DIGITAL MENTAL HEALTH LANDSCAPING IN LOW- AND MIDDLE-INCOME COUNTRIES RAPID RESEARCH EVALUATION AND APPRAISAL LAB (RREAL)

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Executive Summary

Introduction

The aim of this project was to map the landscape of who is doing what and where in digital mental health, and to provide recommendations that may assist in targeting communication efforts and funding calls. To address this, the project consisted of three studies:

1. Social Media Review
2. Systematic Literature Review
3. Focused Consultation with experts.

This report presents the comprehensive results of digital mental health interventions across both academic and commercial landscapes in LMICs. The findings highlight the diverse range of interventions, technologies, and mental health conditions addressed, as well as the geographical distribution and stakeholder involvement in the development and testing of these interventions.

Key Findings

Types of Interventions and Technologies

The most common types of digital mental health interventions identified were for treatment purposes, followed by diagnosis, prediction, monitoring, and prevention. Mobile and tablet apps were the most frequently used technology, particularly for treatment interventions. For example, the Inuka app in Kenya and Zimbabwe matches people to community health volunteers, supports mental health screening, and provides a medium for delivery of problem-solving therapy to address depression and anxiety. Websites and web-based platforms were also common, such as the Deprexis platform, developed in Germany and adapted for Brazil, which delivers CBT for depression, and Healthy Psychological Station in China, consisting of tailored CBT for depression and anxiety. Emerging technologies such as machine learning, AI, and virtual reality were increasingly being explored, particularly for diagnosis and prediction purposes. For instance, a machine learning model developed in India aimed to predict suicide attempts with 95% accuracy by analysing individual behaviour, whilst virtual reality exposure therapy for obsessive compulsive disorder is being trialled in the Dominican Republic. It is important to underscore the responsible use of these emerging technologies. For example, ensuring ethical standards and cultural relevance in their development and deployment when imported from high-income countries is crucial for their successful integration and acceptance in low- and middle-income countries.

Mental Health Conditions Targeted

Within the focus of this report, which covered anxiety, depression and psychosis (broadly defined), depression and anxiety disorders were the most frequently targeted conditions across all intervention types. We also identified interventions focusing on schizophrenia, bipolar disorder, obsessive-compulsive disorder, post-traumatic stress disorder, and psychosis. For example, the CONEMO app in Brazil and Peru focused on addressing symptoms of depression, the Bipolar Tracking Assistant (BTA) in Iran aimed to predict and monitor bipolar episodes, and the GOGBRAIN app in India was developed to tackle schizophrenia.

Geographical Distribution

The majority of digital mental health interventions were developed and tested in East Asia and the Pacific, particularly in China. Latin America and the Caribbean, South Asia, and the Middle East and North Africa, also had a noteworthy number of interventions. Sub-Saharan Africa had the fewest interventions, highlighting a potential gap in research and implementation in this region. For instance, while numerous interventions were identified in countries such as China, India, and Brazil, only a handful of studies were

found in countries such as Kenya, Nigeria, and South Africa. Figures throughout the report are presented with and without interventions developed in China, as although it has developed a large number of digital mental health interventions, it was not the direct focus of this work.

Stakeholder Involvement

The involvement of people with lived experience and other stakeholders (e.g., carers, teachers, coaches) in the development and testing of interventions was inconsistently reported. Only 36 papers (26 without China) reported some form of stakeholder involvement, with varying levels of detail provided. When mentioned, their involvement varied in nature from more meaningful cultural adaptation to less meaningful consultation such as user experience testing and feedback. For example, the SHARP project in India and the US involved patients, family members, and clinicians in co-designing and adapting the mindLAMP app to ensure cultural relevance and improve usability. Experts emphasized the importance of close collaboration with local communities to ensure cultural relevance, highlighting the unique context of each LMIC.

Intervention Development Stages

Most interventions were in the early stages of development, such as pilot or feasibility trials. Fewer interventions were in the effectiveness testing or implementation stages, highlighting the need for more research on the scalability and real-world impact of these interventions. For instance, while numerous pilot and RCT studies were identified for mobile app-based interventions in countries like China, India, and Brazil, relatively few studies assessed their effectiveness in real-world settings or their implementation at scale.

Barriers and Challenges

Key barriers reported by intervention users included stigma, difficulties with internet access, and lack of cultural adaptation. For example, participants in studies from Pakistan and Indonesia cited stigma as a major barrier to accessing mental health services, including digital interventions. Researchers and developers cited challenges in generalizing interventions, ensuring adherence, and maintaining engagement. For instance, studies from China and Brazil reported high dropout rates and low engagement as significant challenges in evaluating the effectiveness of digital interventions. Lack of resources, including human, infrastructure, and economic resources, and health inequalities were identified as broader barriers to access. Experts also raised concerns about increased investments in the field without systematic exploration or holistic cultural adaptation, particularly when apps are brought from high-income countries to LMICs.

Partnerships and Funding

Europe and the United States were identified as main partners in Latin America, with the UK involved to a smaller extent. Experts in LMICs emphasized the need for partnerships and funding from high-income countries to address the treatment gap, provide training, facilitate collaboration, and ensure the sustainability of interventions. They highlighted several areas where support could be beneficial, such as:

- Addressing the low number of professionals and treatment gap in LMICs. This is the disparity between the number of people who require mental health care and those who actually receive it.
- Providing training on integrating technology and digital interventions into routine mental healthcare.
- Facilitating collaboration between mental health professionals and developers.
- Fostering international networks for exchanging expertise, information, and practical tools.
- Supporting the use of data already being collected in LMICs for developing digital mental health interventions to ensure the sustainability and dissemination after project funding ends.

Regional Highlights

East Asia and the Pacific:

This region was dominated by interventions from China, with a focus on treatment and the use of mobile apps, websites, and emerging technologies like AI and machine learning. For example, the XiaoE chatbot in China used AI to deliver cognitive-behavioural therapy for depression, while the Mommy Go app provided web-based support for perinatal depression. Coping Camp is another app from China aimed at tackling depression and anxiety in high school students. Other countries in the region, such as Indonesia and Vietnam, had a smaller number of interventions, primarily focusing on depression and anxiety treatment using mobile apps and websites, such as the Guided Act and Feel – Indonesia (GAF-ID) web-based platform for depression.

Latin America and the Caribbean:

Interventions in this region primarily originated from academic institutions in countries like Brazil, Mexico, and Colombia. They focused on addressing depression and anxiety using mobile apps and websites. For instance, the Conemo app in Brazil and Peru used a combination of behavioural activation and mobile technology to address depression, while the Cuida tu Ánimo app in Colombia and Chile provided early intervention for anxiety and depression. A chatbot developed in Argentina, 'Tess', is testing the use of AI to send reminders, psychoeducation, and emotional support responses to users with depression and anxiety. Partnerships with the US and Europe were reported in several studies.

South Asia:

India and Pakistan had the most interventions in this region, focusing on treatment and diagnosis using mobile apps and machine learning. For example, the TreadWill app in India delivered cognitive-behavioural therapy for depression and anxiety, whilst the POD Adventures app used gamification to teach problem solving concepts for depression and anxiety in students. An example from Pakistan is the Thinking Health Programme involving peer-support for patients with depression. Collaborations with the US and UK were a crucial component in some studies, such as the SHARP project, supported by the Wellcome Trust and leading to the development of the MINDLamp platform and its adaptation into Hindi.

Middle East and North Africa:

Iran and Egypt had the most interventions in this region, with a mix of treatment, diagnosis, and prediction tools using various technologies. For example, the Happy Mom platform in Iran provided cognitive-behavioural therapy for mothers with depression, while a PTSD Coach Online-Arabic was developed in Egypt to manage PTSD symptoms in trauma-exposed adults . Other countries, such as Lebanon, had a smaller number of interventions, primarily focusing on depression, such as Step-by-step, which is an illustrative narrative program embedded in a digital platform with psychoeducation components.

Sub-Saharan Africa:

Few interventions were identified in this region, mostly focusing on depression and anxiety treatment using mobile apps. For instance, the Inuka app in Kenya and Zimbabwe uses a problem-solving therapy delivered by lay health workers to address depression and anxiety, and the Kumasha app in South Africa uses behavioural activities components to address depression. One mental health start up, Blueroom Care, is a text, video, or voice chat-based online therapy app that connects users with licensed therapists and mental health professionals. However, the limited number of interventions highlights the need for more research and implementation efforts in this region.

Strengths and limitations

Findings presented are the result of comprehensive searches and triangulation of information in the three studies that were carried out in this project. The media and literature reviews utilised comprehensive approaches to gather data on digital mental health interventions in LMICs, though both faced limitations. The media review employed social listening tools (Brandwatch and Pulsar) to analyse content from digital

platforms, focusing on interventions but excluding telemedicine, teletherapy, and China, and limited to freely available media, potentially missing premium content. Repeated mentions and out-of-scope tools led to an initial high volume of posts, but a final count of fewer unique interventions. The literature review used a systematic database search with pre-defined criteria, though pragmatic adjustments for timely results may have excluded some studies, particularly those with very new or uncommon digital methods that were not explicitly described as such in the title. Single screening and data extraction were conducted due to time constraints, which could introduce errors but were deemed suitable for this review's scope. Both reviews mapped a wide range of digital interventions, though some studies lacked detail on user involvement and barriers, and descriptions of the interventions themselves were sometimes insufficient. The expert consultation was targeted to address specific research questions and complement the review findings. Despite the demographic, professional, and geographical diversity captured, the small number of participants should be taken into account when interpreting findings.

Conclusion

This overview highlights the diverse landscape of digital mental health interventions in LMICs, with a growing focus on the use of mobile apps, websites, and emerging technologies for the treatment and diagnosis of common mental health conditions. While promising interventions have been identified across various regions, significant gaps remain in terms of geographical coverage, stakeholder involvement, and the scalability and sustainability of interventions. Sub-Saharan Africa, in particular, emerged as a region with limited research and information on implementation of interventions, despite the high burden of mental health conditions.

The findings also underscore the importance of cultural relevance, stakeholder engagement, and implementation research in the development and evaluation of digital mental health interventions in LMICs. Collaborative efforts between researchers, clinicians, technology developers, and people with lived experience are crucial to ensure that interventions are acceptable, feasible, and effective in the local contexts.

Targeted funding and communication efforts are needed to address the identified challenges and opportunities in this field. This includes prioritising early-stage implementation research which can uncover critical insights into user engagement, technological infrastructure, and healthcare integration, which are essential for the sustainability and scalability of these interventions. It also includes promoting culturally relevant interventions, supporting the development of interventions for a broader range of mental health conditions, fostering partnerships between LMICs and high-income countries, promoting the integration of digital interventions into existing healthcare systems, encouraging the responsible use of emerging technologies, providing funding for prevention and early intervention strategies, and supporting research on the long-term impact and cost-effectiveness of digital interventions.

By addressing these recommendations, funders and researchers can contribute to the development of a more robust and equitable evidence base for digital mental health interventions in LMICs, ultimately improving access to mental healthcare and promoting the well-being of populations in these settings.

Overview of each study

Media Review

Aim and methods

The media review aimed to identify and map organisations and entities involved in the development or implementation of digital mental health tools and interventions specifically targeting low and middle-income countries (LMICs), as well as to highlight key initiatives being produced or utilised in these settings. This objective was achieved through an extensive analysis of social media discourse and online content related to digital mental health in LMICs. The review sought to compile a detailed list of digital mental health tools mentioned for each of the LMICs, selected based on the volume of social media discourse on digital mental health interventions. This aligns with Wellcome's focus on understanding the landscape of digital mental health in LMICs and identifying potential areas for investment and support.

To achieve this objective, we conducted a thorough search and analysis of freely available digital platforms in the public domain using the social listening tools Brandwatch and Pulsar. The data sources included news articles, blogs, and social media posts (e.g., X/Twitter) from organizations, NGOs, and educational institutions, where no gatekeeper permission was required to access the data. Due to UCL ethics regulations, individual accounts were excluded. The data collection period spanned from January 2023 to January 2024, and the study fully adhered to UCL Research Ethics Committee guidelines regarding social media research, privacy considerations, and data management.

The 24 LMICs included in the analysis were identified through an initial social and media horizon scan, focusing on countries with the highest volume of posts contributing to social media discourse on digital mental health interventions. China was excluded from the whole media search from the very beginning, as this was indicated to be out of scope for the present report. To mitigate the limitations of individual tools and their respective API access agreements, we employed a combination of Brandwatch and Pulsar platforms, enabling us to gather data from a broader range of countries and capture a more representative picture of the discourse surrounding digital mental health interventions in LMICs.

A series of advanced Boolean search terms (Appendix 1) were utilised to capture the types of digital mental health interventions and platforms mentioned, key mental health conditions within the scope of the research question(s), and the targeted 24 LMIC locations. The analysis focused on content volume over time for each country, key performance metrics (e.g., total mentions and sources), trending topics, discussions of emerging and tested technologies and apps, and shared content sources related to digital mental health in LMICs during the 12-month period.

Recommendations from the media review are derived from a quantitative and qualitative analysis of key commentaries, suggestions, and topics of concern discussed by authors within the main articles of the source material for each country. These recommendations were developed to align with Wellcome's strategy and focus on identifying promising digital mental health interventions, gaps in research and implementation, and opportunities for investment and support in LMICs.

By employing this comprehensive approach, the media review aimed to provide valuable insights into the perception and discussion of digital mental health interventions across different regions, contributing to a better understanding of the current landscape and informing Wellcome's communication efforts and funding strategies in this field.

Identified information sources

Below is an overview of the key insights and findings for each of the LMICs analysed in the media review. A total of 11,829 social media posts related to digital mental health interventions in Low and Middle-Income Countries (LMICs) were identified between January 2023 and January 2024 (Figure 1). The most predominant platforms for these discussions were online news outlets, blogs, forums, Tumblr, and X/Twitter. Figure 2 shows a topic wheel of the key themes identified, which are further identified in the

overall results section.

Strengths and limitations of the media review

Review process: Our media review utilised a comprehensive search and analysis approach, leveraging advanced social listening tools (Brandwatch and Pulsar) to gather data from a wide range of freely available digital platforms in the public domain. The use of Boolean search terms ensured the capture of relevant content related to digital mental health interventions, key mental health conditions, and the targeted 24 LMIC locations. The combination of quantitative and qualitative analysis provided valuable insights into the perception and discussion of digital mental health interventions across different regions. However, the exclusion of telemedicine and teletherapy data, as well as the omission of China from the analysis, may have limited the scope of the identified apps in the final output. Additionally, the licensing restrictions within the search tools (Brandwatch and Pulsar) to free digital media outlets meant that premium or paywalled outlets were not covered, potentially excluding some relevant content.

The media review analysis initially captured a large number of posts for each region and country, as shown in Table 3. However, the number of unique digital mental health interventions identified was lower (n = 31) than the total number of mentions. This discrepancy can be attributed to two main factors:

1. Repeated mentions of the same tool: In many cases, a single digital mental health intervention was mentioned multiple times across different posts and sources within a given country or region. While these repeated mentions contributed to the overall volume of posts analysed, they did not necessarily represent distinct interventions.
2. Tools that were out of scope: The analysis also captured mentions of digital tools and initiatives that fell outside the scope of this review, such as teletherapy platforms, WhatsApp support groups, and social media awareness campaigns. Although these tools were initially included in the post counts, they were subsequently excluded from the final list of interventions to maintain alignment with the review's focus on digital mental health interventions.

For example, in the South Asia region, India had the highest number of mentions at 6,747. However, a significant portion of these mentions referred to telehealth consultations, which were ultimately excluded from the final intervention count, as telehealth was considered out of scope for this review. Similar patterns were observed in other regions, where the number of unique interventions was considerably lower than the total number of mentions.

This refinement process, which involved removing repeated mentions and out-of-scope tools, resulted in a more accurate representation of the digital mental health intervention landscape in each region and country. The final list of interventions, though smaller in number compared to the initial post counts, provides a clearer picture of the relevant digital mental health tools and initiatives being developed and implemented across LMICs.

Included Data: The media review encompassed a broad spectrum of digital interventions aimed at treating, diagnosing, monitoring, predicting, and preventing mental health problems. However, the UCL Research Ethics Committee (UCL REC) restrictions limited searches to social media accounts run by academic, business, or government organizations and entities, excluding individual accounts. This may have resulted in the omission of insights and discussions from individuals with lived experience or those directly involved in the development or use of digital mental health interventions. Furthermore, the analysis of Facebook data was confined to open Facebook pages, meaning that discussions of apps within closed profiles or groups were not captured, potentially limiting the scale of findings.

Figure 1: Timeline of posts identified between January 2023 and January 2024

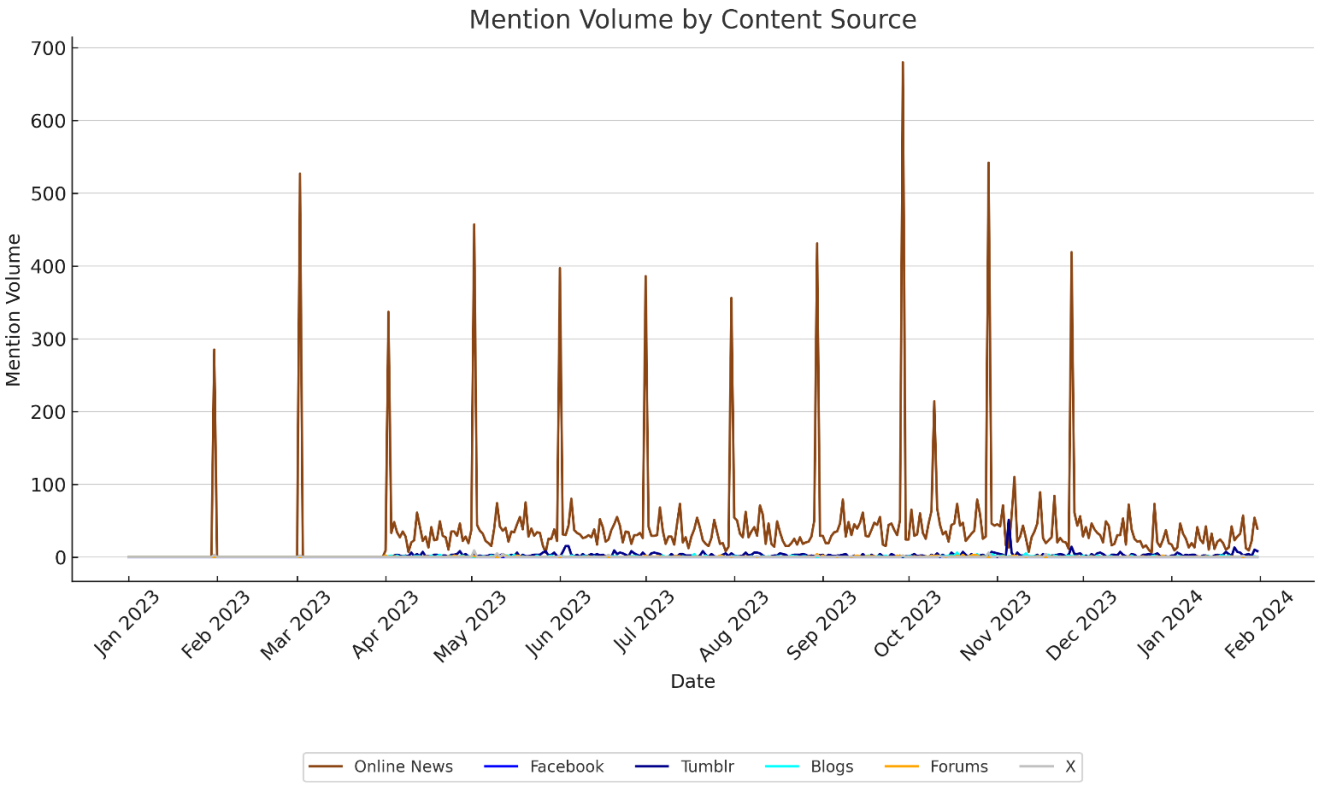

Figure 2: Topic wheel summary of topics and themes identified in social media posts between January 2023 and February 2024.

