barker, M., Godfrey, K. M., Reason, E., Forder, F., & Stephenson, J. (2024). What does "preconception health" mean to people? A public consultation on awareness and use of language. *Health Expectations, 27*(4), e14181. https://doi.org/10.1111/hex.14181

Schoenaker, D. A. J. M., Stephenson, J., Smith, H., Thurland, K., Duncan, H., Godfrey, K. M., Barker, M., Singh, C., & Alwan, N. A. (2023). Women's preconception health in England: A report card based on cross-sectional analysis of national maternity data from 2018/2019. *BJOG: An International Journal of Obstetrics & Gynaecology, 130*(10), 1187–1195. https://doi.org/10.1111/1471-0528.17436

Shawe, J., Steegers, E. A. P., & Verbiest, S. (Eds.). (2020). *Preconception health and care: A life course approach*. Springer. https://doi.org/10.1007/978-3-030-31753-9

Silverio, S. A., Karki, P., Lakhani, S., Alter, M., Weinman, J., & Flynn, A. C. (2023). "People still want a face and that's where we can fill in": A qualitative study of community pharmacists' experiences of providing healthcare advice about preconception and pregnancy. *International Journal of Pharmacy Practice, 31*(1), 38–45. https://doi.org/10.1093/ijpp/riac097

Steel, A., Lucke, J., Reid, R., & Adams, J. (2016). A systematic review of women's and health professionals' attitudes and experience of preconception care service delivery. *Family Practice, 33*(6), 588–595. https://doi.org/10.1093/fampra/cmw094

Stephenson, J., Heslehurst, N., Hall, J., Schoenaker, D. A. J. M., Hutchinson, J., Cade, J. E., Poston, L., Barrett, G., Crozier, S. R., Kumaran, K., Yajnik, C. S., Barker, M., Baird, J., & Mishra, G. D. (2018). Before the beginning: Nutrition and lifestyle in the preconception period and its importance for future health. *The Lancet, 391*(10132), 1830–1841. https://doi.org/10.1016/s0140-6736(18)30311-8

Stephenson, J., Schoenaker, D. A. J. M., Hinton, W., Poston, L., Barker, M., Alwan, N. A., Godfrey, K., Hanson, M., de Lusignan, S., & UK Preconception Partnership. (2021). A wake-up call for preconception health: A clinical review. *British Journal of General Practice, 71*(706), 233–236. https://doi.org/10.3399/bjgp21x715733

Tuomainen, H., Cross-Bardell, L., Bhoday, M., Qureshi, N., & Kai, J. (2013). Opportunities and challenges for enhancing preconception health in primary care: Qualitative study with women from ethnically diverse communities. *BMJ Open, 3*(7), e002977. https://doi.org/10.1136/bmjopen-2013-002977

van der Zee, B., de Wert, G., Steegers, E. A., & de Beaufort, I. D. (2013). Ethical aspects of paternal preconception lifestyle modification. *American Journal of Obstetrics & Gynecology, 209*(1), 11–16. https://doi.org/10.1016/j.ajog.2013.01.009

Van Dijk, M. R., Koster, M. P., Rosman, A. N., & Steegers-Theunissen, R. P. (2017). Opportunities of mHealth in preconception care: Preferences and experiences of patients and professionals. *JMIR mHealth and uHealth, 5*(8), e123. https://doi.org/10.2196/mhealth.7834

Van Dijk, M. R., Koster, M. P., Oostingh, E. C., Willemsen, S. P., Steegers, E. A. P., & Steegers-Theunissen, R. P. (2020). A mobile app lifestyle intervention to improve health nutrition in women before and during early pregnancy: Single-centre randomized controlled trial. *Journal of Medical Internet Research, 22*(5), e15773. https://doi.org/10.2196/15773

Waggoner, M. R. (2013). Motherhood preconceived: The emergence of the preconception health and health care initiative. *Journal of Health Politics, Policy and Law, 38*(2), 345–371. https://doi.org/10.1215/03616878-1966333

Waggoner, M. R., & Pentecost, M. (2025). The limits of preconception care for global health. *Sexual and Reproductive Health Matters, 33*(1), 2499329. https://doi.org/10.1080/26410397.2025.2499329

Walker, R., Drakeley, S., & Boyle, J. (2020). Preconception women's views of promoting preconception women's health in Australia. *Health Promotion Journal of Australia, 32*(2), 22–28. https://doi.org/10.1002/hpja.402

Walker, R., Kandel, P., Hill, B., Hills, S., Dunbar, J., & Skouteris, H. (2021). Practice nurses and providing preconception care to women in Australia: A qualitative study. *Australian Journal of Primary Health, 27*(1), 13–21. https://doi.org/10.1071/py20072

