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Title page

Title

The barriers and facilitators to young people's engagement with bidirectional digital sexual health interventions: A mixed methods systematic review

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Abstract

Background: Sexual health is fundamental to the overall health and wellbeing of individuals and to the social and economic development of communities and countries. However, internationally young people endure a disproportionate burden of sexually transmitted infections and unintended pregnancies which can be associated with poor psycho-social outcomes. Digital sexual health

interventions have been developed to increase young people's access to sexual health services, but are currently underutilised.

Aim: This systematic review sought to identify the barriers and facilitators to young people's engagement with bidirectional digital sexual health interventions, which are standalone two-way tailored interventions between a young person and healthcare professional.

Methods: The review was conducted in accordance with the JBI methodology for mixed methods systematic reviews, following a convergent integrated approach to synthesis and integration of qualitative and quantitative evidence. Searches of ten electronic databases were conducted, spanning database inception to January 2022. No restrictions were imposed on language, geographical location or community setting. All included studies were critically appraised with JBI Critical Appraisal tools. Data extraction was performed using standardised tools, followed by data transformation. Data synthesis followed the convergent integrated approach. Each stage was conducted by two independent reviewers.

Results: 8439 titles and abstracts and, subsequently, 255 full-texts underwent review. Nine studies were selected for inclusion with no studies added following forward and backward citation tracking. The included studies comprised three qualitative and six quantitative designs. Three meta synthesised findings were identified: (1) The design of a digital intervention for adolescent sexual health needs to reflect the end users' specific needs (2) Young people need to feel comfortable when using a digital sexual health intervention (3) Potential barriers to engagement need to be addressed. The review identified that although barriers and facilitators to promoting young people's engagement with

bidirectional digital sexual health interventions are nuanced, young people's privacy and security need to be prioritised for them to engage with digital interventions, regardless of the platform of choice.

Conclusions: Co-production of digital sexual health services, in partnership with young people, has shaped many of the insights reported in this systematic review. Further international research which places an emphasis on young people's perspectives is vital to unleash the full potential of digital technology in this domain.

Keywords

Adolescents; Bidirectional; Digital Health Interventions; Mobile Health; Public Health; Sexual and Reproductive Health; Sexual Health Promotion; Sexually Transmitted Infections; Systematic Review; Young People

Main Manuscript

Introduction

The World Health Organization (1) asserts that sexual health is a global human right that is fundamental to the overall health and wellbeing of individuals and to the social and economic development of all communities and countries. Yet young people worldwide frequently experience disproportionate rates of sexually transmitted infections, unintended pregnancies and associated psycho-social inequalities (1, 2, 3).

In countries such as the UK, young people are often considered a particularly hard-to-reach group in relation to effective sexual health service delivery (4). Outreach services that aim to make sexual health services more accessible for this age group do exist, but provision and uptake is variable (5). Such challenges are shared internationally (6) and, in response, digital health interventions, which aim to better serve the sexual health needs of young people, have emerged (7).

A growing body of research suggests that young people's affinity with digital technology could be used to impact their sexual health positively since it appeals to them by addressing barriers and concerns associated with traditional clinic based services such as confidentiality, embarrassment, privacy and accessibility (8, 9). Furthermore, it has been identified that digital health interventions can be used effectively to tailor information specifically for young people, in relation to primary, secondary and tertiary health promotion, and that they can be more convenient and accessible (10, 11, 12). However, a recent review (12) concluded that although digital health technologies could be powerful tools in promoting sexual health, they are currently underutilised. Barriers and facilitators appear to be linked to specific characteristics of digital interventions as well as their accessibility (10, 11, 12). For example, video games have been demonstrated to appeal to young people and to be effective in using peer influence to enhance motivation to engage in the intervention (12). However, young people's access to technology cannot be assumed. Barriers and facilitators appear to be linked to specific characteristics of digital interventions as well as their accessibility (10, 11, 12). For example, video

games have been demonstrated to appeal to young people and to be effective in using peer influence to enhance motivation to engage in the intervention (12). However, young people's access to technology cannot be assumed, particularly in low- and middle-income countries (13, 14, 15, 16).