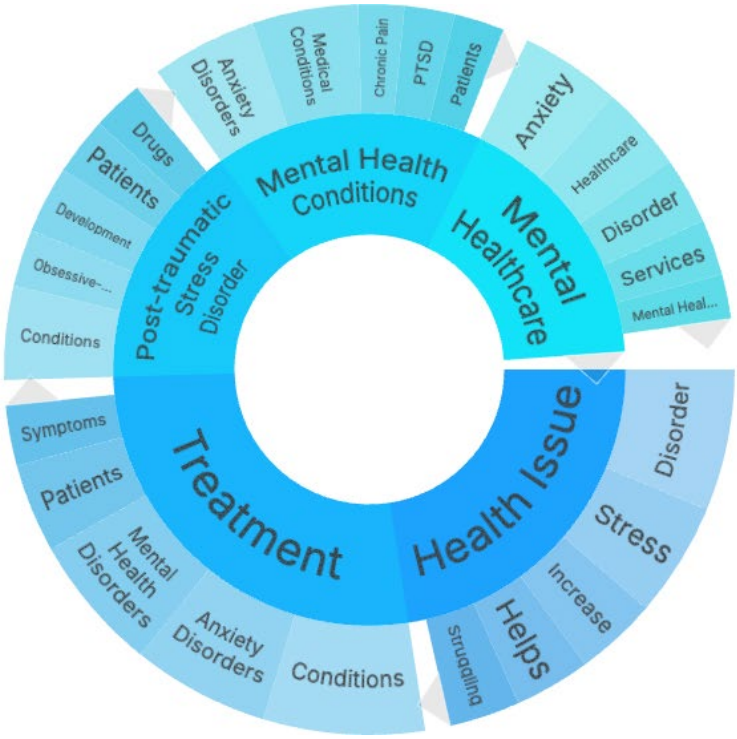

Table 1 shows a full list of all identified digital mental health interventions by name, country, and targeted group, including a summary of what each intervention entails. All tools identified within the media review are listed, with the exception of teletherapy tools and those developed in China, which were captured but excluded as they are out of scope of the Wellcome Digital Mental Health strategy. Information in media and social media about initiatives from LMICs in Europe was scarce compared to other regions. The majority of interventions identified in the media review targeted the general population (n = 19). Several interventions were designed to cater to the needs of specific age groups, such as teenagers and young people (n = 6), as well as students and teachers (n = 1), such as in Thailand with the "School Health Hero" mobile application, developed in collaboration with the Ministry of Education and Public Health Ministry. This app targets students by providing teachers with online consultation and assistance to identify potential mental health problems. There were interventions specifically for children, teenagers, and adults (n = 1), and students (n = 2), such as the Ingage Support app in South Africa, aimed at increasing mental health awareness and education, offering online counselling, mental health materials, and coping tools for children, teenagers, and adults. Some interventions focused on supporting employees (n = 4), for example, in Mexico with "Cuéntame," an online counselling platform that provides access to psychological support for employees in the workplace, aiming to help individuals better navigate mental health concerns. Other interventions targeted more specific groups, such as expatriates (n = 1) and soldiers (n = 1), such as Expathy, a mobile application platform originating from Turkey, designed to address the unique challenges faced by Turkish expatriates living abroad by offering culturally sensitive and language-specific psychological counselling.

These targeted interventions demonstrate the diverse groups addressed by digital mental health interventions across LMICs, ranging from youth and students to underserved rural communities, women, military personnel, expats, and employees in the workplace. However, it is important to note that many interventions also target the general population, aiming to improve access to mental health support and resources for all individuals in need.

Table 1: List of identified interventions in the media review

Intervention/Organization	Country of Origin	Target Groups	Summary
Manodarpan Initiative (2)	India	General population	Developed during the COVID-19 pandemic, this initiative aims to provide psychosocial support for students, families, and teachers, emphasizing mental health assistance.
Mpower (3)	India	Employees and private citizens	A holistic mental health care initiative based in Mumbai, founded by Dr. Neerja Birla, providing mental health care, therapy, and awareness sessions for individuals and corporations.
Lusog-Isip App (4)	Philippines	General population, Women, children, and young people	A mobile app launched by the Philippines Department of Health, a toolkit to improve mental health of the general population, with a focus on women, children, and young people.
MindYou Platform (5)	Philippines	Employees	A platform sponsored by AXA PH, providing mental health counselling to

Intervention/Organization	Country of Origin	Target Groups	Summary
			its employees through licensed psychologists.
MindNation Platform (6) (7)	Philippines	General population	A mental health and well-being organization offering digital mental health interventions.
MySejahtera (8-11)	Malaysia	General population	MySejahtera in Malaysia not only facilitates COVID-19 contact tracing and health monitoring but also provides access to mental health services through features like hotline numbers and resources for support and guidance.
School Health Hero (12)	Thailand	Students, teachers	A mobile application developed in collaboration with the Ministry of Education and Public Health Ministry, providing teachers with online consultation and assistance to identify potential mental health problems among students.
Humraaz App (13)	Pakistan	General population	A mobile/web-based application launched by the Pakistani government, aimed at improving mental well-being and making mental health services more accessible.
Expathy (14)	Turkey	Expatriates	A counselling app providing emotional support and 24/7 counselling to expats based in various LMICs, including Turkey, offering culturally sensitive and language-specific psychological counselling.
Relaxy Limited (15)	Bangladesh	General population	A tech-based wellness platform partnered with the Sajida Foundation, aiming to develop mental health mobile apps to revolutionise mental health support in Bangladesh by making it more accessible and stigma-free.
Sajida Foundation (16)	Bangladesh	General population	A non-profit working to address mental health challenges by providing comprehensive support services, including mobile apps (in partnership with Relaxy Ltd) counselling, therapy, and awareness programs, aimed at reducing stigma and promoting mental well-being within communities.
Panda app (now October Health) (17, 18)	South Africa	Teenagers	A mental health support app for teens, providing resources and a virtual

Intervention/Organization	Country of Origin	Target Groups	Summary
			support platform moderated by mental health professionals (utilised both in Kenya and South Africa)..
U.WELL x Sensiks Express Wellness Pod (19)	South Africa	General population	A partnership between U.WELL (a subsidiary of the Universal Wellness Group) and Sensiks (a Netherlands-based company) offering a multisensory wellness experience for relaxation, mindfulness, and mental health support.
Ingage Support app (20)	South Africa	Children, teenagers, and adults	An app aimed at increasing mental health awareness and education, offering online counselling, mental health materials, and coping tools for children, teenagers, and adults.
Kena Health (21)	South Africa	Employees and private citizens	A platform offering affordable mental health and general health care via a digital app and online platform, with registered mental health professionals.
Amwell and Discovery Health's SilverCloud (22-24)	South Africa	Employees	A partnership between Amwell and Discovery Health, providing access to SilverCloud, a digital mental healthcare platform for Discovery Health members in South Africa.
Wysa (25, 26)	South Africa	Students and staff	An app offering mental health, depression, and anxiety support and therapy to students and staff users in South Africa, in partnership with the University of the Western Cape and the South African Anxiety and Depression Group.
Mindful Kenya (27)	Kenya	General population	A social enterprise offering a mobile app for mental health counselling services.
Panda app (now October Health) (17, 18)	Kenya	Teenagers	A mental health support app for teens, providing resources and a virtual support platform moderated by mental health professionals (utilised both in Kenya and South Africa).
Mental Health Data Prize – Africa (28, 29)	Kenya	General population	A partnership between Wellcome and the African Population and Health Research Center, aiming to address research and innovation gaps in mental health conditions through data-driven insights.

Intervention/Organization	Country of Origin	Target Groups	Summary
Mental Health Data Prize – Africa (28, 29)	Ghana	General population	A partnership between Wellcome and the African Population and Health Research Center, aiming to address research and innovation gaps in mental health conditions through data-driven insights.
Awesome Mind Speaks (30)	Uganda	Teenagers and young people	An organization developing the 'KeepChatty' app to bridge the gap between young people and mental health service providers through digital mental health care.
Free Mind Hive (31)	Uganda	Teenagers and young people	An organization that developed an online app providing access to mental health information and support for youths experiencing mental disorders in Uganda.
TherapyMantra (32)	Indonesia	General population	An online therapy and counselling service for individuals suffering from mental health conditions such as anxiety, phobias, and PTSD, based in Jakarta.
Pura mente (33)	Chile	General population	Mobile application for meditation and mindfulness (available in Colombia).
Pura mente (33)	Colombia	General population	Mobile application for meditation and mindfulness (available in Chile).
BeMe Health (34)	Mexico	Teenagers and young people	Platform for teenagers/adolescents with coaching, emotional support, and service connections.
Oye (35)	Mexico	General population	Mobile application for mindfulness, emotional support, and goal setting.
Conemo (36)	Brazil	General population	Mental health app aimed at alleviating depressive symptoms in individuals with chronic conditions being evaluated through RCTs (in both Brazil and Peru).
WellmindGPT (37)	South Korea	Military Personnel	This conversational AI, developed with support from Microsoft and informed by mental health specialists like Professor Kwon Jun-soo, provides tailored support for soldiers, offering assessments and assistance with depression, anxiety, insomnia, stress, and resilience through dedicated military portals like the Nara Sarang and the Defense Welfare Portal.

Intervention/Organization	Country of Origin	Target Groups	Summary
Cuentame (38)	Mexico	General population	The Cuentame program in Mexico offers comprehensive mental health support through a mobile application, providing resources, information, and assistance for users dealing with various mental health challenges. Led by a team of experts, it aims to promote mental well-being and reduce stigma surrounding mental health issues in Mexico.

Literature Review

Aim and methods

The overall objective of this review was to map who is doing what, where in relation to digital mental health in LMICs. Research questions were as follows:
1. What are the emerging and established digital mental health interventions being developed or tested in LMICs? 2. What do these interventions entail?
3. Where are they developed and implemented?

We searched for relevant published studies and protocols describing interventions meeting our inclusion criteria in four databases (Medline, PsycINFO, Embase, and Cochrane CENTRAL) between January 2020 and January 2024. Following deduplication, we systematically applied inclusion criteria and excluded studies that did not fit these criteria. Finally, we extracted information on the stage of care the intervention was aimed at, the type of digital intervention, the stage of development that the intervention was in, and the target mental health condition or symptoms. We used these to group studies and describe their characteristics.
Further details on the search strategy is available in Appendix 2 and full details of the paper inclusion/exclusion criteria, the flow of studies through the screening process, and definitions of variables used to group interventions can be found in Appendix 3.

Identified information sources

The total number of papers for screening constituted 3498 papers. From these, 433 papers were included for full-text screening, and of these, 136 papers were included. These described 112 unique interventions. Forty papers in total referred to 16 interventions by name, while the rest did not give specific intervention names. The full search and screening process is represented in Appendix 3.2.

Most included papers were articles published in peer reviewed journals, but also included two protocols. It is important to highlight that multiple papers might be referring to the same intervention and represent various steps of the testing process. Where applicable, “studies” represent individual publications (which may be about the same intervention) and “interventions” represent distinct digital interventions mentioned in studies. Furthermore, not all papers listed intervention names and might have referred to them only as using “internet-based CBT” within an app that they developed. In such cases those interventions were grouped as one when presented in the final interventions table as they represented similar or the same tools/approaches.

Strengths and limitations of the literature review

Review process: Our literature review utilised a systematic database search process and pre-defined inclusion criteria to ensure a non-biased search and screening process. However, the breadth of the area of focus necessitated a pragmatic approach to developing the search strategy to ensure timely delivery of results. For example, forms of digital technology were required to be specified by studies in their title or assigned keywords to be picked up. This may have excluded i) studies which have developed entirely new, unknown forms of technology and ii) studies which may have utilised technology but this technology was not the main focus of the paper. However, as the focus of this review was newly developed technology and terms did encompass broader terms referring to technology such as “digital” or “electronic”, we are confident that the majority of relevant studies to our review questions would have been found. Secondly, the short timeframe of this review necessitated a single screening and data extraction approach, which may have introduced errors. While dual screening and data extraction is recommended for scoping reviews, it is less important than for systematic reviews of effectiveness, which directly feed into clinical guidelines, as numerical effect sizes are not extracted from the literature. Therefore, it was deemed appropriate for the goals and timeline of this literature review.

Included literature: The included literature covered a broad range of digital interventions aiming to treat, diagnose, monitor, predict and prevent mental health problems. However, as we did not exclude studies based on study design, some early reports were lacking in detail, particularly relating to the extent of involvement of people with lived experience and reported barriers to use. In some instances, descriptions of the digital intervention itself were also lacking.

Focused expert consultation

Aim and methods

The aim of this consultation was to obtain further details around who is doing what, where in relation to digital mental health in LMICs, as well as gain a better understanding of lived experience involvement. We obtained UCL ethics approval (Ethics ID: 26357.002) to conduct individual interviews and disseminate a survey including questions such as "Is there lived experience involvement in the development of the interventions you have mentioned?”, and “Please, screen this list and complete the table below with any other digital mental health interventions that you know which are not included there”. The research team used a sampling table to map a broad range of experts from our networks considering their region of focus and their professional background (including experts with lived experience). We reached out via personal emails and social media posts on X and LinkedIn to get an overview of the work they are currently conducting and apply snowball sampling to identify and document other teams and initiatives.
Feedback from the project’s lived experience advisor on the interview schedule and survey can be found in Appendix 4. The full interview schedule can be seen in Appendix 5, and the survey can be seen in Appendix 6.

Sample description

Eleven experts provided full responses in this consultation. Of these, six were women and five were men, and all were between 25-64 years old, from a spread of ethnic origins, and residing in Asia, Europe, Latin America, and sub-Saharan Africa. Four people reported having lived experience which they applied to their work, four were academic researchers, one clinician, and one person from the third sector. Full sociodemographic information of the respondents can be found in Table 2.

Table 2: Characteristics of stakeholders

Characteristics	Respondent n(%) - N=11
Gender	▪ Female n=6 (55%) ▪ Male n=5 (45%)
Age	▪ 25-34 n=1 (9%) ▪ 35-44 n=7 (64%) ▪ 45-54 n=1 (9%) ▪ 55-64 n=2 (18%)
Ethnic origin	▪ Central America and Caribbean n = 2 (18%) ▪ Eastern Europe n = 1 (9%) ▪ South America n = 3 (28%) ▪ South and Southeast Asia n =2 (18%) ▪ Sub-Saharan Africa n =1 (9%) ▪ Western Europe n = 1 (9%) ▪ Sub-Saharan Africa n = 1 (9%)
Region of Residency	▪ Asia/Pacific n = 3 (27%) ▪ Europe n = 4 (37%) ▪ Latin America n = 3 (27%) ▪ Sub-Saharan Africa n = 1 (9%)
Disability	▪ Considers as having a disability or long-term health condition, n = 1 (9%) ▪ Doesn't consider having a disability or long-term health condition, n = 8 (73%) ▪ Prefer not to say, n = 1 (9%) ▪ No response, n =1 (9%)
Region of work	▪ Asia/Pacific, n = 2 (18%) ▪ Europe, n = 1 (9%) ▪ North America, n = 1 (9%) ▪ Latin America, n = 2 (18%) ▪ Sub-Saharan Africa, n = 1 (9%) ▪ Multiple Regions, n = 4 (37%)
Background	▪ Person with lived experience applied in the field, n = 4 (37%) ▪ Academic/Researcher, n = 4 (37%) ▪ Academic and Clinician, n = 2 (18%) ▪ Charitable, NGO sector, n = 1 (9%)

Strengths and limitations

This study followed gold standard qualitative research methods and ethical considerations. The data collection was directed and comprehensive to cover the questions relevant to this study, and participants were experts who were considered to have a good understanding of the field in their region (participants with high information power (39).

The number of participants was smaller than we initially aimed. While we reached experts from around the globe, with different demographic and professional characteristics, their views cannot be considered representative of all the experiences from people working in this field. We considered participants' answers in light of findings from the reviews and the expertise by experience from members of our research team.

Results: Digital Mental Health Interventions in LMICs

Geography

Literature Review

The geographical locations of where interventions were developed and/or tested were grouped using the World Bank classification (104). Countries from the following regions were represented: East Asia and Pacific, Middle East and North Africa, Sub-Saharan Africa, Europe and Central Asia, South Asia, Latin America and Caribbean or from multiple regions.

Most of the interventions described were developed or tested (or both) in East Asia and the Pacific (n = 57), with China having the highest number of interventions described overall (n = 49). When excluding China, the Middle East and North Africa had the highest number of studies (n = 18). The two countries with the highest number of interventions described when excluding China were Iran and India, both with n = 9.

As part of the literature review, we also extracted information on the location of first author primary affiliations as a high-level means of exploring where researchers and developers publishing literature are based. This is displayed in Figure 3. In the case of 34 publications, first author affiliations were different to the location of intervention development and/or testing.