Walker, R., Quony, S., Olivier, P., Wu, L., Xie, J., & Boyle, J. (2022). Empowerment for behaviour change through social connections: A qualitative exploration of women's preferences in preconception health promotion in Victoria, Australia. *BMC Public Health, 22*(1), 1642. https://doi.org/10.1186/s12889-022-14028-5

Welshman, H., Dombrowski, S., Grant, A., Swanson, V., Goudreau, A., & Currie, S. (2023). Preconception knowledge, beliefs and behaviours among people of reproductive

age: A systematic review of qualitative studies. *Preventive Medicine, 175*, 107707. https://doi.org/10.1016/j.ypmed.2023.107707

Figures

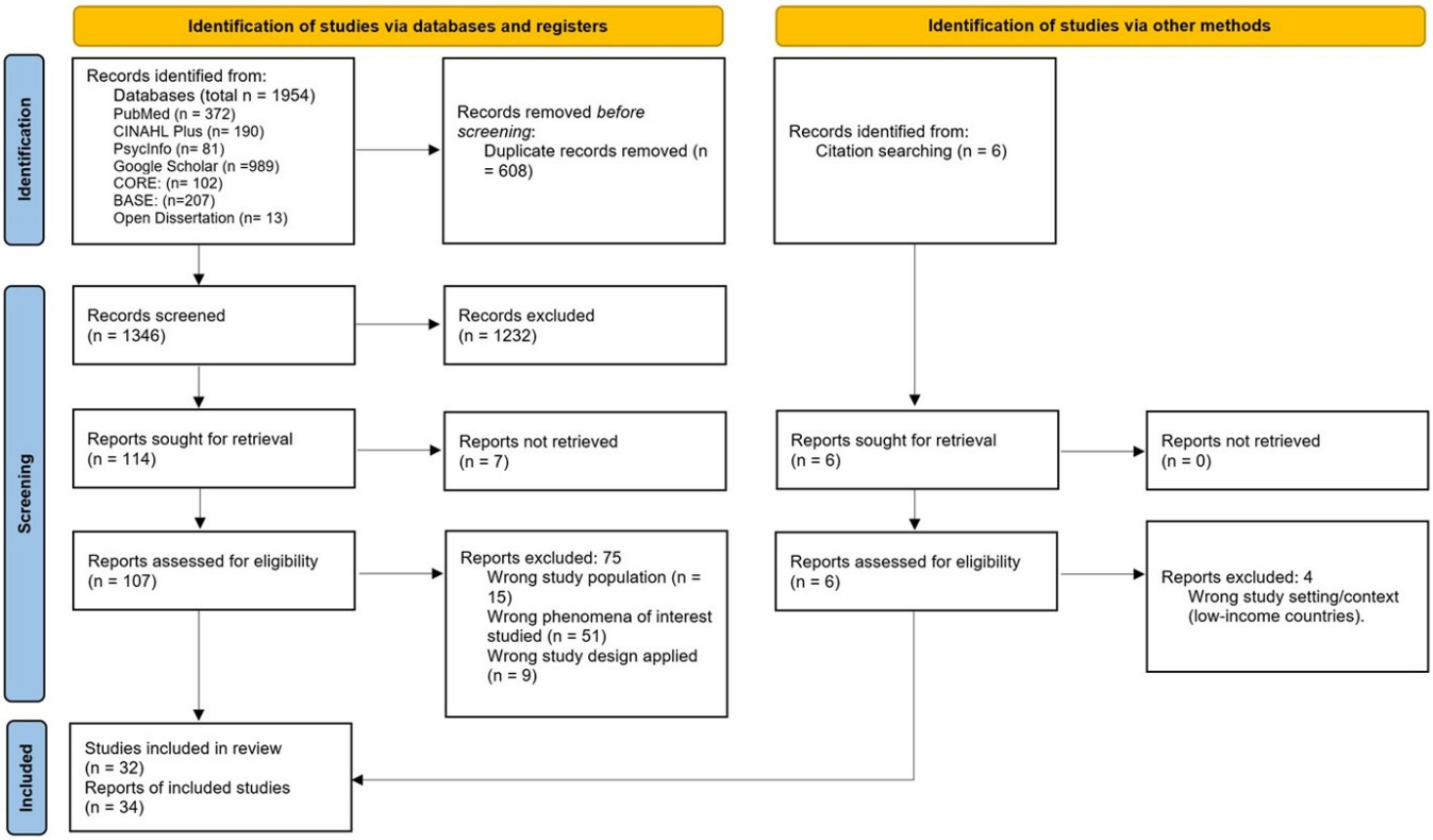


Figure 1

PRISMA Flow diagram

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- PRISMAChecklist.pdf
- SupplementaryMaterial1SearchTermsandResults.pdf
- SupplementaryMaterial2Screeningtool.pdf
- SupplementaryMaterial3CriticalAppraisalResults.pdf
- SupplementaryMaterial4StudyCharacteristics.pdf