Our searches for this review revealed that a plethora of digital sexual health interventions exist internationally for young people, such as websites, blogs and apps, all addressing a myriad of topics. However, in this review we specifically focused on bidirectional digital health interventions, with the term 'bidirectional' referring to a standalone two-way tailored intervention between the young person and a healthcare professional. This decision was underpinned by a lack of existing systematic reviews in relation to this particular style of digital sexual health intervention, with a search of the JBI Database of Systematic Reviews and the Cochrane Database of Systematic Reviews identified no published systematic review on this specific subject.

This systematic review, therefore, sought to answer the following question:

What are the barriers and facilitators to promoting engagement with bidirectional digital sexual health interventions among young people?

Methods

This mixed methods systematic review was undertaken in accordance with the convergent integrated methodological framework for mixed methods systematic reviews proposed by the JBI (17). The protocol is registered with the

International Prospective Register of Systematic Reviews (PROSPERO) (Ref no. CRD42022311255).

The search strategy (supplementary material S1) was conducted by a specialist information technologist. A full search strategy for PsycINFO, ASSIA, CINAHL, Global Health, MEDLINE, Scopus, Embase, Web of Science, Ovid EMCARE, and Epistemonikos was developed from database inception to January 2022. No restrictions were imposed on language or geographical location. Reference lists and forward citations of included articles were also searched.

Following the searches, all identified records were collated and uploaded into EndNote 20 (Clarivate Analytics) and duplicates removed. Citations were then imported into Rayyan database (18) and titles and abstracts were independently screened by two reviewers. Full texts of studies with potential to meet eligibility criteria were retrieved and assessed independently against the inclusion criteria in the same way. Discrepancies were resolved through discussion between reviewers, or by a third reviewer if consensus could not be reached.

Eligibility criteria

Inclusion criteria were determined using the PICO (Population, phenomenon of Interest, and Context) framework (19):

Population: Young people aged between 13 and 25 years, of any self-identified gender and ethnicity. Papers which included participants beyond this age range were included if age-specific data could be extracted.

Intervention: Standalone bidirectional digital health interventions in the field of sexual health. Studies that also included face to face elements were excluded.

Context: Any setting in any geographical location.

The review considered original quantitative, qualitative and mixed methods research. There were no restrictions on the type of study design or sample size. Conference abstracts, book chapters, editorials, reviews, study protocols and theses were ineligible for inclusion. Studies were also excluded if they were concerned only with the management of pregnancy, promoting HIV treatment adherence and pre-expose prophylaxis (PrEP) or HPV vaccination uptake alone, since systematic reviews have been previously conducted on these specific interventions.

Quality appraisal

All studies that met the inclusion criteria (n= 9) went forward to critical appraisal, conducted independently by two reviewers using the appropriate JBI Checklists by study design (20, 21). Any disagreements were resolved through discussion. Regardless of methodological quality, all studies underwent data extraction and synthesis.

Data extraction

The review team developed standardized data extraction proformas which were piloted and adjusted accordingly (supplementary material S2) to ensure that they captured the necessary information to meet the aim of the review. The second phase of qualitative data extraction comprised of themes or subthemes with corresponding illustrations which were extracted and assigned a level of credibility. Findings were categorized as Unequivocal (U) where evidence is beyond reasonable doubt, which may include findings that are matter of fact, directly reported / observed and not open to challenge or Credible (C) which relates to those findings that can be logically inferred from the data but because they are interpretative are open to challenge (22).

The quantitative data were transformed into 'qualitised data'. This involved transformation into textual descriptions or narrative interpretation of the quantitative results from experimental and observational studies, in a way that answered the review questions by repeated detailed examination (22). These processes were conducted independently by two reviewers and checked by a third reviewer. Due to the complexities associated with recommendations being derived from both streams of evidence and the impact of data transformation and/or integration on the grading process, an assessment of the certainty of the evidence using either the GRADE or ConQual approach is currently not recommended for JBI mixed methods systematic review (23, 24) and was not, therefore, conducted.