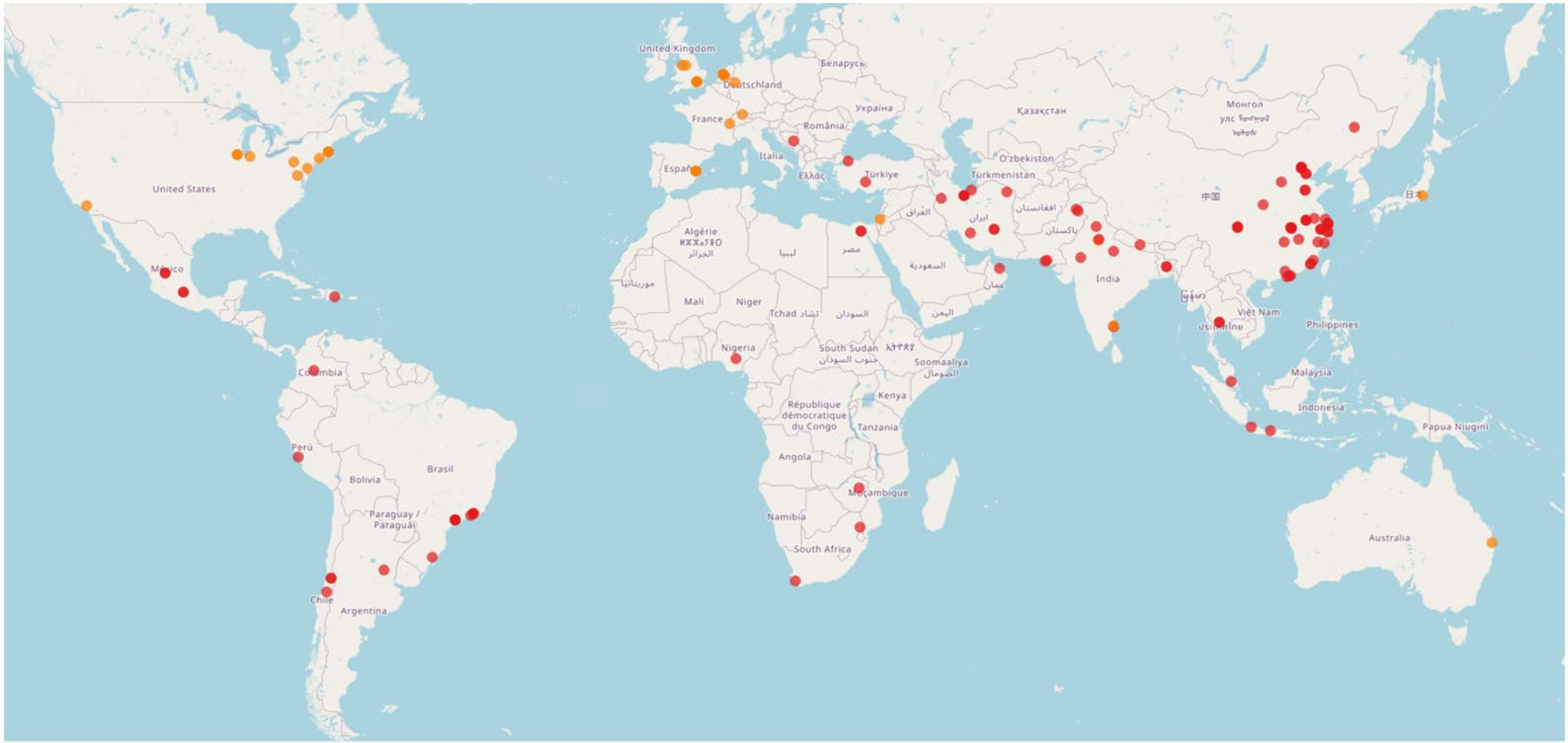

Figure 3: Location of lead author affiliation for each intervention. Orange points represent author affiliations which are different to the country of development/testing and red points represent author affiliations which are the same as the countries of development/testing

Media Review

The media review analysis captured digital mental health interventions across various regions, as shown in the table below. The interventions were categorized using the World Bank classification, as in the literature review.

The media review identified a total of 31 unique digital mental health interventions across various regions. South Asia had six interventions, with India accounting for three, and Pakistan and Bangladesh for one. In Sub-Saharan Africa, 12 interventions were found, with South Africa leading with six, followed by Kenya with three, Uganda with two, and Ghana with one. In Latin America and the Caribbean, six interventions were identified, with Mexico contributing three, and Chile, Colombia, and Brazil one each. Europe and Central Asia had one intervention from Turkey. No interventions were identified in the Middle East and North Africa, or across multiple regions.

Table 3 shows the geography of all interventions identified through the social media and literature reviews, as well as the few additions suggested by experts in the consultation.

The results for each country are integrated into the tables presented in the systematic literature review structure and aligned with key characteristics such as treatment, diagnosis, monitoring, prediction, prevention, target population, and barriers. The funding column in the table indicates whether the tools identified in the media review were commercially, governmentally, or academically funded.

Table 3: Number of studies or interventions per region and country identified in the literature and media reviews

Region	Number (studies, interventions)	Countries (N studies)
Literature Review		
Latin America and Caribbean	27 studies, 19 interventions	Argentina (n = 1), Brazil (n = 8), Brazil and Peru (n = 3), Dominican Republic (n = 3), Colombia and Chile (n = 2), Chile (n = 1), Chile and Mexico (n = 1), Ecuador (n = 2), Mexico (n = 5), Peru (n = 1)
South Asia	19 studies, 19 interventions	Bangladesh (n = 2), India (n = 9), Nepal (n = 1), Pakistan (n = 7)
Middle East and North Africa	18 studies, 14 interventions	Egypt (n = 3), Iran (n = 9), Lebanon (n = 4), Oman (n = 1), Palestine (n = 1)
East Asia and Pacific	57 studies, 52 Interventions Excluding China: 8 studies, 8 interventions	China (n = 49), Indonesia (n = 4), Malaysia (n = 1), Thailand (n = 2), Vietnam (n = 1)
Europe and Central	6 studies, 4 interventions	Belarus (n = 1), Bosnia and Herzegovina (n = 1), Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia (n = 2), Turkey (n

Region	Number (studies, interventions)	Countries (N studies)
Asia		= 2),
Sub-Saharan Africa	5 studies, 4 interventions	Kenya (n = 1), Nigeria (n = 1), South Africa (n = 2), Zimbabwe (n = 1)
Multiple regions	4 studies, 3 interventions	India, South Africa, Nigeria and High-income countries (n = 1), India and US (n = 3)
Media Review		
Region	Number of interventions (by country)	Countries (Number of posts before exclusion for repeated mentions of interventions)
Sub-Saharan Africa	12 interventions: (South Africa: 6; Kenya: 3; Uganda: 2; Ghana: 1)	South Africa: 814 posts; Nigeria: 338 posts; Kenya: 211 posts; Ghana: 171 posts; Uganda: 9 posts
East Asia and Pacific	7 interventions: (Philippines: 3; Malaysia: 1; Thailand: 1; South Korea: 1; Indonesia: 1)	Malaysia: 1,667 posts; Vietnam: 744 posts; Korea: 121 posts; Philippines: 93 posts; Indonesia: 194 posts; Thailand: 450 posts
South Asia	6 interventions: (India: 3; Pakistan: 1; Bangladesh: 2)	India: 6,747 posts; Pakistan: 143 posts; Bangladesh: 91 posts; Sri Lanka: 75 posts
Latin America and Caribbean	6 interventions: (Chile: 1; Colombia: 1; Mexico: 3; Brazil: 1)	Brazil: 101 posts; Colombia: 309 posts; Dominican Republic: 29 posts; Jamaica: 28 posts; Mexico: 124 posts
Europe and Central Asia	1 intervention: (Turkey: 1)	Turkey: 130 posts; Albania: 38 posts
Middle East and North Africa	N/A	N/A
Multiple regions	N/A	N/A
Expert consultation		
Region	Number of interventions by country	Links to information

Region	Number (studies, interventions)	Countries (N studies)
Latin America and Caribbean	Argentine (n=1), Colombia (n=1), Colombia and Mexico (n=1)	Argentine (https://www.appcalma.co.m/site/en/) Colombia (https://www.c4tbh.org/program-review/space-from-depression/) Colombia and Mexico (https://sites.google.com/view/yopuedosentirmebien/)
Sub-Saharan Africa	Kenya (n=1), Nigeria (n=1), South Africa and Uganda (n=1)	Kenya (https://www.shamiri.institute/) Nigeria (https://grassrootsoccer.org/wp-content/uploads/2023/06/SAMPLE-Mindskillz-Magazine.pdf) South Africa and Uganda (https://pubmed.ncbi.nlm.nih.gov/38032691)
N/A: Not applicable		

Summary of example telehealth interventions

Tools that were out of scope: The analysis also captured mentions of digital tools and initiatives that fell outside the scope of this review. These interventions include web-based platforms offering variations of telehealth services and helplines/WhatsApp messaging aimed at addressing mental health challenges such as anxiety, depression, PTSD, and social media awareness campaigns. Although these tools were initially included in the post counts, they were subsequently excluded from the final list of interventions to maintain alignment with the review's focus on digital mental health interventions.
Although teletherapy and telemedicine were out of scope of this current study, it was noted that there were 7 countries within the study that additionally utilised these interventions. Countries that were included in the main analysis, and also had telehealth interventions: include, Bangladesh (2), India (1), Malaysia (1), Mexico (2), Pakistan (2), the Philippines (1), and South Korea (2). Countries found with only telehealth and no other interventions were: Albania (1), Jamaica (1), and Nigeria (2). Further details of each telehealth intervention can be found in Table 4 below.

Table 4: Telehealth interventions identified in the media review

Country	Intervention Type	App/Service Name	Brief Summary	Source
Countries where only telehealth interventions were identified				
Albania	Web-based Platforms	Nuk je vetem (40)	Provides online counselling for young people and adolescents with complete anonymity and direct access to psychologists.	Available from: https://nukjevetem.al/
Jamaica	Teletherapy Helpline	SafeSpot (41)	Offers teletherapy services for young people and adolescents.	Available from: https://safespotja.com/
Nigeria	Telehealth	Blueroomcare (42)	Fast-growing telehealth platform providing therapy via	Available from: https://blueroomcare.com/

Country	Intervention Type	App/Service Name	Brief Summary	Source
			in-app messaging, video, and voice.	
Nigeria	Telemedicine	HealthConnect24×7 (43)	Combines telemedicine, telemonitoring, and home health to provide access to doctors and wellness experts via various digital means.	Available from: https://healthconnect247.com/
Countries where telehealth interventions were identified in addition to other types of interventions				
Bangladesh	Helplines	Kaan Pete Roi (44)	Emotional support and suicide prevention helpline operated by the Sajida Foundation.	Available from: https://www.kaanpeteroi.org/
Bangladesh	Helplines	Shojon (45)	Provides mental health support and psychological counselling through a helpline.	Available from: https://www.sajida.org/sajidas-programmes/fostering-equity/mental-health/
India	Web-based Platforms	Tele-MANAS (46)	Provides telehealth support via a toll-free national helpline, as well as an interactive online chatbot platform offering counselling and guidance by psychologists.	Available from: https://telemanas.mohfw.gov.in/#/home
Malaysia	Telehealth	TeleHope Health (47)	Provides free online mental health therapy by a team of Malaysian psychiatrists, counsellors, and psychologists.	Available from: https://www.telehopehealth.com/
Mexico	Telehealth/ Teletherapy	MeetingDoctors (48)	Online counselling service available to businesses, offering mental health support.	Available from: https://meetingdoctors.com/
Mexico	Helplines	Centro de Atención Ciudadana Linea de la Vida	Provides 24/7 emotional support and resources to individuals in distress.	Available from: https://www.gob.mx/salud%7Cconadic/

Country	Intervention Type	App/Service Name	Brief Summary	Source
		(Citizen Care Center Lifeline) (49)		
Pakistan	Helplines	Pursukoon Zindagi Helpline (50)	Provides peer-based support groups, phone or video counselling, and a mental health helpline.	Available from: https://ird.global/program/mental-health/projects/pursukoon-zindagi/
Pakistan	Telehealth/ Telemedicine	Sehat Kahani (51)	Offers telehealth and remote mental health counselling.	Available from: https://sehatkahani.com/
Philippines	Apps	Empath (52)	Offers tele-mental health services, including online counselling and support for various organisations.	Available from: https://empath.ph/
South Korea	Telehealth	KakaoTalk (53)	Platform providing telehealth services, including mental health self-diagnosis and AI-based support.	Available from: https://www.kakaocorp.com/page/service/service/KakaoTalk
South Korea	Telehealth	Naver Portal (54)	Platform providing telehealth and mental health counselling services. In recent years, it has acted as a base from which to launch and connect other digital health services in South Korea.	Available from: 1. https://koreajoongangdaily.joins.com/news/2023-12-05/national/socialAffairs/Korea-to-provide-mental-health-counselling-to-1-million-by-2027/1928508 2. https://recruit.navercorp.com/cnts/benefits?lang=en

Characteristics of interventions

Media Review

In total, 31 interventions were identified in the media review across various regions and countries. The majority of these interventions were mobile or tablet apps (n = 21), followed by digital platforms (n = 4),

artificial intelligence/artificial networks (n = 4), virtual reality (n = 1), and computer software (n = 1). These interventions targeted different stages of mental health care, including treatment, diagnosis, monitoring, and prevention. The interventions were developed and implemented in a range of countries, with South Africa having the highest number of interventions (n = 6), followed by India (n = 3), Mexico (n = 3), the Philippines (n = 3), Kenya (n = 3), Bangladesh (2) and Uganda (n = 2). Other countries, such as Malaysia, Thailand, South Korea, Indonesia, Turkey, Ghana, Chile, Colombia, Pakistan, and Brazil, had one intervention each. Information on the form of digitalisation of each intervention can be found in Tables 5-7.

Literature Review

In total, 112 interventions were identified across various regions and countries. Seventy interventions described were for the purposes of treatment (47 interventions without China), 17 for diagnosis alone or combined with monitoring or treatment (nine interventions without China), ten for monitoring alone (six interventions without China), 12 for prediction (five interventions without China) and three interventions for prevention (two interventions without China).
Within these 112 identified digital interventions, the form of digitalisation could be broadly divided into: artificial intelligence/artificial networks (n = 3/n = 1 without China), machine/deep learning (n = 21/n = 5 without China), virtual reality (n = 9/n = 3 without China), mobile or tablet apps (n = 39/n = 29 without China), websites/web-based platforms (not including Internet based CBT; n = 34/n = 19 without China), chatbot or plugins (n = 1), and computer software (n = 5/n = 2 without China).

Treatment Interventions

There were 70 interventions (47 interventions without China) designed to support treatment of mental health conditions found through the literature review. Almost all (n = 68) involved patients as the intended user, although some of these (n = 16) also involved use by clinicians, volunteers or peers. Their indication focus was on anxiety disorders (including any mentions from the papers of anxiety symptoms, diagnosed anxiety condition, clinical anxiety, social anxiety, anxiety; n = 7/ n = 4 without China), depressive disorders (n = 31/ n = 21 without China), depression and anxiety (n = 17/n = 13 without China), schizophrenia (n = 6/ n=3 without China), post- traumatic stress disorder (n = 1), Bipolar disorder (n = 1), obsessive compulsive disorder (n = 4/ n = 2 without China), depression and suicide (n = 1/ n = 0 without China), multiple conditions (which could include depression, anxiety, or schizophrenia) (n = 2). Most of the studies describing these interventions were described by authors as in the feasibility/pilot testing (n = 35, n = 27 without China) stage of development, although 30 (n = 13 without China) were in the effectiveness testing stage. Apps were most frequently described (n = 25, n = 18 without China) although VR (n = 8, n = 2 without China) and web-based platforms (n = 16) were also developed for digital-based treatment.

In the media review, a total of 23 interventions were identified for the purposes of treatment across various regions. The majority of these interventions were mobile or tablet apps (n = 15), followed by online counselling platforms (n = 3), AI chatbots (n = 2), sensory reality devices (n = 1), machine learning models (n = 1), and mobile applications (n = 1). These interventions targeted a range of mental health conditions, including general mental health concerns, depression, anxiety, PTSD, mindfulness, and emotional support. The interventions were developed and implemented in several countries, with South Africa having the highest number of treatment interventions (n = 6), followed by Mexico (n = 3), Kenya (n = 3), and the Philippines (n = 2). Other countries, such as Albania, Brazil, Colombia, India, Malaysia, Pakistan, South Korea, Thailand, and Turkey, had one intervention each.

Table 5 shows the characteristics of all treatment interventions found through the literature and social media searches.

Table 5: Identified treatment interventions

Study ID	Country of study/Country of first author affiliation[1]	Study design[2]	Intervention Name[3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
Literature Review										
Klos, 2021 (55)	Argentina	Pilot RCT	Chatbot "Tess" in Spanish Mila	Artificial intelligence/artificial networks	Implementation study	Depression and anxiety	Conversations with Tess are based on cognitive behavioural model, emotion-focused therapy, solution-focused brief therapy, and motivational interviewing. Sends reminders, psychoeducational content, and emotional support responses based on what the users express.	Patient	Not stated	Not stated

Lopes, 2021 (56)	Brazil	Descriptive only	Deprexis	Websites /web-based platforms	Pilot/feasibility trial	Depression	Deprexis is an intervention based on cognitive-behavioural therapy. The program can be adapted for the needs of the participants whereby if a participant needs to improve their communication skills, the answers provided to the system will lead to more exercises or information related to those needs. At the moment Deprexis is used in Germany and was adapted for Brazil	Patient	Not stated	Not stated
Lopes, 2020 (57)	Brazil	RCT		Websites /web-based platforms	Pilot/feasibility trial	Depression		Patient	Not stated	Not stated
Lopes, 2023 (58)	Brazil	RCT		Websites /web-based platforms	Effectiveness study	Depression		Patient	Not stated	Academic Funding: National Council for Scientific and Technological Development (CNPq), Carlos Chagas Filho Foundation for Research Support in the State of Rio de

										Janeiro (FAPERJ), and Dom Manoel Pedro da Cunha Cintra Cultural Foundation (FDC)
Casella, 2022 (59)	Brazil	RCT	COMVC	Websites /web-based platforms	Implementation and effectiveness	Depression and anxiety	Brief, manualized cognitive-behavioural therapy program for children and adolescents aided by psychoeducational videos.	Patient	Not stated	Academic funding: The São Paulo Research Foundation (FAPESP)
Vera Cruz Dos Santos, 2021 (60)	Brazil and Peru	Other	CONEMO	Mobile or tablet apps	Economic evaluation	Depression	App based on behavioural activation principles, focusing on increasing participation in activities that are	Patient and clinician	Not stated	Academic funding: National Institute of Mental Health
Araya,	Brazil and	RCT		Mobile or	Implemen	Depres		Patie	Not	Academ

2021 (61)	Peru/UK			tablet apps	tation and effectiveness	sion	pleasant or meaningful for participants. Was minimally supported by nurse assistants, who reviewed app use data and provided support (found in both the Literature and Media Review searches).	nt and clinician	stated	ic funding: National Institute of Mental Health
Seward, 2023 (62)	Brazil and Peru/UK	RCT		Mobile or tablet apps	Formative research	Depression		Patient and clinician	Not stated	Only the original CONEMO trials received funding.
Toyama, 2022 (63)	Brazil and Peru	Qualitative interview		Mobile or tablet apps	Pilot/feasibility trial	Depression		Patient and clinician	Not stated	Academic funding: National Institute of Mental Health
Zuccolo, 2021 (64)	Brazil	RCT	Motherly	Mobile or tablet apps	Pilot/feasibility trial	Depression	Mobile app that delivers brief cognitive-behavioural therapy (CBT) and behavioural activation (BA), designed to promote life habits and	Patient	Not stated	Government and Charity funding: Saving Brains program from Grand Challenges

							improve physical and mental health in pregnant women.			Canada and Maria Cecilia Souto Vidigal Foundation.
Martinez, 2021 (65)	Chile	Mixed methods	I Take Care and I Feel Better	Mobile or tablet apps	Pilot/feasibility trial	Depression	A technology-assisted CC program with psychoeducation with cognitive-behavioural, problem-solving, behavioural activation techniques and motivational interviewing principles	Patient	Not stated	Government funding: the Chilean National Fund for Scientific and Technological Development, and the Department of Science, Technology, and Innovation in Colombia.
Su, 2022 (66)	China	RCT	IAO AN	Artificial intelligen	Effectiveness study	Anxiety disorde	AI-assisted psychotherap	Patie	Not stated	Govern ment

				ce/artificial networks		rs	y chatbot. Patients are treated in a particular consulting room and includes psychoeducation about anxiety disorders, mindfulness therapy, cognitive reconstruction, relaxation training, problem solving etc.	nt		funding: Shanghai Hospital Development Centre.
Pan, 2023 (67)	China	Other	SCLIWC	Machine/ deep learning	Development	Depression and suicide	Machine learning models aiding with detecting depression symptoms and subsequent suicidal ideation	Clinician	Not stated	Academic funding: The Fundamental Research Funds for the Central Universities, Knowledge

										Innovation Program of Wuhan-Shuguang Project, and the Research Program Funds of the Collaborative Innovation Center of Assessment toward Basic Education Quality
Zhu, 2022 (68)	China	Longitudinal, randomized, single-blind	Computerized Cognitive Remediation Therapy	Software	Effectiveness study	Schizophrenia	Software focusing tasks on cognitive flexibility, working memory and	Patient	Not stated	Government funding: National Natural Science

		clinical trial	System (CCRT)				planning. Including three social cognitive remediation exercises focusing on facial emotion recognition, context emotion estimation and emotional management.			Foundation of China, Beijing Municipal Science & Technology Commission grant, Beijing Municipal Administration of Hospitals Clinical Medicine Development of special funding, Beijing Natural Science Foundation.

Tan, 2020 (69)	China	RCT		Software	Development	Schizophrenia			Not stated	Government funding: The Beijing Municipal Administration of Hospitals Clinical Medicine Development of special funding
Liu, 2021 (70)	China	RCT	Computerized Cognitive Behaviour Therapy (cCBT)	Software	Effectiveness study	Depression and anxiety	Self-help intervention for patients with COVID-19, designed to systematically intervene in patients' cognition, emotions, and behaviour. Includes counting	Patient	Not stated	Government funding: National Natural Science Foundation of China, the Key Research and Development

							meditation, mindfulness meditation and relaxation mental imagery training.			Project (International Cooperation) of Shanxi Province, the Transformation and Cultivation Project of Scientific and Technological Achievements of Universities in Shanxi Province, the Shanxi Province Science Foundation for

										Youths, Shanxi Scholarship Council of China, and the First Hospital of Shanxi Medical University Foundation for Youths' Innovation.
Jin, 2023 (71)	China	other	VR physical and mental relaxation system and VR music comfort system.	Virtual reality	Pilot/feasibility trial	Depression	Virtual Reality intervention using psychological medical music approaches that help people to adjust to difficult emotions such as anxiety or	Patient	Not stated	Not stated

							tension			
Yu, 2023 (72)	China	RCT	No name	Virtual reality	Effectiveness study	Depression	VR treatment consisting of sessions including attention, executive function and relaxation training aiming to improve cognitive functioning and the emotion regulation deficits prevalent in depressed adolescent	Patient	Not stated	Government funding: Public Welfare Technology Application Project in Lishui City
Zhang, 2022 (73)	China	RCT	VR-CALM	Virtual reality	Effectiveness and feasibility	Depression and anxiety	Virtual reality immersion in a serene environment while listening to ambient sounds and receiving instructions from a CALM therapist. Symptom	Patient	Not stated	Government funding: National Natural Science Foundation of China

							management, analysis of how illness has changed people and their relationships, exploration of meaning and purpose in life, and discussions about the future and hope.			
Li, 2022 (74)	China	RCT	Virtual reality cognition training system (VRCTS)	Virtual reality	Effectiveness study	Schizophrenia	Virtual reality cognition training system designed to simulate a supermarket environment and included shopping tasks with different lists.	Patient	Not stated	Government funding: Basic Public Welfare Research projects in Zhejiang Province, the National Key Research and Develop

										ment Program of China, and Zhejiang Province.
Shen, 2022 (75)	China	RCT	Virtual reality-based social cognition and interaction training (VR-SCIT)	Virtual reality	Effectiveness study	Schizophrenia	Virtual reality-based social cognition and interaction training for to aid in emotion recognition and social functioning	Patient	Not stated	Government funding: Science and Technology Bureau of Hangzhou, the Zhejiang Provincial Natural Science Foundation of China, and the Project for Hangzhou Medical

										Disciplines of Excellence and Key Project for Hangzhou Medical Disciplines.
Lin, 2020 (76)	China	RCT	No name	Websites /web-based platforms	Pilot/feasibility trial	Anxiety disorders	Internet-based cognitive behavioural therapy, all course materials and assignments are provided on the internet, and participants complete the readings and assignments on their own.	Patient	Not stated	Government funding: National Social Science Foundation of China
Wang, 2020 (77)	China	RCT	No name	Websites /web-based platforms	Effectiveness study	Anxiety disorders	Self-guided and guided cognitive behavioural therapy	Patient	Not stated	Government funding: National Key

							program divided into 5 parts: motivation arousing, psychoeducation, cognitive construct, attention training, and exposure and problem solving.			R&D Program of China and the National Natural Science Foundation of China
Zhao, 2022 (78)	China	RCT	iACT	Websites /web-based platforms	Effectiveness study	Depression	Internet-based program based in acceptance and commitment therapy, it incorporates various media such as pictures, text, audios, videos, and animation.	Patient	Yes	Government funding: National Natural Science Foundation of China and the National Social Science Foundation of China.
Zhao, 2022 (79)	China	RCT		Websites /web-based	Effectiveness study	Depression			Not stated	Academic and Govern

				platforms						ment funding: Central China Normal Universi ty, from the colleges ' basic researc h and operatio n of Ministry of Educati on of China, National Natural Science Foundat ion of China, and National Social Science Foundat ion of China
Rodriguez,	China	Mixed	Be	Websites	Developm	Depres	Self-guided		Not	Not

2021 (80)		metho ds	Mindful	/web-based platforms	ent	sion	mindfulness training program. Awareness of thoughts and feelings, acknowledging difficult thoughts and emotions without judgment or attachment, Awareness of personal patterns, associations to changes in mind and body, and stress indicators.	Patie nt	stated	stated
Ying, 2023 (81)	China	RCT	Healthy Psychological Station	Websites /web-based platforms	Effectiveness study	Depression	Clinician-guided internet-based cognitive-behavioural therapy tailored for the general Chinese population	Patient and clinician	Not stated	Government funding: Public Welfare Technology Application Research

							with depressive and anxiety symptoms.			Project, Medical and Health Science and Technology Plan Project of Zhejiang Province, Major Social Development Special Foundation of Ningbo, Ningbo Public Welfare Science and Technology Plan Project, Ningbo Philosophy and Social Plannin

										g Project, General Scientific Research Project of Department of Education of Zhejiang Province, Ningbo Health Branding Subject Fund, Science and Technology Innovation Activity Plan of Zhejiang University

										Student & XinMiao Talents Program.
Ying, 2021 (82)	China	RCT		Websites /web-based platforms	Pilot/feasibility trial	Depression			Yes	Government funding: Public Welfare Technology Application Research Project Ningbo Philosophy and Social Planning Project, Zhejiang Province Public Welfare Technology Applicat

										ion Research Project, Ningbo Public Welfare Science and Technology Plan Project, General Scientific Research Project of Department of Education of Zhejiang Province, Ningbo Health Branding Subject Fund, Medical

										and Health Science and Technology Plan Project of Zhejiang Province, Major Social Development Special Foundation of Ningbo, Science and Technology Innovation Activity Plan of Zhejiang University Student & XinMiao Talents

										Program
Duan, 2022 (83)	China	RCT	No name	Websites /web-based platforms	Pilot/feasibility trial	Depression	An internet-based CBT perinatal mental healthcare app designed for participants to receive text or video-based psychoeducational information	Patient	Yes	Government and academic funding: National Key Research and Development Program of China, National Natural Science Foundation of China, Science and Technology Innovation Fund of Shanghai Jiao Tong

										University, International Science and Technology Collaborative Fund of Shanghai, Program of Shanghai Academic Research Leader, Collaborative Innovation Program of Shanghai Municipal Health

										Commission, Clinical Research Plan of Shanghai Shenkang Hospital Development Center, CAMS Innovation Fund for Medical Sciences, Clinical Research Project of Shanghai Municipal Health Commission, and

										Shanghai Frontiers Science Research Base of Reproduction and Development.
Li, 2020 (84)	China	RCT	Mommy go	Websites /web-based platforms	Effectiveness study	Depression	Internet Based platform for pre and postnatal support including screening, emotional and information support with built in SMS and mobile reminders to engage with the content.	Patient	Not stated	Government funding: Natural Science Research Key Project of Education, Department of Anhui
Chen, 2020 (85)	China	RCT	Moodbox	Websites /web-based	Implementation and effectiven	Depression	Internet-based psychological	Patient	Not stated	Government funding:

				platforms	ess		intervention that combines cognitive-behavioural therapy, interpersonal therapy and mindfulness meditation.			Beijing Municipal Science and Tech Commission
Lv, 2021 (86)	China	Pilot study	Computerized cognitive behavioural therapy (cCBT)	Websites /web-based platforms	Pilot/feasibility trial	Depression and anxiety	Platform based on cognitive behavioural therapy and included four training projects: getting out of depression, overcoming anxiety, staying away from insomnia, and facing obsessive-compulsive disorder. Using automatic thought restructuring, relaxation	Patient	Not stated	Government funding: National Natural Science Foundation of China and the Medical Science and Technology Development Major Foundation of Nanjing

							training, exposure training, and positive orientation.			
Wang, 2023 (87)	China	RCT	(iACT)	Websites /web-based platforms	Effectiveness study	Obsessive compulsive disorder	Internet-based self-help acceptance and commitment therapy, the content was delivered through text, video, audio, and illustrations.	Patient	Not stated	Government funding: Shanghai Science and Technology Commission and the Fundamental Research Funds for the Central Universities, the Faculty Development Funds of Central China Normal Universi

										ty and the Educational Commission of Hubei Province of China
Wu, 2023 (88)	China	RCT	CBTC website	Websites /web-based platforms	Pilot/feasibility trial	Obsessive compulsive disorder	Internet-based cognitive behavioural therapy, after each module, the platform arranged corresponding tasks.	Patient	Not stated	Government and academic funding: National Natural Science Foundation of China, the General project of Shanghai Municipal Health Commission,

										Shanghai Municipal Health Commission, Shanghai Jiaotong University Shanghai Science and Technology Committee , and the Key Laboratory of Psychotic Disorders
Zhou, 2023 (89)	China	RCT	Coping Camp	Mobile or tablet apps	Pilot/feasibility trial	Depression and anxiety	Self-help app for high school students that uses somatic	Patient	Not stated	Academic funding: Research

							skills, cognitive restructuring skills, behavioural skills, and interpersonal skills.			Training Scholarships for two authors.
Sit, 2022 (90)	China	Feasibility study	Step-by-Step	Mobile or tablet apps	Pilot/feasibility trial	Depression	Illustrated narrative program designed for depression, which includes components of psychoeducation, relaxation techniques, identifying personal strengths, positive self-talk, enhancing social support, and relapse prevention, with behavioural activation as	Patient	Not Stated	Government and academic funding: Macau Foundation and Macao SAR Government
Sit, 2020 (91)	China	Descriptive qualitative study		Mobile or tablet apps	Cultural adaptation	Depression		Patient	Yes	Academic funding: the Macau Foundation, the University of Macau, and the Johns

							the core therapeutic component.			Hopkins University Centre for Global Health.
Sun, 2021 (92)	China	RCT	Spirits Healing	Mobile or tablet apps	Effectiveness study	Depression	Mindfulness training program, included guided practice, videos, and mindful stretching. Participants could navigate contents, make notes, and received reminders to utilise the program.	Patient	Not stated	Government funding: Chinese National Funding of Social Sciences
Liu, 2022 (93)	China	Experimental study	We'll	Mobile or tablet apps	Effectiveness study	Depression	Mindfulness and perceived social support interventions during childbirth with four components:	Patient	Not stated	Government funding: Taiwan Ministry of Science and

							mindfulness, perceived social support, maternal self-efficacy, depression detection tools, and preventive health education.			Technology, Fujian Social Science Foundation, and Quanzhou Social Science Foundation
Garcia-Batista, 2022 (94)	Dominican Republic	Experimental study	Virtual reality exposure therapy (VRET)	Virtual reality	Pilot/feasibility trial	Obsessive compulsive disorder	Virtual environments to elicit emotional responses in individuals with contamination-related obsessions and cleaning compulsions for potential treatment. Including a clean room and a kitchen with varying levels of dirtiness.	Patient	Not stated	Government funding: National Fund for Innovation and Scientific and Technological Development

Caplan, 2020 (95)	Dominican Republic/US	Mixed methods	El Buen Consejo Movil (the Mobile Sound Advice)	Mobile or tablet apps	Acceptability	Depression	Self-management app for mild to moderate symptoms of depression and uses the principles of CBT.	Patient	Not stated	Academic funding: Sigma Theta Tau International
Caplan, 2021 (96)	Dominican Republic/US	Other		Mobile or tablet apps	Pilot/feasibility trial	Depression			Not stated	Not stated
Quinonez-Freire, 2021 (97)	Ecuador/Spain	RCT	Smiling is fun	Websites /web-based platforms	cultural adaptation	Depression	Intervention based on cognitive behavioural therapy that generates mobile phone text messages, activity reports, and automatic emails. Patients receive minimal human support through a weekly phone call by a psychologist	Patient	Yes	Academic funding: Excellence Research Program PROMETEO
Quiñonez-Freire, 2020 (97)	Ecuador	RCT		Websites /web-based platforms	Pilot/feasibility trial	Depression			Not stated	Not stated

							and the program will generate alerts when a high risk of suicide is detected.			
Ellis, 2021 (98)	Egypt	Qualitative interview	PTSD Coach Online	Websites /web-based platforms	Cultural adaptation	PTSD	Tool using cognitive behavioural approach that includes psychoeducational content and exercises for PTSD symptoms. Includes videos and interactive tools.	Patient	Not stated	No funding recieved
Miller-Graff, 2021 (99)	Egypt/US	RCT		Websites /web-based platforms	Implementation and effectiveness	PTSD			Yes	Not stated
Pozuelo, 2023 (100)	Egypt	RCT		Websites /web-based platforms	Pilot/feasibility trial	PTSD			Not stated	Not stated
Newman, 2021 (101)	India/US	RCT	Guided Self-Help	Websites /web-based platforms	Pilot/feasibility trial	Anxiety disorders	Internet-based self-help intervention, each session contained multiple pages of content and included exercises such as anxiety	Patient	Yes	Academic funding: Stanford University School of Medicine's Behavio

							check-ins, psychoeducation, and skill practice.			ural Medicine Lab, Birla Institute of Technology and Science, BITS Alumni Association International, Vignana Jyothi Society
Kanuri, 2020 (102)	India	Mixed methods	Mana Maali Digital Anxiety Program.	Websites /web-based platforms	Pilot/feasibility trial	Anxiety disorders	Web-based portal designed to help students learn about anxiety, identify symptoms, monitor thoughts and feelings; and cope with their anxiety. Brief relaxation	Patient	Yes	Academic funding: Yale University

							exercises, breathing exercises and mindfulness.			
Srivastava, 2020 (103)	India/US	RCT	Smartteen	Websites /web-based platforms	Pilot/feasibility trial	Depression	Computer-assisted cognitive behaviour therapy	Patient	Not stated	Academic funding: Indian Council of Medical Research.
Ghosh, 2023 (104)	India	RCT	TreadWill	Websites /web-based platforms	Development	Depression and anxiety	Unguided computerized cognitive behavioural therapy-based multicomponent intervention. Includes psychoeducation, games and web-based peer-based support.	Patient and peer	Yes	Government funding: Cognitive Science Research Initiative of the Department of Science & Technology
Singh, 2023 (105)	India	RCT	COGBRAIN	Mobile or tablet apps	Effectiveness study	Schizophrenia	Computerized cognitive training program	Patient and	Not stated	Government funding: Universi

							(cognitive deficits, attention, processing speed, visual memory, working memory, executive functions, and verbal memory). Therapists can check task performances on a weekly and monthly timeline, and patient-specific personalized cognitive training schedules can be created.	clinician		ty Grants Commission
Lakhtakia, 2022 (106)	India (and US)	Other	mindLAMP	Mobile or tablet apps	Pilot/feasibility trial	Schizophrenia	Application to prevent relapse among individuals with schizophrenia spectrum	Patient and clinician	Yes	Academic funding: Wellcome Trust
Rodriguez-Villa, 2021	India/US	Qualitative		Mobile or tablet	Formative research	Schizophrenia			Yes	Academic

(107)		study		apps			disorders. Collects a combination of active (responses to mood and symptoms surveys) and passive data (metrics related to physical activity and phone use from device sensors).			funding: Wellcome Trust
Yatirajula, 2022 (108)	India	Retrospective observational	ARTEMIS	Mobile or tablet apps	Effectiveness study	Multiple conditions or symptoms	Anti-stigma campaign co-created by adolescents, and a mobile technology-based electronic decision support system that also works in increasing awareness on mental health conditions as well as	Patient	Not stated	Academic funding: Medical Research Council

							strengthening the skills of existing primary healthcare workers and promoting task sharing.			
Gonsalves, 2021 (109)	India/UK	RCT	POD Adventures	Mobile or tablet apps	Pilot/feasibility trial	Depression and anxiety	Stress-coping theory with a mechanistic focus on problem-solving. Two parts: "Adventures," which teaches problem-solving concepts and methods through contextually appropriate games, and "My POD," which scaffolds the student through the application of step-by-step problem-	Patient	Yes	Academic funding: Wellcome trust

							solving procedures to their own prioritized problems.			
Malhotra, 2022 (110)	India	Mixed methods	Niramaya bhava	Mobile or tablet apps	Pilot/feasibility trial	Depression and anxiety	An online application with pre-recorded videos of various yogic postures and progress trackers for participants. The niramaya bhava app taught the elderly to live a balanced and successful life by awakening their connection to the Divine.	Patient	Not stated	Government funding: The Department of Science and Technology
Rahmadiana, 2021 (111)	Indonesia/The Netherlands	Mixed methods	I-AiMental WELLness (Saya menuju mental	Websites /web-based platforms	Pilot/feasibility trial	Depression	A transdiagnostic intervention targeting common cognitive and	Patient	Yes	Government funding: Indonesia Endow

			sehat)				behavioural processes of both anxiety and depression and based on CBT principles.			ment Fund for Education, Ministry of Finance, Republic of Indonesia
Van der Wal, 2020 (112)	Indonesia/The Netherlands	RCT	Guided Act and Feel Indonesia (GAF-ID)	Websites /web-based platforms	Effectiveness study	Depression	Guided online behavioural activation that includes psychoeducation, monitoring of mood and behaviour, and development of relapse prevention strategies.	Patient	Not stated	Government and academic funding: Indonesia Endowment Fund for Education, Ministry of Finance Republic of Indonesia, and the