Data synthesis and integration

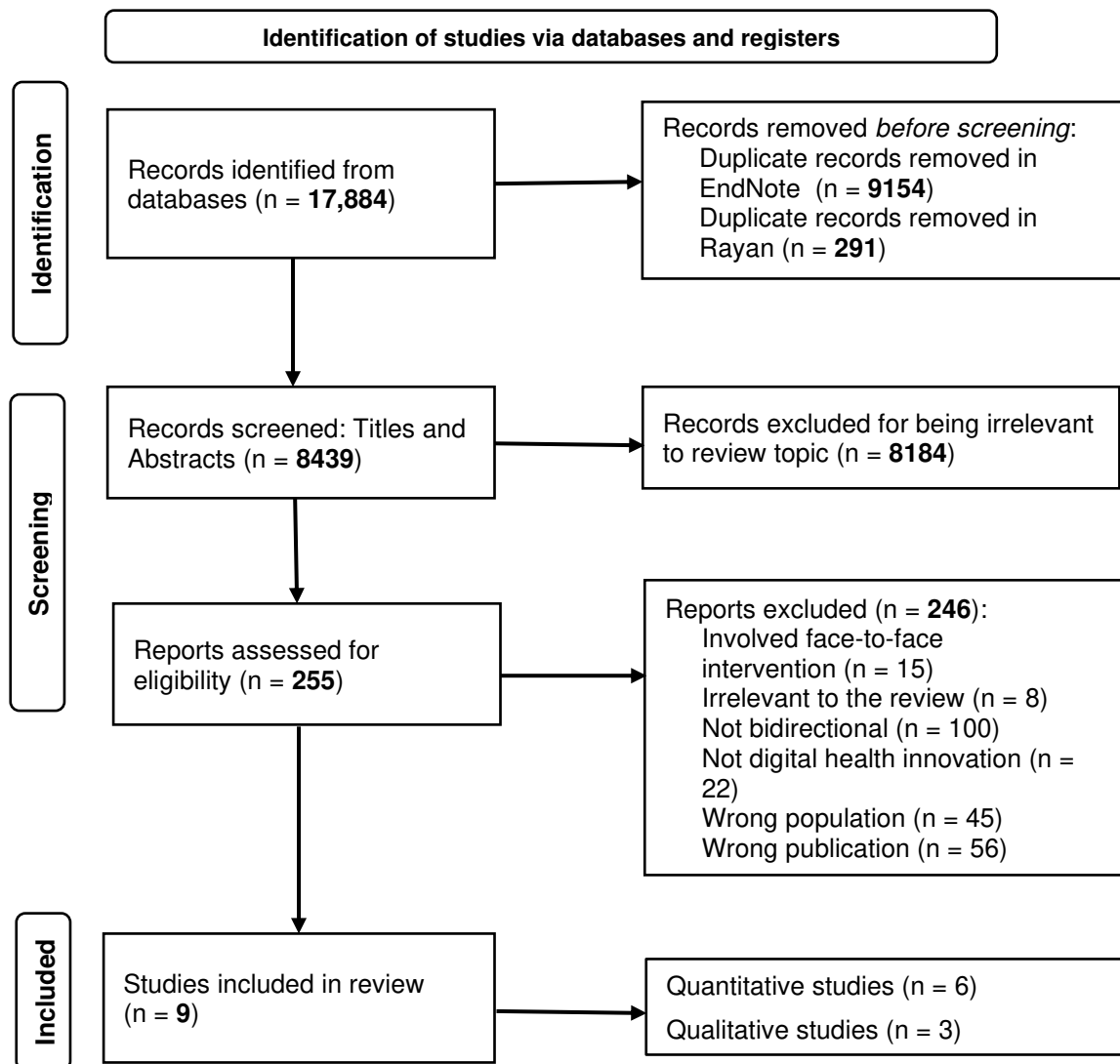
As per the JBI methodology for convergent integrated mixed methods systematic reviews (23), synthesis and integration involved assembling the 'qualitised' data with the qualitative data. Assembled data were categorised and pooled together based on similarity in meaning to produce a set of integrated findings in the form of line of action statements (supplementary material S3) which were aligned to the review question. Finally, a narrative description summarising the themes was produced to identify the barriers and facilitators to young people's engagement with bidirectional digital sexual health interventions. These processes were conducted independently by one reviewer and checked by a second reviewer.

Results

Study inclusion

17,884 records were identified as potentially relevant to the review. Following the removal of duplicates, 8439 unique records underwent title and abstract screening. The remaining 255 records underwent full-text assessment. Those that did not meet the inclusion criteria were excluded (supplementary material S4). Nine publications met the inclusion criteria and went forward to critical appraisal. This review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) (2020) guidelines (25) (Figure 1).