										University of Groningen.
Dwidiyanti, 2021 (113)	Indonesia	Quasi-experimental study	DAHAGA	Mobile or tablet apps	Effectiveness study	Depression	Spiritual training app that contains mental health service packages and a step-by-step tutorial on Islamic spiritual mindfulness: intention, self-evaluation, body scan, repentance, prayer, surrender, and relaxation.	Patient	Yes	Academic funding: Faculty of Medicine, Universitas Diponegoro, Semarang, Indonesia.
Hatami, 2021 (114)	Iran	RCT	Computerized cognitive remediation therapy (CRT)	Software	Effectiveness study	Schizophrenia	Computerized cognitive remediation therapy that works in attention/concentration, visual memory, and	Patient	Not stated	Academic funding: Tehran University of Medical Sciences

							executive functions. It contains 64 tasks with three difficulty levels and it is provided by psychologists, social workers, or occupational therapists			
Javaherirenani, 2022 (115)	Iran	RCT	Virtual reality exposure and response prevention (VRERP)	Virtual reality	Pilot/feasibility trial	Obsessive compulsive disorder	VR environment with fearful stimuli such as moderate and severe dirt were designed as an exposure therapy.	Patient	Not stated	Academic funding: Iran University of Medical Sciences
Jannati, 2020 (116)	Iran	RCT	Happy mom	Websites /web-based platforms	Effectiveness study	Depression	Cognitive behavioural therapy program designed to help mothers recognize and change unhelpful thoughts,	Patient	Not stated	Academic funding: Kerman University of Medical Sciences

							improve social skills, and prevent relapse.			
Kheirkhah, 2023 (117)	Iran	RCT	Peaceful Mind	Websites /web-based platforms	Implementation and effectiveness	Depression and anxiety	Program based on CBT that helps therapists to treat anxiety or depression in individuals with fertility issues. The intervention has multimedia interactions for patients	Patient and clinician	Not stated	Academic funding: The National Institute for Medical Research Development (NIMAD)
Shahsavan, 2021 (118)	Iran	Other	Internet-based guided self-help cognitive-behavioural therapy (I-GSH-CBT)	Websites /web-based platforms	Effectiveness study	Depression and anxiety	Internet-based guided self-help cognitive-behavioural therapy that uses self-monitoring, cognitive restructuring, relaxation, assertiveness, and problem-solving. With feedback	Patient and clinician	Not stated	Academic funding: Iran University of Medical Sciences.

							from trained clinical psychologists.			
Ghanbari, 2021 (119)	Iran	RCT	BCSzone	Mobile or tablet apps	Effectiveness study	Anxiety disorders	Psychoeducational intervention and nurse-assisted online mobile support with practical exercises and tests to be used offline by the users.	Nurse	Not stated	Not stated
Sarabi, 2021 (120)	Iran	RCT	Bipolar disorder and continuing life	Mobile or tablet apps	Effectiveness study	Bipolar disorder	Psychoeducational application that has information from a psychiatric book entitled "bipolar disorder and continuing life" and the information was translated and adapted for the Iranian public.	Patient and clinician	Yes	Academic funding: Kerman University of Medical Sciences

Doukani, 2021 (121)	Kenya/UK	Pilot prospective cohort study	Inuka	Mobile or tablet apps	Pilot/feasibility trial	Depression and anxiety	The intervention was a problem-solving therapy (PST) delivered by community health volunteers (CHVs) through a mobile application called 'Inuka Coaching. With four key features: matching the client with the coach, screening and support, decision support for CHVs, and promotion of psychological self-care.	Patient and volunteers	Yes	Government funding: Grand Challenges Canada (GCC)
Cuijpers, 2022 (122)	Lebanon/The Netherlands	RCT	Step-by step	Mobile or tablet apps	Effectiveness study	Depression	Illustrated narrative program designed for	Patient	Not stated	Academic funding: Elrha

							depression, which includes components of psychoeducation, relaxation techniques, identifying personal strengths, positive self-talk, enhancing social support, and relapse prevention, with behavioural activation as the core therapeutic component.			and the European Union's Horizon 2020 Research and Innovation Program Societal Challenges.
Cuijpers, 2022 (123)	Lebanon/The Netherlands	RCT		Mobile or tablet apps	Effectiveness study	Depression			Not Stated	Academic funding: Fondation d'Harcourt and the European Union's Horizon 2020 Research and Innovation Progra

										m Societal Challenges.
Harper Shehadeh, 2020 (124)	Lebanon/Switzerland	RCT	SbS (Khoutweh-Khoutweh)	Mobile or tablet apps	Pilot/feasibility trial	Depression	Online intervention using behavioural activation and stress management techniques designed to decrease symptoms of depression	Patient	Not stated	Academic funding: Fondation d'Harcourt
Tan, 2023 (125)	Malaysia	RCT	MoodMission	Mobile or tablet apps	Pilot/feasibility trial	Depression and anxiety	App based in coping methods, such as behavioural activation, relaxation, mindfulness, physical exercise, and cognitive reframing	Patient	Not stated	No funding received
Dominguez-Rodriguez, 2020 (126)	Mexico/Spain	RCT	Mental Health COVID-19	Websites /web-based platforms	Effectiveness study	Depression and anxiety	Self-administered web-based mental health intervention	Patient	Not stated	No funding received

							based on positive psychology, cognitive behavioural therapy (CBT), and behavioural activation therapy. Includes video and text elements, as well as synchronous writing conversation assistance.			
(De la Rosa-Gómez, 2022) (127)	Mexico	RCT	E-moción	Websites /web-based platforms	Study protocol designed to evaluate the efficacy and acceptability	Multiple conditions or symptoms	Transdiagnostic guided Internet-delivered intervention with synchronous assistance, therapeutic modules such as motivation for change, understanding emotions, cognitive	Patient and clinician	Not stated	Government funding: National Council of Science and Technology (Mexico)

							coping skills, behavioural coping skills, and post-evaluation.			
Lara, 2022 (128)	Mexico	Other	Help for Depression (HDep)	Mobile or tablet apps	Pilot/feasibility trial	Depression	An app including screening, intervention and education on depression. Participants received feedback online	Patient and clinician	Yes	Not stated
Van Heerden, 2021 (129)	Nepal	Other	StandStrong	Mobile or tablet apps	Implementation study	Depression	Interventions grounded in the psychological principle of behavioural action prioritize behaviour modification to mitigate avoidance and inactivity, ultimately aiming to enhance thoughts and	Patient	Not stated	Not stated

							emotions.			
Ofoegbu, 2020 (130)	Nigeria	RCT	Guided internet-assisted intervention (GIAI)	Websites /web-based platforms	Effectiveness study	Depression	Structured and standardized guided internet-assisted intervention involving psychoeducation, interactive peer support, cognitive disputation, behavioural homework assignments, roleplay, and depression management.	Patient and peer	Not stated	Not stated
Bibi, 2020 (131)	Pakistan/Germany	Pilot study	CBM	Software	Pilot/feasibility trial	Depression	Computerized cognitive training using positive mental imagery as a brief intervention for symptoms of depression. Participants were	Patient	Not stated	Government and Academic funding: DAAD Higher education commission and

							encouraged to reflect on the pattern of change in vividness ratings and how they could improve for the next block.			the Ruhr-Universität Bochum.
Latif, 2021 (132)	Pakistan	Retrospective observational	Khushi or Khatoon	Websites /web-based platforms	Pilot/feasibility trial	Depression and anxiety	A self-help manual using CBT techniques that helps participants to cope with depression or anxiety symptoms. Also includes some elements of stigma reduction	Patient	Not stated	Academic funding: Pakistan Association of Cognitive Therapists.
Heim, 2021 (133)	Pakistan/Switzerland	RCT	Step-by-Step	Mobile or tablet apps	Pilot/feasibility trial	Depression	Guided digital mental health intervention that uses psychoeducation and training in behavioural	Patient	Yes	Academic funding: Elhra and Fondation d'Hartc

							activation, stress management, a gratitude exercise, positive self-talk, strengthening social support, and relapse prevention.			court.
Rahman, 2023 (134)	Pakistan/UK	Qualitative interview	Thinking Healthy Programme Thinking Healthy Programme	Mobile or tablet apps	Pilot/feasibility trial	Depression	A culturally adapted app with narratives aiding peers to provide support to patients. Some narratives are aimed at psychoeducation and destigmatisation. A culturally adapted app with narratives aiding peers	Patient	Not stated	Academic funding: The National Institute for Health Research
Atif, 2022 (135)	Pakistan	Qualitative interview		Mobile or tablet apps	Pilot/feasibility trial	Depression		Patient	Yes	Academic funding: National Institute for Health Research

							to provide support to patients. Some narratives are aimed at psychoeducation and destigmatisation			
Gericke, 2021 (136)	South Africa	Qualitative interview	iCare	Websites /web-based platforms	Acceptability	Depression	Internet-based cognitive behavioural therapy, includes testimonials, audio-video material, practical exercises, and homework assignments.	Patient	Yes	Academic funding: European Union's Horizon 2020 research and innovation program, South African Medical Research Council (SAMRC) and Ithemba

										Foundation.
Moffett, 2022 (137)	South Africa	RCT	Kumasha	Mobile or tablet apps	Implementation study	Depression	Behavioural activation principles integrated into a gamified story content format using problem-solving, effective communication, getting enough sleep and disengaging from rumination.	Patient	Yes	Government and academic funding: South African Medical Research Council, the South African National Department of Health and the UK Medical Research Council, UK Government's Newton Fund.

										NIHR Oxford Health Biomedical Research Centre.
Bilge, 2020 (138)	Turkey	Other	Virtual and Augmented Reality in Psychology (PSAG)	Virtual reality	Effectiveness study	Anxiety disorders	Virtual and Augmented Reality in Psychology (PSAG) is used an exposure tool that uses 3D computer technology, allowing the individual to feel as if they are physically in the virtual environment by misleading their senses. Public Speaking and Relaxation scenarios are a part of the intervention.	Patient	Not stated	No funding received
Viravan,	Thailand	RCT	Mindful	Mobile or	Effectiven	Depres	Mindfulness		Not	Academ

2022 (139)			Senses (MS) LOA	tablet apps	ess, feasibility and acceptability	sion and anxiety	program, participants are instructed to listen to mindfulness audio at least three times per day and practice mindfulness as guided. The therapist send daily messages to participants regarding essential points in mindfulness practice.	Patient	stated	ic funding: Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand
Sriwatanathamma, 2023 (140)	Thailand	Descriptive study development process	BlueLine	Mobile or tablet apps	Development and implementation study	Depression	Gamified cognitive behavioural therapy (CBT) and related therapeutic elements, such as behavioural activation, self-monitoring, interpersonal	Patient	Not stated	No funding received

							skills, positive psychology, relaxation, and problem-solving. Visual narrative genre.			
Imamura, 2021 (141)	Vietnam/Japan	RCT	No name	Mobile or tablet apps	Effectiveness study	Depression and anxiety	Two stress management programs that included behavioural activation, cognitive restructuring, problem-solving, assertiveness, self-compassion, and job crafting.	Patient	Yes	Government funding: Japan Agency for Medical Research and Development (AMED)
Dambi, 2022 (142)	Zimbabwe	Mixed methods	Inuka	Mobile or tablet apps	Pilot/feasibility trial	Depression and anxiety	The intervention was a problem-solving therapy (PST) delivered by community health volunteers (CHVs)	Patient and volunteers	Yes	Charity funding: Achmea Foundation.

							through a mobile application called 'Inuka Coaching.With four key features: matching the client with the coach, screening and support, decision support for CHVs, and promotion of psychological self-care.			
Media Review										
N/A	Brazil	N/A	CONEMO (36)	Smartphone app	In development	Mental health disorders	The Psychiatry institute at the Centre for Research and Innovation in Mental Health are developing the 'Conemo' app to address symptoms of mental health	Patient	No	Academic funding: Psychiatry institute at the Centre for Research and Innovation in Mental

							disorders in Brazilian and Peruvian populations. The app is a multi-session intervention being evaluated using multi-centre RCTs in Brazil and Peru (found in both the Literature and Media Review searches).			Health
N/A	Colombia	N/A	Pura mente (33)	Mobile application	Complete	Meditation and mindfulness for mental health	'Pura mente' is a mobile health application that shares meditation and mindfulness approaches to address mental health conditions. Based in Chile, it is available in Colombia but	Patient	No	Commercial funding: Pura Menta Meditation Inc.

							has not been evaluated for effectiveness.			
N/A	India	N/A	N/A	Machine learning model	Complete	Suicide prediction	Anju Bhandari Gandhi from the Panipat Institute of Engineering and Technology developed a machine learning model capable of predicting suicide attempts with 95% accuracy by analysing an individual's behaviour. (1)	Clinician	No	Academic funding: Panipat Institute of Engineering and Technology
N/A	Kenya	N/A	Mindful Kenya (27)	Mobile application	Complete	General mental health concerns	Mindful Kenya is a social enterprise that includes a mobile application to address mental health concerns through	Patient	No	Commercial funding: Mindful Kenya Inc

							counselling services and integration with primary care.			
N/A	Kenya	N/A	Mental Health Data Prize - Africa Initiative (28)	Research initiative using AI/ML	In development	Anxiety, depression, psychosis	The Mental Health Data Prize - Africa Initiative, a partnership between Wellcome and the African Population and Health Research Centre (APHRC), aims to address gaps in understanding and improve evidence-based decision-making for mental health in Africa using data-driven insights and AI/ML.	Patient	No	Academic funding: Wellcome, African Population and Health Research Centre (APHRC)
N/A	Malaysia	N/A	MySejahtera app	Mobile applicatio	Complete	Mental health	The MySejahtera	Patient	No	Government

			(MyMinda) (9-11)	n		assessment, self-care, and access to professionals	app, developed by Entomo Malaysia and the Government of Malaysia, initially managed the COVID-19 outbreak. It now supports Malaysia's broader digital health transformation, including mental health solutions. MyMinda, within the app, assists individuals in mental health assessment, self-care, and access to professionals.			funding: Government of Malaysia, Entomo Malaysia
N/A	Mexico	N/A	'Oye' (35)	Mobile application	Complete	Mindfulness, emotional suppor	'Oye' is a pan-Latin America mobile application available in	Patient	No	Commercial Funding: Oye Inc.

						t, goal-setting	Mexico, providing mindfulness and emotional support resources and personalized goal-setting to improve user well-being. Its impact has not been studied.			
N/A	Mexico	N/A	'BeMe Health' (34)	Digital health platform	Complete	Mental health interventions for teenagers and adolescents	'BeMe Health' provides mental health interventions tailored to teenagers and adolescents, using one-to-one coaching, 24/7 support, and connections to mental health services. It draws on evidence-based	Patient	No	Commercial Funding: BeMe Health

							therapies like CBT, DBT, and positive psychology.			
N/A	Pakistan	N/A	Humraaz app (13)	Mobile application, chatbot	Complete	Mental well-being, professional guidance and support	The Humraaz app, launched by the Pakistani government in April 2023, provides a platform for individuals to seek professional guidance and support for mental well-being. It offers features like psychotherapy, daily activity monitoring, chatbots, WhatsApp support, and appointment booking.	Patient	No	Government funding: Government of Pakistan
N/A	Philippines	N/A	"Lusog-Isip" app (4)	Mobile application	Complete	General mental	The "Lusog-Isip" app, launched by	Patient	No	Government funding:

						health, with a focus on women, children, and young people	the Philippines Department of Health, is a toolkit to improve mental health, especially for women, children, and young people. It uses evidence-based screening tools and interventions to promote overall well-being and healthy coping strategies.			Philippines Department of Health
N/A	South Africa	N/A	Panda app (now October Health) (18)	Mobile application	Complete	Mental health support for youth	The Panda app (now October Health) launched 'Panda for Teens' to provide mental health	Patient	No	Commercial Funding: October Health Limited

							support to youth, addressing rising mental health issues in this demographic. The Forest sessions platform within the app offers a moderated virtual support space.			
N/A	South Africa	N/A	Ingage app (20)	Mobile application	Complete	Mental health awareness, education, and resources	The Ingage app, launched in South Africa in 2019, aims to increase awareness and education about mental health pressures, making resources more accessible. It offers online counselling,	Patient	No	Academic and Commercial funding: Partnership with South African Depression and Anxiety Group (SADAG)

							professional materials, coping tools, mood check-ins, and training.			
N/A	South Africa	N/A	Kena Health platform (21)	Mobile application, online platform	Complete	Affordable mental health care	The Kena Health platform is a South African app offering affordable mental health care via a digital app and online platform. It provides virtual support and text-based counselling/therapy for various mental health concerns.	Patient	No	Commercial Funding: Kena Health (Pty) Ltd
N/A	South Africa	N/A	U.WELL x Sensiks Express Wellness Pod (19)	Sensory reality device	Complete	Relaxation, anxiety reduction, pain relief	The U.WELL x Sensiks Express Wellness Pod offers a multisensory experience	Patient	No	Academic and Commercial funding: Partnership

							for relaxation, anxiety reduction, and pain relief. It uses synchronized visuals, audio, fragrances, airflow, heat, haptics, vibrations, and biofeedback sensors.			between U.Well (South Africa) and Sensiks (Netherlands)
N/A	South Africa	N/A	Wysa (25, 143, 144)	AI-powered mental health support app	Pilot stage	Mental health support for students and staff	Wysa combines an AI coach/chatbot with human psychologists to help users achieve mental health goals. It has been piloted at the University of the Western Cape in partnership with SADAG.	Patient	No	Academic and Commercial funding: Partnership with University of the Western Cape and SADAG
N/A	South Korea	N/A	Wellmind GPT (37)	AI chatbot	Complete	Mental health	WellmindGPT, developed by	Patie	No	Government

						suppor t for soldier s	the Ministry of Science and ICT and the Ministry of Defense, is an AI chatbot that engages soldiers in conversations about their daily life and emotional states, offering consultations and assessments for various mental health concerns.	nt		funding: Ministry of Science and ICT, Ministry of Defense , Microso ft
N/A	Thailand	N/A	'School Health Hero' (12)	Mobile applicatio n	Complete	Mental health proble ms among studen ts	'School Health Hero', implemented in collaboration with the Ministry of Education and Public Health Ministry, uses a mobile application to provide	Educ ator	No	Govern ment funding: Ministry of Educati on, Public Health Ministry

							teachers with online consultation and assistance to identify potential mental health problems amongst students.			
N/A	Turkey	N/A	'Expathy' (14)	Online counselling platform	Complete	Emotional support and counselling for expats	'Expathy' provides emotional support and 24/7 counselling to expats based in a range of LMICs, including Turkey. It offers culturally sensitive and language-specific psychological counselling to Turkish expatriates.	Patient	No	Commercial Funding: Expathy Inc.

[1] We extracted information on the affiliation of the first author of each publication. Where this was different to the location of intervention development and testing, this is indicated following a "/"

[2] Design of the study describing the intervention
[3] The name of the intervention, when provided.
[4] See Appendix 3.3 for information on intervention type, stage of development and intervention focus
[5] Whether the intervention is intended for use by the patient, clinician, peer supporters, carers, educators, or a combination of these
[6] Any mention of lived experience involvement (regardless of the extent of this) mentioned in the study. Please see "Lived experience participation reported in published research" section for more information
[7] All funding information provided by authors. Funding has been categorised as academic e.g. funded by universities/colleges or educational institutes, government e.g. projects explicitly funded by the Government including Ministries of Health, the Military or the Health Dept/NHS, charities e.g. foundations which are not funded by the government, or commercial e.g. funded by commercial start-ups, ltd/Incorporated companies.

Diagnosis (including diagnosis combined with monitoring or treatment)

Through the literature review, we found 11 interventions designed to support diagnosis (n = 6 without China), five interventions for both diagnosis and treatment (n = 3 without China) and one intervention for both diagnosis and monitoring (n = 0 without China). Two interventions involved both patients and clinicians as the intended user, while clinicians only were the intended user for 11 and patients were the only intended user for five diagnosis interventions. Their indication focus was on anxiety disorders (n = 3/n = 1 without China), depressive disorders (n = 7/n = 4 without China), depression and anxiety (n = 4/n = 2 without China), depression and suicide (n = 1/n = 0 without China), trauma (n = 1), and multiple conditions or symptoms (n = 1). Most of the studies describing these interventions were in the development and feasibility (n = 7/n = 3 without China) stage of development. Machine/Deep learning was most frequently described (n = 8/n = 5 without China) although apps (n = 2), web-based platforms (n = 4/n = 2 without China) and software (n = 1) were also developed for diagnoses or diagnoses and monitoring.
The media review identified three interventions designed to support diagnosis, monitoring, or a combination of both. These interventions focused on mental health disorders, suicide prediction, and mental health self-diagnosis. Two interventions utilised machine learning models, while one used a smartphone app. The interventions were developed in Brazil and India, with Brazil's "Conemo" app targeting both Brazilian and Peruvian populations. India had two interventions: a machine learning model for suicide prediction and the MySejahtera app (MyMinda) for mental health self-diagnosis.

Table 6 shows the characteristics of all diagnosis interventions found through the literature and social media searches.

Table 6: Identified diagnosis interventions

Study ID	Country of study/Country of first author affiliation [1]	Study design [2]	Intervention Name [3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
Literature Review										
Diagnosis										
Ahmed, 2023 (145)	Bangladesh	Cross-sectional study	No name	Machine/deep learning	Pilot/feasibility trial	Depression	Identify depression in real time using smartphone app usage data and responses in PHQ-9 in the fastest possible time, developing machine learning models.	Clinician	Not stated	None stated
Sirajı, 2023 (146)	Bangladesh	Cross-sectional study	No name	Machine/deep learning	Development and implementation study	Depression	Machine learning algorithms to detect students' early signs of depression. Assessed through an online survey employing different models with multiple feature engineering methods to extract the best-automated depression detection pipeline	Clinician	Not stated	Academic funding: Islamic University of Technology
Souza, 2021 (147)	Brazil	RCT	No name	Machine/deep learning	Implementation study	Depression	Machine Learning (ML) algorithms for detecting depressive patients from clinical, laboratory, and sociodemographic data.	Clinician	Not stated	Government funding: Carlos Chagas Filho Foundatio

Study ID	Country of study/Country of first author affiliation [1]	Study design [2]	Intervention Name [3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
										n for Research Support in the State of Rio de Janeiro (FAPERJ)and Coordination for the Improvement of Higher Education Personnel (CAPES)
Zhao, 2021 (148)	China	Cross-sectional study	No name	Machine/deep learning	Formative research	Depression	Artificial Neural network (ANN) identified risks factors of depression and was trained to correctly identify students who are depressed and not depressed in a dataset. The specificity was 91.7% in training set and 88.4% in testing set.	Clinician	Not stated	Government funding: Ministry of Education of China
Sak	China	Cross-	Chi	Machin	Develop	Depressi	Machine learning screening tool	Clinicia	Not	Academic

Study ID	Country of study/Country of first author affiliation [1]	Study design [2]	Intervention Name [3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
al, 2022 (149)		sectional study	nese Geriatric Depression Risk calculator (CGD-Risk)	e/deep learning	ment and implementation study	on	trained to identify elderly Chinese people with depressive symptoms for referral to mental health services.	n	stated	funding: City University of Hong Kong, Hong Kong SAR, China internal research
Zhou, 2023(150)	China/Australia	A cross-sectional study	No name	Machine/deep learning	Development and implementation study	Depression and anxiety	Machine learning model to detect and distinguish depression, anxiety, and apathy in older adults with mild cognitive impairment based on speech and facial expressions	Clinician	Not stated	Academic funding: Peking Union Medical College

Study ID	Country of study/Country of first author affiliation [1]	Study design [2]	Intervention Name [3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
										Research Fund, and the Graduate Student Innovation Fund of Peking Union Medical College
Huang, 2022 (151)	China	Cross-sectional study	No name	Machine/deep learning	Development and implementation study	Depression and suicide	Three machine learning models to classify adolescents from a general public-school population into two categories according to suicidal ideation and three different degrees of depression. Allowing schools, parents, and healthcare professionals to detect suicidal ideation and depressive states in adolescents for timely intervention.	Clinician	Not stated	Government funding: National Natural Science Foundation of China
Hu, 202	China	Cross-sectio	Comp	Software	Development	Anxiety disorder	Computerized adaptive test that uses basic demographic	Clinician	Not stated	Government funding:

Study ID	Country of study/Country of first author affiliation [1]	Study design [2]	Intervention Name [3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
0 (152)		nal study	uterised adaptive test (CAT)		and implementation study	s	questions, separation anxiety measurement items, and exclusion criteria. Additionally, lie-detection items were embedded in the survey to screen out individuals who randomly responded.			National Natural Science Foundation of China
Mohamed, 2023 (153)	India	Cross-sectional study	No name	Machine/deep learning	Development and implementation study	Anxiety disorders	Risk prediction model based on a multistage classification strategy to identify and predict pre-clinical anxiety stages in conflict settings.	Clinician	Not stated	Not stated
Nurbaeti, 2021 (154)	Indonesia	Cross sectional study.	Tes depresi maternal	Mobile or tablet apps	Implementation study	Depression	Collects information about the mother and child, including sociodemographic characteristics, current obstetric condition, and the baby's characteristics for early detection of postpartum	Clinician	Not stated	Academic funding: Universitas Islam Negeri Syarif Hidayatull

Study ID	Country of study/Country of first author affiliation [1]	Study design [2]	Intervention Name [3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
							depression.			ah Jakarta
Solis-Galvan, 2022 (155)	Mexico	Mixed methods	Mentali	Mobile or tablet apps	Development and implementation study	Depression and anxiety	App used to identify students who may require mental health care for anxiety and depression using questionnaires and a report of their mood throughout the day.	Patient and clinician	Not stated	Academic funding: Autonomous University of Zacatecas.
Martinez-Fierro, 2022 (156)	Mexico	Mixed methods		Mobile or tablet apps	Acceptability	Depression and anxiety		Patient and clinician	Not stated	No funding received
Diagnosis and Treatment										
Javakhishvili,	Belarus/The Netherlands	Other	Samopomo	Websites/web-based platfor	Implementation study	Trauma	A website with various content and resources on self-help, counselling and psychoeducation	Patient	Yes	Government funding: The Dutch embassy

Study ID	Country of study/Country of first author affiliation [1]	Study design [2]	Intervention Name [3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
2023 (157)			ch	ms						in Warsaw, Poland, and the Norwegian Human Rights House Foundation
Daley, 2020 (158)	Brazil	Other	VITALK	Chatbot or plugins	Effectiveness study	Depression and anxiety	Vitalk is a chat-bot that delivers mental health information in a conversational way based on CBT and positive psychology. Although hosted through a messaging app, VItalk is an innovative intervention with conversations aiming to help the participants to reflect on their experiences and learn techniques for managing stress, mood and anxiety	Patient	Not stated	Commercial funding: TNH Health
He,	China	RCT	Xia	Artificial	Effectiv	Depressi	XiaoE is an AI-driven chatbot	Patient	Not	Academic

Study ID	Country of study/Country of first author affiliation [1]	Study design [2]	Intervention Name [3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
2022 (159)			oE	intelligence/artificial networks	eness study	on	designed for addressing depression using CBT techniques. It offers support for screening, prevention, and self-help regarding depressive symptoms, engaging users through intelligent interactions encompassing text, image, and voice inputs.		stated	and government funding: Artificial Intelligence for Sustainable Development Goals Research Program and the National Social Science Foundation of China.
Ye, 2021 (160)	China	Other		Artificial intelligence/artificial networks	Pilot/feasibility trial	Depression			Not stated	Government funding: Shandong Provincial Natural Science

Study ID	Country of study/Country of first author affiliation [1]	Study design [2]	Intervention Name [3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
										Foundation, China, the National Natural Science Foundation of China, The Key Research and Development Program of Shandong Province
Kang, 2021 (161)	China	Other	BWBE D-SS + HSE	Websites/web-based platforms	Effectiveness study	Depression and anxiety	A brief web-based emotional-disorder self-screening and a health self-education program. The program consisted of the Huaxi Emotional-distress Index (HEI) questionnaire and online graphics-based materials for mental health literacy.	Patient	Not stated	Government funding: National Natural Science Foundation of China and the

Study ID	Country of study/Country of first author affiliation [1]	Study design [2]	Intervention Name [3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
										Science and Technology Benefit the People Project of the Chengdu municipal government
Newson, 2022 (162)	India, South Africa, Nigeria and High income countries /USA	Cross-sectional study	Mental Health Quotient (MHQ)	Websites/web-based platforms	Validation	Multiple conditions or symptoms	Web-based platform that monitors the status of population mental health across the globe and currently spans 30 countries and 4 languages. It is a comprehensive review of symptoms by coding questions across 126 commonly used psychiatric assessment tools.	Clinician	Not stated	Charity funding: Sapien Labs
Diagnosis and Monitoring										

Study ID	Country of study/Country of first author affiliation [1]	Study design [2]	Intervention Name [3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
Kovess Masfety, 2023 (163)	China	Cross-sectional study	Dominic Interactive (DI)	Websites/web-based platforms	Validation	Anxiety disorders	Self-report video game that assesses children's mental health symptoms by eliciting their responses to depictions of cartoon-like situations.	Patient	Yes	Government funding: Tianjin Key Medical Discipline (Specialty) Construction Project and Tianjin Science and Technology Program.
Media Review										
N/A	India	N/A	MySejahtera app (MyMinda) (10,	Mobile application	Complete	Mental health self-diagnosis	The MySejahtera app includes mental health services as part of the Indian government's National Strategic Plan for Mental Health. The app offers features like mental health self-diagnosis.	Patient	No	Government funding: Government of Malaysia, Entomo Malaysia

Study ID	Country of study/Country of first author affiliation [1]	Study design [2]	Intervention Name [3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
			11)							
N/A	India	N/A	N/A	Machine learning model	Complete	Suicide prediction	Anju Bhandari Gandhi from the Panipat Institute of Engineering and Technology developed a machine learning model capable of predicting suicide attempts with 95% accuracy by analysing an individual's behaviour. (1)	Patient	No	Academic funding: Panipat Institute of Engineering and Technology

[1] We extracted information on the affiliation of the first author of each publication. Where this was different to the location of intervention development and testing, this is indicated following a "/"
[2] Design of the study describing the intervention
[3] The name of the intervention, when provided.
[4] See Appendix 3.3 for information on intervention type, stage of development and intervention focus
[5] Whether the intervention is intended for use by the patient, clinician, peer supporters, carers, or a combination of these
[6] Any mention of lived experience involvement (regardless of the extent of this) mentioned in the study. Please see "Lived experience participation reported in published research" section for more information
[7] All funding information provided by authors. Funding has been categorised as academic e.g. funded by universities/colleges or educational institutes, government e.g. projects explicitly funded by the Government including Ministries of Health, the Military or the Health Dept/NHS, charities e.g. foundations which are not funded by the government, or commercial e.g. funded by commercial start-ups, ltd/Incorporated companies

Monitoring

Through the literature review, we found ten interventions (n = 6 without China) designed to monitor symptoms. The majority of these were intended for use by both patient and clinician, although one each of those found were intended for use by solely the patient or the clinician. Their indication focus was on bipolar disorders (n = 2), depressive disorders (n = 3/n = 1 without China), depression and anxiety (n = 1), psychosis (n = 1) and schizophrenia (n = 3/n = 1 without China). In this section the same intervention of Dialog+ was used in two studies for psychosis monitoring, and another study used it to monitor depression and anxiety. Almost half of these studies described the pilot/feasibility trial (n = 5/n = 2 without China) testing. Apps was most frequently described (n = 7/n = 5 without China) although VR (n = 1/n = 0 without China), web-based platforms (n = 1) and machine/deep learning (n = 1/ n = 0 without China) were also developed for monitoring.
In the media review, three interventions were identified for monitoring symptoms. These interventions focused on monitoring mental health disorders, daily activity monitoring, and tracking users' mental well-being. All three interventions were smartphone apps, developed in Brazil, Mexico, and Pakistan. The "Conemo" app in Brazil aimed to monitor mental health disorders in Brazilian and Peruvian populations, while the "BeMe Health" platform in Mexico provided daily activity monitoring for teenagers and adolescents. The Humraaz app in Pakistan, launched by the government, offered daily activity monitoring as part of its features to track users' mental well-being.

Table 7 shows the characteristics of all monitoring interventions found through the literature and social media searches.

Table 7: Identified monitoring interventions

Study ID	Country of study/Country of first author affiliation[1]	Study design[2]	Intervention Name[3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
Literature Review										
Jovanovic, 2022 (164)	Bosnia and Herzegovina, Kosovo, Montenegro, North Macedo	RCT	DIALOG+	Mobile or tablet apps	Implementation and effectiveness	Psychosis	Psychosocial intervention that aims to make existing routine patient-clinician meetings therapeutically effective. Based on elements of cognitive-behavioural therapy and solution-focused therapy	Clinician and patient	Yes	Academic funding: European Union's Horizon 2020 research and innovation program

	nia, and Serbia/UK									
Feng, 2022 (165)	Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia/UK	RCT		Mobile or tablet apps	Economic evaluation	Psychosis			Not stated	Academic funding: European Union's Horizon 2020 research and innovation program
Slatina Murga, 202	Bosnia and Herzego	RCT		Mobile or tablet apps	Effectiveness study	Depression and anxie			Yes	Academic funding: National Institute for Health Research (NIHR)

1 (166)	vina					ty				
Zhu, 2022 (167)	China	Retrospective observational	Risk model for psychiatric readmission	Machine/deep learning	Development	Depression	Trained machine learning models using real-world electronic medical records for readmission predictions after discharge of the initial major depression first hospitalization.	Clinician	Not stated	Government funding: National Key Research and Development Program of China; The National Natural Science Foundation of China; and Department of Science and Technology of Sichuan Province.
Bai, 2021 (168)	China	Other	Mood Mirror	Mobile or tablet apps	Pilot/feasibility trial	Depression	Mood Mirror tracks and records patients' daily activities and mood passively with minimal human action. The app required the users to wear a wristband to collect sleep, heart rate, and step count data. The app	Clinician and patient	Not stated	Government funding: Capital's Funds for Health Improvement and Research, the National Science and Technology Major Project for IND, Beijing Municipal Administration of Hospitals Clinical Medicine Development of Special Funding Support, and Beijing Hospitals Authority Youth Program.

							consists of 2 parts self-evaluation of mood condition and data collection.			
Zhang, 2024 (169)	China/UK	Mixed methods	YouXin	Mobile or tablet apps	Pilot/feasibility trial	Psychosis	Self-monitoring tool designed for people with psychosis. Active monitoring of current symptoms in real-time and passive monitoring of behavioural activity (i.e., global positioning system (GPS) and step counting.	Clinician and patient	Yes	No funding received
Rodriguez-Villa, 2021 (170)	India (and US)	Mixed methods	SHARP (Smartphone Health Assessment for Relapse Prevention)	Mobile or tablet apps	Pilot/feasibility trial	Schizophrenia	An app collecting active and passive data from patients to monitor their baseline symptoms and physiology.	Clinician and patient	Yes	Academic funding: Wellcome Trust UK

							Additionally, the app offers psychoeducation, activities, and can provide or offer support and educate patients when alarming behaviour or symptom reporting is detected			
Akbarzadeh, 2022 (171)	Iran	Cross-sectional study	Bipolar Tracking Assistant (BTA)	Mobile or tablet apps	effectiveness study	Bipolar disorder	Web-based educational-interactive software that provides a researcher-made questionnaire and uses artificial intelligence algorithms to predict the occurrence of future bipolar episodes for each patient. The software also shares predefined	Clinician and patient	Not stated	Academic funding: Mashhad University of Medical Sciences Research committee.

							information with the physician and records patient responses.			
Al Dameery, 2023 (172)	Oman	Other	MyTherapy	Mobile or tablet apps	Implementation study	Schizophrenia	MyTherapy pill and medication reminder is free and open access. This app is developed by “smart patient" and is available in Arabic and English languages. The app reminds the patients of the time their medication should be taken. Patients can also report when they forget their medication and gives a reminder to them that not taking medication on time can be harmful to their	Patient	Not stated	Academic funding: Sultan Qaboos University

							health.			
Amir, 2021 (173)	Pakistan	Other	MyHealthCareBook (MHCB)	Mobile or tablet apps	Pilot/feasibility trial	Depression	An android-based app providing medication management, reminder system, connection to the healthcare provider and data sharing among patients, physicians and pharmacists	Clinician and patient	Not stated	No funding received
Media Review										
N/A	Mexico	N/A	'BeMe Health' (34)	Digital health platform	Complete	Daily activity monitoring	The "BeMe Health" platform, tailored for teenagers and adolescents, provides daily activity monitoring as part of its mental health support services.	Patient	No	Commercial Funding: BeMe Health
N/A	Pakistan	N/A	Humraaz app (13)	Mobile appli	Complete	Daily activity	The Humraaz app, launched by the Pakistani	Patient	No	Government funding: Government of Pakistan

				catio n, chatb ot		moni torin g	government in April 2023, offers features such as daily activity monitoring to help track users' mental well-being.			

[1] We extracted information on the affiliation of the first author of each publication. Where this was different to the location of intervention development and testing, this is indicated following a "/"
[2] Design of the study describing the intervention
[3] The name of the intervention, when provided.
[4] See Appendix 3.3 for information on intervention type, stage of development and intervention focus
[5] Whether the intervention is intended for use by the patient, clinician, peer supporters, carers, or a combination of these
[6] Any mention of lived experience involvement (regardless of the extent of this) mentioned in the study. Please see "Lived experience participation reported in published research" section for more information
[7] All funding information provided by authors. Funding has been categorised as academic e.g. funded by universities/colleges or educational institutes, government e.g. projects explicitly funded by the Government including Ministries of Health, the Military or the Health Dept/NHS, charities e.g. foundations which are not funded by the government, or commercial e.g. funded by commercial start-ups, ltd/Incorporated companies

Prediction

There were 12 interventions (five without China) designed to support prediction of symptoms identified in the literature review. These were intended for use by clinicians or researchers. Their indication focus was on depressive disorders (n = 6/n = 2 without China), anxiety disorders (n = 1) depression and anxiety (n = 2/n = 1 without China), bipolar disorder (n = 1), PTSD (n = 1/n = 0 without China) and psychosis (n = 1/n = 0 without China). Five of all these studies (four without China) described the development and implementation processes. Most interventions used machine/deep learning (n = 11/n =5 without China) for prediction with only one app described for the purposes of symptoms or diagnosis prediction.

The media review identified two interventions designed to support the prediction of symptoms or conditions. These interventions focused on suicide prediction and the assessment of mental health indicators such as depression, anxiety, insomnia, stress, and recovery resilience. One intervention utilised a machine learning model, while the other used an AI chatbot. The machine learning model was developed in India by Anju Bhandari Gandhi from the Panipat Institute of Engineering and Technology, aiming to predict suicide attempts with 95% accuracy by analysing individual behaviour. The AI chatbot, WellmindGPT, was developed in South Korea by the Ministry of Science and ICT and the Ministry of Defense, with support from Microsoft. It analyses users' conversations about their daily military life and emotional states to assess various mental health indicators, suggesting some level of predictive capability.