Figure 1: Flow of studies through the review



Methodological quality

The critical appraisal scores for methodological quality of selected studies are presented in supplementary material S5. The quality of publications varied considerably. Two of the three qualitative studies scored seven (26, 27), and the other scored three (28) out of a possible score of ten. The two RCTs scored ten (29) and eight (30) out of a possible score of eleven and ten respectively. The quasi-experimental study (6) scored three out of a potential score of five

and the two cohort studies (31, 32) scored seven and six respectively, out of a potential score of eleven. The cross-sectional study (33) scored five out of eight.

Characteristics of included studies

The characteristics of included studies are presented in supplementary material S2. The nine included studies encompassed both qualitative (n=3) (26, 27, 28) and quantitative (n=6) research (6, 29, 30, 31, 32, 33). Two of the three qualitative studies were descriptive (26, 27), and the third (29) was a content and discourse analysis. Of the six quantitative studies, two were RCTs (29, 30), one was a quasi-experimental study (6), two were cohort studies (31, 32) and one was a cross-sectional study (33).

Five studies were conducted in the USA (6, 26, 29, 31, 32). Others were conducted in the UK (33), Hong Kong (30), Democratic Republic of Congo (28) and Nigeria (27). The studies explored a total of 18,053 young peoples' perceptions. A breakdown of participants by gender, sexual orientation and ethnicity was not possible due to inconsistent reporting across the publications. The age range of participants was 14-25 years; the mean was not consistently reported across the included papers. A description of interventions addressed in the studies is provided in Table One.

Table One: Summary of Interventions

Study / Design	Intervention
Baker et al. 2021 (33) <i>Quantitative</i>	Three online chatroom sessions facilitated by charity youth workers.
Brady et al. 2015 (31)	TeensTalkHealth website, including 20 video vignettes, 4 teen-friendly articles, 12 message boards facilitated by health educators.

<i>Quantitative</i>	
Chernick et al. 2021a (29) <i>Quantitative</i>	Dr. Erica (Emergency Room Interventions to improve the Care of Adolescents), consisting of a digital ED-based brief intervention and multimedia text messaging.
Chernick et al. 2021b (32) <i>Quantitative</i>	Dr Erica (Emergency Room Interventions to improve the Care of Adolescents), consisting of a brief ED-based intervention and 10-weeks of personalized and interactive text messaging.
Giorgio et al. 2013 (6) <i>Quantitative</i>	The Planned Parenthood Federation of America website, SMS and IM program, operating as a national sexual and reproductive health hotline.
Guzman et al. 2020 (26) <i>Qualitative</i>	MIGHTY phone app activities and telephone coaching aimed at improving sexual health or fitness.
Nsakala et al. 2014 (28) <i>Qualitative</i>	An interactive radio programme called “S’il vous plait docteur” or <i>Please Doctor</i> .
Oladele et al. 2021 (27) <i>Qualitative</i>	Mobile health app, ‘4YBY’ which included HIV educational resources, step-by-step video instructions for performing HIV testing, and a guide to interpreting results with linkages to care.
Sun et al. 2017 (30) <i>Quantitative</i>	Peer-led social media intervention versus website control.

Key: ED = Emergency department; SMS = Short Messaging Service; IM = Instant Messaging

Findings of the review

To identify barriers and facilitators to promoting engagement with bidirectional digital sexual health interventions among young people, a total of 36 findings from three qualitative studies and 35 findings from six quantitative studies were extracted and aggregated to form eight categories. The illustrations for each of these findings can be found in supplementary material S6. Forty-seven findings were categorized as Unequivocal and 24 as Credible. The eight categories were further synthesized in a meta-synthesis which yielded three synthesized findings concerning barriers and facilitators to promoting young people’s

engagement with bidirectional digital sexual health interventions (supplementary material S3):

Meta synthesized finding 1: The design of a digital intervention for adolescent sexual health needs to reflect the end users' specific needs.

A total of eighteen findings from eight studies (6, 26, 27, 28, 29, 30, 31, 32) formed the two categories combined into synthesis one. This synthesis revealed that barriers and facilitators to the uptake of digital sexual health interventions among young people centre, in part, on design features of the intervention itself.