Table 8 shows the characteristics of all prediction interventions found through the literature and social media searches.

Table 8: Identified prediction interventions

Study ID	Country of study/Country of first author affiliation[1]	Study design[2]	Intervention Name[3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
Literature review										
Librenza-Garcia, 2021 (174)	Brazil	Prospective cohort study	No name	Machine/deep learning	Development and implementation study	Depression	Machine learning techniques to predict depression cases, incidence, and chronicity.	Clinician or researcher	Not stated	Government and academic funding: Brazilian National Research Council (CNPq) and the Foundation for Research Support of the State of Rio Grande do Sul (FAPERGS).
Liu, 202	China	Qu	na	Machine/d	Development	PTSD	Machine learning risk prediction model for	Clinicia	Not stated	Government and academic funding:

2 (175)		alitative survey	me	eep learning			PTSD in adults during the pandemic	n or researcher		The Ministry of Education, Humanities, and Social Science, Xiamen University, , and the Social Science Foundation of Fujian Province
Lin, 2022 (176)	China	Secondary analysis of a cohort study	Noname	Machine/deep learning	Development and implementation study	Depression	Two-step hybrid machine learning model "LSTM+ML" to predict the onset of depression in these older adults over a 5-year period.	Clinician or researcher	Not stated	Government funding: National Natural Science Foundation of China
Zho	Chin	Q	No	Mach	Development	Depre	Machine learning		Not	Government funding:

u, 2022 (177)	a	ualitativesurvey	name	ine/deep learning		ssion	models using quantified questionnaire data developed to efficiently predict depression symptoms in healthcare workers	Clinician or researcher	stated	National Key R&D Program of China.
Su, 2021 (178)	China	Other	Noname	Machine/deep learning	Development	Depression	Machine learning models were used to predict different depression risk factors and the depression risks in the elderly population in the future	Clinician or researcher	Not stated	Government and academic funding: Michigan Institute for Clinical and Health Research, National Natural Science Foundation of China
Hong, 2023 (179)	China	Singlearmtrial	Noname	Machine/deep learning	Validation	Depression	machine learning–based maternal depression symptoms prediction model integrating more observable and objective factors to early detect and monitor maternal depression risk	Clinician or researcher	Not stated	Government funding: Zhejiang Provincial Science and Technology Innovation Program.
Wei, 2023 (180)	China	Other	Noname	Machine/deep learning	Development	Depression and anxiety	A data-driven screening method employing machine learning algorithms to analyse epilepsy-related and psychosocial factors	Clinician or researcher	Not stated	Government funding: National Key R&D Program of China

							could alleviate the strain on healthcare providers in detecting anxiety and depression among individuals with epilepsy.			
Zhang, 2021 (181)	China	Cohort study	SHARP-RC	Mobile or tablet apps	Implementation study	Psychosis	Mobile app-based risk calculator to calculate individual risk components and provide personalized risk estimates for imminent psychotic disorder.	Clinician or researcher	Not stated	Government and academic funding: Ministry of Science and Technology of China, National Key R&D Program of China, National Natural Science Foundation of China, Shanghai Jiaotong University Foundation, Shanghai Key Laboratory of Psychotic Disorders, Science and Technology Commission of Shanghai Municipality, The Clinical Research Center at Shanghai Mental Health Center, and Shanghai Mental Health Center Foundation.

Palacios-Ariza, 2023 (182)	Colombia & Chile	Cohort study	No name	Machine/deep learning	Development and implementation study	Bipolar disorder	Machine learning algorithms to predict patient admission and readmission.	Clinician or researcher	Not stated	Government funding: National Program of Science, Technology and Innovation in Health of the Ministry of Science and Technology of the Republic of Colombia.
Mahalingam, 2023 (183)	Lebanon/ India	Other	No name	Machine/deep learning	Development	Anxiety disorders	machine learning approach to predict anxiety symptoms based on student survey items including demographics and self-rated health.	Clinician or researcher	Not stated	Commercial funding: Mitacs Globalink
Javed, 2021 (184)	Pakistan	Cross-sectional study	No name	Machine/deep learning	Development and implementation study	Depression	Artificial neural network classifier and a support vector machine classifier to predict the risk of antenatal depression and anxiety in expecting mothers.	Clinician or researcher	Not stated	No funding received.
Qasrawi,	West Bank,	Cross-	No name	Machine/deep	Development and implementation study	Depression and	Machine learning to predict depression and anxiety and its	Clinician or	Not stated	Not stated

2022 (185)	Palestine/ Turkey	sectional study		learning		anxiety	associated risk factors in students.	researcher		
Media Review										
Study ID	Country of study	Study Design[2]	Intervention Name[3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended use by[5]	Lived experience involvement[6]	Funding[7]
N/A	India	Machine learning algorith	Machine learning model	Machine learning model	Complete	Suicide prediction	Anju Bhandari Gandhi from the Panipat Institute of Engineering and Technology developed a machine learning model capable of predicting suicide attempts with 95% accuracy by analysing an individual's behaviour. This intervention specifically targets the early detection and prevention of suicide	Patient	No	Academic funding: Panipat Institute of Engineering and Technology

		ms					attempts, utilising AI and machine learning techniques to predict and potentially intervene in mental health crises. (1)			
N/A	South Korea	N/A	WellmindGPT (37)	AI chatbot	Complete	Assessment of mental health indicators (depression, anxiety, insomnia, stress, and recovery resilience)	WellmindGPT, developed by the Ministry of Science and ICT and the Ministry of Defence with support from Microsoft, is an AI chatbot that analyses users' conversations about their daily military life and emotional states to assess levels of depression, anxiety, insomnia, stress, and recovery resilience. While not explicitly stated, the chatbot's ability to assess these mental health indicators suggests some level of predictive capability. The service is accessible through the Nara Sarang Portal and the Defence Welfare Portal.	Patient	No	Government and Commercial funding: Ministry of Science and ICT, Ministry of Defence, Microsoft

[1] We extracted information on the affiliation of the first author of each publication. Where this was different to the location of intervention development and testing, this is indicated

following a "/"

[2] Design of the study describing the intervention

[3] The name of the intervention, when provided.

[4] See Appendix 3.3 for information on intervention type, stage of development and intervention focus

[5] Whether the intervention is intended for use by the patient, clinician, peer supporters, carers, or a combination of these

[6] Any mention of lived experience involvement (regardless of the extent of this) mentioned in the study. Please see "Lived experience participation reported in published research" section for more information

[7] All funding information provided by authors. Funding has been categorised as academic e.g. funded by universities/colleges or educational institutes, government e.g. projects explicitly funded by the Government including Ministries of Health, the Military or the Health Dept/NHS, charities e.g. foundations which are not funded by the government, or commercial e.g. funded by commercial start-ups, ltd/Incorporated companies

Prevention

We found three interventions (two without China) designed to support prevention of symptoms or conditions through the literature review. These were intended for use by the patient only in two instances and the patient and clinician in one. Their indication focus was on depressive disorders (n = 2, n = 1 without China), depression and anxiety (n = 1). Four studies representing the three interventions described the following stages of intervention development: effectiveness study (n = 1, n = 0 without China), implementation study (n = 1) and development process (n = 2). All interventions used mobile or tablet apps for prevention purposes.

In the media review, two interventions were identified for the prevention of symptoms or conditions. These interventions focused on suicide prevention and the assessment of mental health indicators, utilising machine learning algorithms and AI chatbots. One intervention, developed by Anju Bhandari Gandhi from the Panipat Institute of Engineering and Technology in India, is a machine learning model capable of predicting suicide attempts with 95% accuracy by analysing individual behaviour. This intervention specifically targets the early detection and prevention of suicide attempts.

Table 9 shows the characteristics of all prevention interventions found through the literature and social media searches.

Table 9: Identified prevention interventions

Study ID	Country of study/Country of first author affiliation [1]	Study design[2]	Intervention Name[3]	Intervention type[4]	Author-described stage of development[4]	Focus of intervention[4]	Intervention detail	Intended user[5]	Lived experience involvement[6]	Funding[7]
Literature Review										
Tan, 2022 (186)	China	RCT	CBT for postpartum depression	Mobile or tablet apps	Effectiveness study	Depression	Screening and intervention app for mothers with lessons and assignments. Reminders to take part in interventions were sent if participants did not engage with lessons.	Patient and clinician	Not stated	Government funding: National Natural Science Foundation of China and Hunan Provincial Natural Science Foundation
Martínez, 2021 (187)	Colombia & Chile	Mixed methods	Cuida tu Ánimo (Take Care of Your	Mobile or tablet apps	First prototype	Depression	Early intervention for anxiety and depression	Patient	Yes	Government funding: the Chilean

			Mood)				with psychoeducational information on depression, healthy lifestyle habits, emotion, regulation, social support networks and cognitive behavioural techniques, mood monitoring and feedback; and an emergency contacts section.			National Fund for Scientific and Technological Development, the Department of Science, Technology, and Innovation in Colombia.
Parada, 2020 (187)	Chile and Mexico	Other		Mobile or tablet apps	Development				Not stated	Government funding: Chilean National Fund for Scientific and Technological Development, Millennium

										Science Initiative of the Ministry of Economy, Development and Tourism, the Chilean Ministry of Economy, Development, and TourismThe Colombian Department of Science, Technology and Innovation
KoÃ§ak, 2021 (188)	Turkey	Randomized controlled study	Bebekve Biz	Mobile or tablet apps	Implementation study	Depression and anxiety	Mobile support application that provides information	Patient	Yes	Academic funding: Necmettin Erbakan

							on maternal care, baby care, and breastfeeding. It also included a consultancy service for mothers to request support, ask questions, and receive online support.			University
Media Review										
Bhandari Gandhi et al., 2023 (1)	India	Machine learning algorithms	Machine learning model	Machine learning algorithm	Exploratory study	Suicide	Anju Bhandari Gandhi from the Panipat Institute of Engineering and Technology in India developed a machine learning model capable of predicting suicide	Patient	None	Academic funding: Panipat Institute of Engineering and Technology

							attempts with 95% accuracy by analysing an individual's behaviour. This intervention specifically targets the early detection and prevention of suicide attempts, utilising AI and machine learning techniques to predict and potentially intervene in mental health crises.			

[1] We extracted information on the affiliation of the first author of each publication. Where this was different to the location of intervention development and testing, this is indicated following a "/"
[2] Design of the study describing the intervention
[3] The name of the intervention, when provided.
[4] See Appendix 3.3 for information on intervention type, stage of development and intervention focus
[5] Whether the intervention is intended for use by the patient, clinician, peer supporters, carers, or a combination of these

[6] Any mention of lived experience involvement (regardless of the extent of this) mentioned in the study. Please see "Lived experience participation reported in published research" section for more information

[7] All funding information provided by authors. Funding has been categorised as academic e.g. funded by universities/colleges or educational institutes, government e.g. projects explicitly funded by the Government including Ministries of Health, the Military or the Health Dept/NHS, charities e.g. foundations which are not funded by the government, or commercial e.g. funded by commercial start-ups, ltd/Incorporated companies

Target population by diagnoses

The following presents an overview of target populations by condition and country.

Literature Review

The literature review reveals that depression and symptoms of depression were the most commonly targeted conditions, followed by anxiety disorders. Interventions for these conditions were primarily delivered through mobile or tablet apps and were most often developed and/or tested in Asian countries. Other mental health conditions targeted include OCD, PTSD, trauma, bipolar disorder, psychosis, and schizophrenia. The review also identified interventions targeting multiple symptoms, such as depressive, anxiety, stress, and emotional complaints.

- **Depressive conditions:** Depression and symptoms of depression were the most commonly targeted condition (n = 49/n = 29 without China). Interventions for depression were most often mobile or tablet app-based (n = 19/n = 15 without China), and developed and/or tested in Asian countries (n = 34/n = 14 without China).
- **Anxiety disorder:** Anxiety conditions were targeted in 11 interventions (n = 5 without China). The majority (n = 7/n = 3 without China) of these were for treatment. The main type of digitalisation for this indication was websites/web-based platforms (n = 3/n = 2 without China), and they were commonly developed and/or tested in Asian countries (n = 8/n = 3 without China).
- **Obsessive Compulsive Disorder (OCD):** Obsessive Compulsive Disorder were targeted in four interventions (n=2 without China). All of these interventions targeting OCD were treatments. Half of the interventions used VR in their treatment (Iran and Dominican Republic). Half of the interventions were designed and/or tested in China.
- **Post-Traumatic Stress Disorder (PTSD):** PTSD was targeted in two interventions (n = 0 when China is excluded), with one intervention using machine learning for prediction purposes, and another intervention using web-based platforms for treatment.
- **Trauma:** The only intervention directed at Trauma specifically was tested in Belarus and used a web-based platform to deliver treatment.
- **Depression and anxiety:** Depression and anxiety were targeted in 25 (n = 18 without China) interventions. The majority of interventions (n = 17/n = 13 without China) were for treatment purposes. The main type of intervention for this indication was mobile or tablet apps (n = 10/n = 9 without China), and commonly developed in Asian countries (n = 6/n = 5 without China).
- **Depression and suicide**: Depression and suicide was targeted in two interventions (n = 0 without China). These were for treatment (n = 1) and diagnosis (n = 1) purposes. These utilised machine learning techniques.
- **Bipolar:** Four interventions targeted bipolar disorder and three of them were developed and/or tested in Iran. Half of interventions were designed for monitoring.
- **Psychosis:** All three interventions targeting psychosis were delivered through mobile or tablet apps (n = 1 without China). Two interventions were designed for monitoring, and they were tested in China (n = 2) and all of Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia (n = 1).
- **Schizophrenia:** Nine interventions targeted Schizophrenia (n = 4 without China), and six of them (n = 2 without China) were for treatment purposes. Most interventions (n = 4) used mobile or tablet apps. When China is excluded, most studies were conducted in India and India/US.
- **Multiple diagnoses:** Three interventions targeted multiple symptoms including depressive, anxiety, stress, emotional complaints and others (n = 1 without China). Two interventions were delivered through web-based platforms (n = 0 without China), and two interventions were designed as treatments (n = 1 without China).

Media Review

The media review highlights the diverse range of mental health conditions and symptoms targeted by digital interventions in LMICs. While general mental health and well-being were the most common focus, interventions also addressed specific conditions such as depression, anxiety, suicide prevention, stress, insomnia, and phobias. The review also emphasizes the importance of tailoring interventions to the needs of specific populations, ensuring that the unique challenges faced by each group are adequately addressed.

- **General mental health and well-being:** The majority of interventions identified in the media review targeted general mental health and well-being (n = 15). These interventions were primarily developed and implemented in Asian countries (n = 7), with mobile applications being the most common type of digitalisation (n = 10).
- **Depression and anxiety:** Depression and anxiety were specifically targeted by two interventions (Conemo and Wysa), both of which were mobile applications. Conemo was developed and tested in Brazil and Peru, while Wysa was utilised in South Africa.
- **Suicide prevention:** One intervention, a machine learning model for suicide prediction, was developed in India to target suicide prevention in the general population.
- **Stress and resilience:** WellmindGPT, an AI-powered chatbot developed in South Korea, aimed to support soldiers in managing stress and building resilience.
- **Anxiety and stress disorders:** Pura mente, a mobile application available in Chile and Colombia, focused on addressing anxiety and stress with meditation and mindfulness for the general population.
- **Phobias and PTSD:** TherapyMantra, an online therapy and counselling service based in Indonesia, targeted individuals suffering from phobias and PTSD.

Barriers for digital mental health use

Barriers to use of digital interventions were reported both by people using the intervention and researchers/developers of the intervention. The most frequently reported barriers by people using the intervention were stigma (reported in n = 15 studies in the literature review and also an intervention identified in the media review) and difficulties accessing the intervention (n = 10 literature review, n = 3 media review). Meanwhile, those barriers which hindered research evidence and development (identified during the literature review) were most frequently reported as lo adherence to the intervention (n = 16, only reported by China) and low levels of engagement (n = 10, n = 8 without China) impacting quality of evidence (n = 16 and n = 10, respectively), and challenges generalizing the intervention to wider population groups (n = 16). A lack of human, infrastructure or economic resources was reported as a wider barrier to access (n = 16), as was health inequalities (n = 1). Table 10 details all reported barriers.

Table 10: Barriers to use of and development of digital interventions reported

Barriers	N reports of each barrier from the literature review/ N without China	N reports of each barrier from the media review
Intervention user reported		
Stigma	15/ 12	1
Difficulties with Internet access	10/ 10	3
Non or not enough cultural adaptation/ Cultural relevance	7/ 5	4
Technical issues	6/ 0	0
Security and privacy concerns	5/ 5	2
Problems with electricity supply	4/0	0
Preference for face to face	4/ 3	0
Not enough trust in digital interventions	4/ 4	0
Comprehensibility	3/2	0
Lack of human support or human element	3/1	0
Intervention generates discomfort	3/ 0	0
Lack of interactive content	2/2	0
Availability or accessibility of intervention	2/0	0
High battery consumption	2/1	0
Researcher/developer reported		
Challenges generalizing intervention	16/8	0
Adherence	16/0	0
Low engagement with intervention	10/8	0
Challenges with older population	4/2	0
Low mental health literacy of target population	4/0	0
Poor availability or collection of data	3/2	0
Low rates of help-seeking behaviour	3/1	0
Wider determinants of mental health access		
Lack of resources (human, infrastructure, economic)	16/7	0
Health Inequalities	1/1	0
Shortage of mental health professionals	0	1
Poor integration of interventions into health services	0	2

Further details and named examples of interventions identified through the media review and barriers mentioned in posts pertaining to these interventions are provided below:

Access to Technology and Internet Connectivity:

- **Pakistan:** Digital mental health interventions, such as the Humraaz app were considered as a means to address the shortage of mental health services, particularly in rural areas. Nevertheless, the analysis showed that the lack of access to technology and digital literacy hinders the broader population from benefiting from these services, perpetuating the inequality in access to mental health care.

- **Mexico:** The analysis found that digital mental health interventions, like the BeMe Health and Cuéntame platforms were discussed as potential solutions to bridge the gap in mental health service provision. However, barriers such as affordability, user-friendliness, and accessibility for individuals with limited digital literacy or access to technology may prevent these interventions from reaching and benefiting the intended population, particularly those from low-income or rural backgrounds.

Shortage of Mental Health Professionals:

- **Uganda:** Digital mental health interventions, like the KeepChatty app and Free Mind Hive, were considered as a means to bridge the gap in mental health service provision. Nevertheless, the analysis found that the lack of trained mental health professionals and community health workers hinders the implementation and scale-up of these interventions, limiting their potential impact on the population.

Culturally and Linguistically Adapted Services:

- **Malaysia:** The analysis indicated that digital mental health interventions, such as the MyMinda feature in the MySejahtera app and the AloeMind platform, were discussed in the context of addressing the diverse mental health needs of the population. However, the lack of culturally and linguistically tailored content may lead to interventions being perceived as irrelevant or inappropriate, resulting in low uptake and limited impact.
- **Kenya:** Digital mental health interventions, like the Mindful Kenya app and the Panda for Teens (now October Health) app, were considered as a means to improve access to mental health services. Nevertheless, the analysis revealed that the lack of culturally appropriate and accessible content may result in low engagement, limited effectiveness, and potential rejection by the intended users.