Category 1: The design of the digital health intervention was pivotal to its acceptance

Sixteen findings from eight studies informed the development of this category. The format of the digital health interventions varied across the included studies as demonstrated in Table One. However, regardless of the format, the findings of this systematic review demonstrate that young people want digital sexual health interventions to be easy to use (26, 27, 30). They also need to be accessible to the target population, with access varying from country to country and interventions needing to reflect the local context (28). Certain formats were more popular than others (29, 32), with texting users having different demographic characteristics to instant messaging users (6). Prompts to engage with the digital intervention were positively perceived, with reminder texts identified as helpful (26). In the case of interventions that required scheduled sessions, young people found flexibility around timings supportive (26).

Likewise, the number and length of sessions were identified as important factors in influencing engagement (26). The personal relevance of content and the credibility of resources were also considered important factors (31). 'Live' telephone calls (26, 29) were positively received, but the findings from Brady and colleagues' (31) research suggest that interventions to sustain engagement throughout the course of the intervention period, and beyond, are required. Thus, the accessibility of bidirectional interventions was identified as a facilitator to engagement.

Category 2: Different formats were used differently

This category was derived from two findings from one study. Texting users and instant messaging users asked different questions (6). Although 46.61% of instant messaging users asked questions about abortion, this topic accounted for only 23.27% of questions from texting users. However, texting users were more likely than instant messaging users to ask about testing for sexually transmitted infections (16.49% vs 8.55%) (6). The studies did not specifically explore what motivated different usage of these two formats nor factors that served as facilitators or barriers to engagement.

Meta synthesized finding 2: Young people need to feel comfortable when using a digital sexual health intervention

A total of 32 findings from six studies (26, 27, 29, 30, 31, 33) formed the four categories synthesized into synthesis two. This synthesis revealed that comfort in using a sexual health digital intervention is pivotal to facilitating its up-take and sustained use among young people.

Category 3: Factors that promote comfort

Seventeen findings from three studies informed the development of this category. Across the studies, participants articulated a need to feel comfortable and safe in order to engage with digital sexual health interventions (30). Privacy and security were identified as important factors (26, 31). Some participants felt that telephone consultations were more private and safer than video calls, however, others felt that in-person or video call sessions may help young people develop a more meaningful connection with a facilitator (26). Significant emphasis was placed on the young people's relationship with online facilitators, with prominence given to the importance of feeling cared for by facilitators and the need for them to be trustworthy, non-judgmental, kind, and understanding (26). Humour was also perceived as a positive feature (30).

The gender of facilitators was seen to be an important consideration. Some young people advocated being given a choice, while others considered it beneficial to have a facilitator of the same gender because they would be likely to have had similar life experiences. However, others outlined the benefits of having a facilitator of another gender since they are able to offer a different perspective (26). Barriers and facilitators were, therefore, nuanced depending upon the individual perceptions of the young people.

Category 4: The credibility of facilitators was considered important

Six findings derived from one paper informed the development of this category. Brady and colleagues (31) explored the credibility of health educators and

found that they were perceived to be more responsive to adolescents' relationship concerns than peer educators, although the average responsiveness of peers increased throughout the intervention (31). The participants in Brady and colleagues' study (31) reported that they felt that health educators rarely deliberately left out information but health educators were sometimes perceived as trying to "get you to do what they want". Perceptions of facilitators could, therefore, serve as either a barrier or facilitator to engagement, depending upon how they were viewed by the young people.

Category 5: Access to sexual health support was enhanced through digital health interventions

Five findings derived from three studies informed the development of this category. The convenience and anonymity of digital sexual health interventions and, in particular, the ability to access healthcare via the digital intervention was perceived positively by young people (27). Users of an app which guided young people to conduct HIV self-testing were pleased that they would be linked to care after performing the HIV self-test (27). One in eight intervention participants (12.5%) in Chernick and colleagues' (29) study took the opportunity to engage in live conversations with healthcare professionals. Confidentiality of the digital intervention was perceived as better than it might have been with a face-to-face appointment (26), which may also promote and facilitate young people's engagement with sexual health services.

Category 6: An environment that is conducive to open communication is supportive

Four findings derived from two papers informed the development of this category. The general environment of the online space was important to young people's engagement with the digital health interventions. Participants in Baker et al.'s research (33) referred to the informal nature of the online space, which helped them feel able to be open during discussions about sexuality and sexual activity. They also referred to the importance of a connection with peers in facilitating communication. The role of the facilitator was seen as contributing to this with Brady and colleagues' (31) study participants being perceived as contributing to a positive environment by helping young people to act autonomously yet safely.

Meta synthesized finding 3: Potential barriers to engagement need to be addressed

A total of 21 findings from five studies (26, 27, 30, 32, 33) formed the two categories synthesized into synthesis three. This synthesis revealed that barriers to young people's engagement with digital sexual health interventions centre on issues with the intervention itself and, equally, issues external to the intervention, many of which reflect the young people's stage of development.

Category 7: Accessibility was inhibited by variables external to the digital health intervention

Eight findings derived from three studies informed the development of this category. Competing priorities led to dropout, with a small number of participants feeling too busy to participate (33). Among younger participants, some had an issue with privacy in relation to family members wanting to know

about their mobile phone usage (32). Parental attitudes regarding telephone use and/or telephone monitoring was an issue for some participants, but this was less of a concern for older adolescents (26). Operator error, such as forgetting to download the app and missing notifications (26) were also barriers to engagement. Poor internet connectivity was a barrier for some (26) and the cost of digital devices was also identified as a potential barrier to engagement (32).

Category 8: Young people have high expectations of digital health interventions

Thirteen findings derived from three studies informed the development of this category. Young people's ubiquitous use of technology led to high expectations of the digital health interventions explored in the studies included in this review. Readability, content, layout, video resolution, the use of colour and age appropriateness were all critiqued by young people in the context of promoting the acceptability of the digital interventions (27, 30). Particular attention was drawn to the need for information for sexual minorities (30) and the importance of using language that resonates with target end users (27). Additional features recommended by young people were that apps should be able to work in the background and offline (27) and in the case of HIV self-testing, a timer countdown to the result being ready should be made available (27). It was also reported that adding more games would make an app easier to understand (26).

Discussion

Digital health innovation is considered the cornerstone of health care modernisation efforts at the international level (34, 35, 36, 37), with the expectation that digital interventions will transform health care, and inform health delivery and public health research in the years ahead (38). The need to tailor digital health innovations to address the health needs of different populations, particularly young people, cannot be overstated (34, 35, 36, 37, 39).

This review has highlighted that digital sexual health interventions should not be considered a panacea. Three meta synthesised findings were identified: (1) The design of a digital intervention for adolescent sexual health needs to reflect the end users' specific needs (2) Young people need to feel comfortable when using a digital sexual health intervention (3) Potential barriers to engagement need to be addressed. However, it is acknowledged that young people, aged 13-25 years, are far from a homogenous group, with significant differences in life experience, understandings and confidence regarding relationships and sexuality and access to technology. In addition, young people comprise diverse ethnic and cultural backgrounds, gender and sexual orientations. All of these factors will impact how the barriers and facilitators reported in the included studies may apply, but the current body of literature gives little insight into such nuances.

In identifying the barriers and facilitators to young people's engagement with bidirectional digital sexual health interventions, it is useful to draw on the central tenets of realist approaches (40, 41, 42) to highlight the synergistic relationship

between the digital sexual health intervention (the mechanism) and the context in producing an effect/outcome. The nine studies in this systematic review have demonstrated the nuanced perceptions of sexual health digital interventions. While one young person might welcome a live video interaction, another may find that it makes them feel vulnerable (26). Likewise, different platforms may be more comfortable for users than others, depending upon the purpose of the interaction (26). It is also likely that young people will vary as to how they perceive the sensitivity of certain sexual health topics, which may, in turn, impact their experiences and perceptions of digital sexual health interventions.

Although the included studies did not specifically explore the impact of age, gender, sexual orientation and ethnic and cultural backgrounds on the young people's perceptions of digital health interventions, the findings of this review demonstrate that, one size does not fit all in digital sexual health interventions. Furthermore, when considering issues around equity, access to 'the mechanism' or the digital health intervention, presents a contextual challenge since access to digital technologies can vary between groups (43). For example, Kuroda et al. (16) identified that women in low- and middle-income countries are 10% less likely to own a mobile phone. We also know that rural populations in these countries are 40% less likely to access mobile internet data than urban populations (15). Furthermore, UNICEF (14) highlights that socio-economic status is a significant contributor to the digital divide with nearly 90% of young people not accessing the internet live in Africa or in the Asia-Pacific region, meaning that digital health interventions can further contribute to the

advantages of the wealthy whilst simultaneously failing to serve those with the greatest need.

High rates of disengagement have been reported in relation to mobile health interventions in general (44). In relation to bidirectional digital sexual health interventions, the findings of this review provide clear insights that can help address the barriers and facilitators to promoting young people's engagement with such interventions. Factors include the design of the digital intervention, the need to ensure that young people feel secure and safe in the digital space as well as considerations concerning the context in which the intervention is being used. For example, if a young person is not permitted to use a mobile phone or does not have the financial means to obtain one, a phone-based intervention will not work for them. Similarly, in areas where internet access is a challenge, an internet-based service will be redundant.

Across the included studies, digital literacy was an a-priori assumption. However, this cannot be assumed and is an area requiring further investigation, as highlighted by the young people who required assistance in using the app in Guzman et al.'s (26) study. Indeed, the UK's National Health Service (13) has recently drawn attention to the many and varied barriers that may lead to digital exclusion, such as limited access, skills, confidence, awareness and digital service design. In relation to the current review, it is notable that populations at particular risk of digital exclusion include those in rural areas, social housing, lower income groups, people with few educational qualifications, those who left or were excluded from school before 16 and homeless people. However, these

barriers were not specifically explored in any of the studies included in this review.

Limitations

The findings of this review need to be contextualised by the small number of studies that we identified for inclusion (n=9). In addition, although a clear inclusion/exclusion criteria were applied, there was still heterogeneity between the interventions with some attracting more positive comments than others and vice-versa which limits generalisability. It is also notable that the geographical distribution of the studies included in this review were heavily weighted towards the USA (five out of nine) with a significant lack of published research conducted in Europe, Australia, South America, Asia and Africa. The lack of literature from countries beyond the USA presents a significant limitation to our understandings in this field. In addition, the lack of research focusing on young people who are more likely to be digitally excluded (13) limits our understanding of barriers and facilitators to engagement with digital sexual health interventions across different groups. Additionally, a plethora of outcome measures was used, with interventions usually implemented in single countries, meaning that comparisons at an international level were not possible. This highlights the need for large-scale comparative trials in the future, with the needs of low-resource countries considered, since they are currently under-represented in the literature yet they too share the same challenges regarding young people's sexual health (45).

Conclusions

Bidirectional digital sexual health interventions hold great potential for young people in relation to enhancing their access to sexual health services. Barriers and facilitators to promoting engagement are nuanced but this review has identified some practical considerations to be taken into account at the design phase of such interventions. Security and privacy are a priority for most young people as they want to feel safe when using such interventions. Consideration of context and setting is also vital with parental monitoring, internet access and ownership of or access to digital devices posing potential barriers to uptake. Co-production of digital sexual health services, in partnership with young people, has provided many of the insights reported in this systematic review. Further research which places an emphasis on young people's perspectives, across different contexts, is vital to unleashing the full potential of digital technology in this domain and to understanding how digital interventions can complement traditional, non-digital services.

Declarations

Ethics approval and consent to participate: Not applicable

Consent for publication: Not applicable

Availability of data and materials: All data generated or analysed during this study are included in this published article and its supplementary information files.

Competing interests: The authors declare that they have no competing interests

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Authors' contributions: CRediT author statements are as follows:

CB was responsible for conceptualization, validation, formal analysis, investigation, data curation, writing of the original draft, supervision, project administration and funding acquisition. MKM was responsible for validation, formal analysis, investigation, data curation, and drafting text. JC was responsible for developing the methodology, validation, formal analysis and review and editing of drafts. DE provided supervision, advised on the methodology and validation as well as the reviewing and editing of drafts. EG designed, undertook and documented the searches. AS, CD, KJM and AN undertook validation, formal analysis, and review and editing of drafts. DK informed the conceptualization of the study, contributed to the reviewing and editing of drafts and was instrumental in funding acquisition.

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Authors' information: the research team are a culturally diverse team with differing professional interests which, we believe, led to considerations of diversity, equity and inclusion throughout each stage of the review.

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