Other Barriers:

- **South Africa:** Digital mental health interventions, like the Ingage Support app and the Kena Health platform, were considered as a means to improve access to mental health services. Nevertheless, the analysis showed that the lack of data protection measures may deter individuals from using these services due to fears of data breaches, stigma, or discrimination.
- **Mexico:** The analysis revealed that digital mental health interventions, such as the BeMe Health platform and Cuéntame, were discussed as potential solutions to bridge the gap in mental health service provision. However, the lack of integration with existing healthcare systems, community-based programs, and traditional healing practices may lead to fragmented care delivery and limited impact on overall mental health outcomes.

Lived experience participation reported in published research

Upon further analysis, overall 29 papers reported some kind of lived experience or stakeholder involvement in the study process. When excluding China, this number was 23. It is important to note that from all identified papers from the literature review the reporting on lived experience involvement was inconsistent and often either unclear, poorly reported or not reported at all.

It was not always possible to clearly know if the groups consulted during research included people with lived experience due to sometimes generalised, vague or unclear description of who was a part of the group they collaborated or consulted with. To describe involvement the following words or phrases were used: service users, stakeholders, target population, target group (within that more specific words such as children, mothers, nurses or adolescents if an intervention was targeted towards a specific group of people), "collaborated with four Indian universities", pilot users, people with schizophrenia, users, experts, patients, "participatory design workshop", potential users, experts by experience, "theatre testing", "students who actively used the program", patients having a history of depression and anxiety, women with lived experience, depressed patients, human rights activists, adults in the target demographic, "co-design of the app with patients living with schizophrenia spectrum disorders", co-designing, patients, user-testing, local community groups, steering group. Some of these wordings make the process of determining lived experience participation slightly challenging, if for instance no detail of a steering group is mentioned. In addition, a number of studies also included families, carers, mental health practitioners or other important stakeholders (such as teachers if the intervention was targeted towards students).

The most dominant region in the group of papers mentioning involvement of people with lived experience was Asia (n = 16/ n= 12 without China). Papers targeting depression involved some kind of lived experience or stakeholders most frequently (n = 13, n = 9 without China). Main groups that were involved at some point of the intervention testing included clinicians, potential users or their carers. Papers with interventions for the treatment stage were the most frequent (n = 23). Only papers examining mobile/tablet apps (n = 16/n = 14 without China) or websites (n = 13/n = 9 without China) reported some kind of involvement of lived experience. Potential users of interventions were involved for the design of intervention, adaptation feedback, preliminary or secondary intervention version feedback, intervention development stages, or in five studies, there was explicit mention of co-production or consultation of target users throughout the project (106, 135, 169, 189, 190).

An example of some involvement of people with lived experience comes from the report of adaptation processes by Rodriguez-Villa et al (2021) in India and US. In this study, focus groups were lead at each participating site for individuals living with schizophrenia, their family members, and clinicians. The insights of the focus groups, where participants could use a prototype of the app informed later modifications to the intervention, including tailoring it to each setting. Adaptations were presented back to participants for further suggestions for changes following testing to ensure cultural relevance.

This study aimed to develop a technology assisted peer-delivered thinking health programme for perinatal depression and employed principles of Human Centred Design in their useability work. A design team was involved, which included experts such as specialist mental health practitioners, women who had suffered from perinatal depression and their husbands, technology developers and community health workers. This group collaborated to undertake a desk review and user consultation to capture profiles, capabilities, requirements and preferences of users of the technology. The design team continuously reviewed a "storyboard" based on the intervention manual to refine and develop a first user prototype of the intervention. The design team then tested the intervention and refined it further, before useability testing

with additional participants (who were not part of the design team).

Insights from experts in consultation

We carried out the survey and select structured interviews with experts, including four experts with lived experience of mental health problems. Experts included men and women residing in Asia, Europe, Latin America, and sub-Saharan Africa. This highlighted intervention development insights and grounded our results from the reviews in real-world knowledge.

Regarding lived experience involvement in the development of interventions, survey respondents and experts mentioned not being specifically familiar with the term “lived experience”, however, having practices that fell within our description. People mentioned lived experience involvement in cultural adaptation, participation in focus group discussions, testing and refinements of intervention versions and intervention use. There does not seem to be a specific way or route in which people with lived experience are involved in the development and/or testing of digital mental health interventions in LMICs at the moment. Reference to this topic seemed to fall under User Experience Research terminology and practices, or was referred to as “user involvement’, which is similar to what we found in papers from the literature review. For example, Quinonez-Freire et al. (2020) described “involvement of experts and users” as one of their strengths of their cultural adaptation of the Smiling is Fun programme in Ecuador. A participant from Latin America highlighted that in LMICs the scope of who are considered important stakeholders might be broader than in HIC (e.g. including family) due to more communal ways of living. Experts highlighted the importance of also including other stakeholders such as informal carers, teachers, or coaches, depending on the intervention target group.

Currently, experts' opinions suggest that significant advancements in the field of digital mental health in LMICs primarily revolve around interventions such as virtual reality (VR) applications for depression or anxiety, and various screening technologies. However, there is recognition that the technology landscape is evolving rapidly, with E-health currently boasting the most substantial evidence base. Additionally, there is a growing emphasis on the development of Chatbot and machine learning technologies. While mobile and other applications are also proliferating, determining the effectiveness of their content, and identifying the optimal mode and timing of delivery remain ongoing challenges.

Concerns were raised regarding a heightened investment in the field, particularly with a business model that lacks systematic exploration or comprehensive cultural adaptation in Low- and Middle-Income Countries (LMICs). When apps are imported from Western countries to LMICs, it is often unclear to what extent they have been adapted to suit the cultural context of the target population. Multiple responders commented how context in every LMICs is different and unique, hence, it is crucial for teams to work closely with the community and make their digital intervention culturally relevant.

Another concern arises regarding the sustainability of programs, with interventions becoming unavailable with the conclusion of research or program funding. Participants suggested that often funding was only available to develop new interventions, but not to keep existing ones up to date. Therefore, greater consideration should be given to the longevity of digital interventions after funding has ceased. A participant suggested a way forward may be to increase LMIC-HIC partnerships and mentioned most partnerships currently were with the United States and Europe, with the UK being involved to a lesser extent.

Overall, responders mentioned the development of digital mental health initiatives in LMICs requires significant support and partnership from funders, given the scarcity of mental health professionals and the

existing treatment gap. To effectively integrate technology into routine mental healthcare practices, there is a need for extensive training among professionals. Moreover, facilitating collaboration between mental health professionals and developers is essential, necessitating training and ongoing support. Local researchers and professionals possess invaluable contextual knowledge but often lack funding and resources; thus, international networks are crucial for knowledge exchange and access to tools. Additionally, LMICs possess substantial data resources, but lack the necessary infrastructure and funding to leverage this data effectively. Support from High-Income Countries (HICs) could facilitate the development of digital mental health interventions by enabling the utilisation of existing data. Ensuring the longevity of digital interventions beyond the duration of funding is imperative, requiring assistance with dissemination strategies and sustainable app development practices.

Participants highlighted six interventions which had not been identified in the reviews. These are listed in Table 11 below.

Table 11. Interventions mentioned by participants

Intervention Name	Location	Intervention Type	Indication of Focus
Yo puedo sentirme Bien (191)	Colombia and Mexico	https://sites.google.com/view/yopuedosentirmebien/	Depression and anxiety
Space from Depression (192)	Colombia	Web-based (https://www.c4tbh.org/program-review/space-from-depression/)	Depression
MindSkillz/ Grassroot Soccer (193)	Nigeria	Web-based comic and other in-person activities (https://grassrootsoccer.org/wp-content/uploads/2023/06/SAMPLE-Mindskillz-Magazine.pdf)	Mental Health
Shamiri Digital (194)	Kenya	Web-based intervention (https://www.shamiri.institute/)	Depression, anxiety, and well-being
CALMA (195)	Argentine	Mobile App (https://www.appcalma.co.m/site/en/)	Suicidal and non-suicidal injury
Kuamsha app (100)	South Africa	Mobile App	Adolescent depression

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Appendices

Appendix 1: Example Search Strategy for Brandwatch and Pulsar.

Domain	Search terms (Boolean term AND/OR Key words)
Digital	("digital mental health interventions" OR "digital mental health intervention" OR "digital mental health app" OR "digital mental health apps" OR "digital mental health")
	AND (incl. LMIC countries filter)
	(digital OR "digital intervention*" OR email OR e-mail OR telephone OR phone OR web OR "web-based" OR internet OR "internet-based" OR online OR electronic OR "text messag*" OR "SMS" OR "short messag* service*" OR texting OR messaging OR "mobile phone*" OR "cell phone*" OR "cellphone*" OR "smart phone*" OR "smartphone*" OR "mobile health" OR "mobile technolog*" OR mhealth OR "e-mental health" OR "etherapy" OR "e-health" OR "electronic mail" OR "electronic reminder*" OR "new media" OR "social media" OR "electronic media" OR "phone*" OR "smartphone*" OR "cellphone*" OR "mobile*" OR "web*" OR internet OR app OR apps OR "application*" OR facebook OR twitter OR instagram OR "social networking" OR "social media" OR internet OR "website*" OR "web site*" OR "laptop*" OR "PDA*" OR "personal digital assistant*" OR "video game*" OR "computer*" OR "computer-based")
	AND (incl. LMIC countries filter)
Sub-Boolean: Mental Health terms	"Mental Health" OR "Mental Disorders" OR "Mentally ill" OR "mental disorder*" OR "mental* ill*"
	AND (incl. LMIC countries filter)
Sub-Boolean: Intervention	"Psychosocial Intervention" OR "Internet-Based Intervention" OR Psychotherapy OR intervention OR treatment
LMICs Boolean filter	List of all LMIC countries: https://data.worldbank.org/country/XO
	(LOCATION AF OR LOCATION AL OR LOCATION DZ OR LOCATION AO OR LOCATION AR OR LOCATION AM OR LOCATION AZ OR LOCATION BD OR LOCATION BY OR LOCATION BZ OR LOCATION BJ OR LOCATION BO OR LOCATION BW OR LOCATION BR OR LOCATION BG OR LOCATION BF OR LOCATION BI OR LOCATION KH OR LOCATION CM OR LOCATION CV OR LOCATION CF OR LOCATION TD OR LOCATION CO OR LOCATION KM OR LOCATION CR OR LOCATION CU OR LOCATION CD OR LOCATION CG OR LOCATION DJ OR LOCATION DM OR LOCATION DO OR LOCATION EC OR LOCATION EG OR LOCATION SV OR LOCATION GQ OR LOCATION ER OR LOCATION SZ OR LOCATION ET OR LOCATION FJ OR LOCATION GA OR LOCATION PS|Gaza OR LOCATION GE OR LOCATION GH OR LOCATION GD OR LOCATION GT OR LOCATION GW OR LOCATION GN OR LOCATION HT OR LOCATION HN OR LOCATION IN OR LOCATION ID OR LOCATION IR OR LOCATION IQ OR LOCATION CI OR LOCATION JM OR LOCATION JO OR LOCATION KZ OR LOCATION KE OR LOCATION RS|Kosovo-Metohija OR LOCATION KG OR LOCATION LA OR LOCATION LB OR LOCATION LS OR LOCATION LR OR LOCATION LY OR LOCATION MG OR LOCATION MW OR LOCATION MY OR LOCATION MV OR LOCATION ML OR LOCATION MR OR LOCATION MU OR LOCATION MX OR LOCATION MD OR LOCATION MN OR LOCATION ME OR LOCATION MA OR LOCATION MZ OR LOCATION NA OR LOCATION NP OR LOCATION NI OR

	LOCATION NE OR LOCATION NG OR LOCATION KP OR LOCATION KR OR LOCATION MK OR LOCATION SD OR LOCATION ZM OR LOCATION ZM|Northern OR LOCATION PK OR LOCATION WS|Palauli OR LOCATION PG OR LOCATION PY OR LOCATION PE OR LOCATION PH OR LOCATION RS OR LOCATION RU OR LOCATION RW OR LOCATION LC OR LOCATION WS OR LOCATION SN OR LOCATION SL OR LOCATION SB OR LOCATION SO OR LOCATION ZA OR LOCATION LK OR LOCATION SY OR LOCATION TJ OR LOCATION TH OR LOCATION GM OR LOCATION TG OR LOCATION TO OR LOCATION TN OR LOCATION TR OR LOCATION TM OR LOCATION UG OR LOCATION UA OR LOCATION TZ OR LOCATION UZ OR LOCATION VN OR LOCATION YE OR LOCATION ZW)

Appendix 2: Literature review search strategy

MEDLINE	1419
Embase	2752
PsycINFO	699
Cochrane CENTRAL	566
Total	5436
Duplicates	1749
Total (Duplicates removed)	3507

Ovid MEDLINE(R) ALL <1946 to January 08, 2024>

1 internet access/ or "internet use"/ or social networking/ or augmented reality/ or virtual reality/ or computer systems/ or computers/ or gamification/ or mobile applications/ or video games/ or cell phone/ or smartphone/ or text messaging/ or digital technology/ or artificial intelligence/ or machine learning/ or computers, handheld/ or smartphone/ 194939

2 (digital or email or e-mail or telephone or phone? or web or web-based or website or "web site?" or internet or internet-based or online or electronic or "text messag*" or SMS or "short messag* service*" or texting or cellphone? or smartphone? or "electronic mail*" or "electronic reminder*" or "social media" or "electronic media" or mobile? or app or apps or application? or "social network*" or PDA or "personal digital assistant?" or "video game*" or computeri#ed or computer? or computer-based or "augmented realit*" or "virtual realit*" or augmented-realit* or virtual-realit* or gamified or gamification or "artificial intelligence?" or "machine learning" or AI or "Chat GPT").ti,kf. 864536

3 Virtual Reality Exposure Therapy/ or Therapy, computer-assisted/ or diagnosis, computer-assisted/ 31444

4 ("mobile health" or mhealth or "e-mental health" or etherapy or e-therapy or icbt or i-cbt or "online therap*" or e-cbt or ecbt or ((electronic or digital or mobile or internet) adj3 (CBT or therap* or support or intervention or diagnos#s))).ti,kf. 17727

5 mental disorders/ or anxiety disorders/ or obsessive-compulsive disorder/ or panic disorder/ or phobic disorders/ or mood disorders/ or bipolar disorder/ or depressive disorder/ or depression, postpartum/ or depressive disorder, major/ or depressive disorder, treatment-resistant/ or "schizophrenia spectrum and other psychotic disorders"/ or affective disorders, psychotic/ or psychotic disorders/ or schizophrenia/ or schizophrenia, catatonic/ or schizophrenia, disorganized/ or schizophrenia, paranoid/ or schizophrenia, treatment-resistant/ or stress disorders, post-traumatic/ 549270

6 Mental Health/ 64716

7 ("mental health" or (mental adj2 disorder?) or "mental illness*" or "mental ill-health" or anxiety or OCD or obsessive-compulsive or "obsessive compulsive" or "panic disorder*" or "phobic disorder*" or phobia? or "mood disorder?" or bipolar or depression or depressive or schizophreni? or "affective disorder?" or PTSD or (traumatic adj2 disorder*)).ti,kf. 561337

8 (afghan* or africa* or albania* or algeria* or angola* or antigua* or barbuda* or argentin* or armenia* or aruba* or azerbaijan* or bahrain* or bangladesh* or bengal* or bangal* or barbados* or barbadian* or bajan or bajans or belarus* or belorus* or byelarus* or byelorus* or belize* or benin* or dahomey or bhutan* or bolivia* or bosnia* or herzegovin* or botswan* or batswan* or bechuanaland* or brazil* or brasil* or bulgaria* or burkina* or burkinese* or upper volta* or burundi* or urundi* or cabo verde* or cape verde* or cambodia* or kampuchea* or khmer* or cameroon* or cameroun* or ubangi shari* or chad* or chile* or china* or chinese or colombia* or comoro* or comore* or comorian* or mayotte* or congo* or zaire* or costa rica* or "cote d'ivoir*" or "cote d' ivoir*" or cote divoir* or cote d ivoir* or ivory coast* or ivorian* or croatia* or cuba or cuban or cubans or "cuba's" or cyprus* or cypriot* or

czech* or djibouti* or french somaliland* or dominica* or ecuador* or egypt* or united arab republic* or el salvador* or salvadoran* or guinea* or equatoguinea* or eritrea* or estonia* or eswatini* or swaziland* or swazi* or swati* or ethiopia* or fiji* or gabon* or gabonese* or gabonaise* or gambia* or ((georgia or georgian or georgians) not (atlanta or california or florida)) or ghana* or gibraltar* or greece* or greek* or grecian* or grenada* or grenadian* or guam* or guatemala* or guyana* or guiana* or guyanese* or haiti* or hispaniola* or hondura* or hungary* or hungarian* or india* or indonesia* or iran* or iraq* or isle of man* or jamaica* or jordan* or kazakh* or kenya* or karabati* or korea* or kosovo* or kosova* or kyrgyz* or kirgiz* or kirghiz* or laos or lao or laotian* or latvia* or lebanon* or lebanese* or lesotho* or lesothan* or lesothonian* or basutoland* or mosotho* or basotho* or liberia* or libya* or jamahiriya* or lithuania* or macedonia* or madagasca* or malagasy* or malawi* or nyasaland* or malaysia* or malay* federation or maldives* or maldivian* or indian ocean or mali or malian* or "mali's" or malta or maltese* or "malta's" or micronesia* or marshallese* or kiribati* or marshall island* or nauru or nauran or nauruans or "naurian's" or mariana or marianas or palau or paluan* or tuvalu* or mauritania* or mauritan* or mauritius* or mexico* or mexican* or moldova* or moldovia* or mongol* or montenegr* or morocco* or moroccan* or ifni or mozambique* or mozambican* or myanmar* or burma* or burmese or namibia* or nepal* or new caledonia* or netherlands antill* or nicaragua* or niger* or oman or omani or omanis or "oman's" or pakistan* or palestin* or gaza* or west bank* or panama* or paraguay* or peru or peruvian* or "peru's" or philippine* or philipine* or phillipine* or phillippine* or filipino* or filipina* or poland* or polish or pole or poles or portugal* or portuguese or puerto ric* or romania* or russia* or ussr* or soviet* or rwanda* or rwandese or ruanda* or ruandese or samoa* or navigator island* or pacific island* or polynesia* or "sao tome and principe*" or sao tomean* or santomean* or saudi arabia* or saudi or saudis or senegal* or serbia* or seychell* or sierra leone* or slovak* or sloven* or melanesia* or solomon island* or norfolk island* or somali* or sri lanka* or ceylon* or "saint kitts and nevis*" or "st kitts and nevis*" or kittian* or nevisian* or saint lucia* or st lucia* or saint vincent* or st vincent* or vincentian* or grenadine* or sudan* or surinam* or syria* or tajik* or tadjik* or tadzhik* or tanzania* or tanganyika* or thai* or timor leste* or east timor* or timorese* or togo or togoles* or "togo's" or tonga* or trinidad* or tobago* or tunisia* or turkiy* or turkey* or turk or turks or turkish or turkmen* or uganda* or ukrain* or uruguay* or uzbek* or vanuatu* or new hebrides* or venezuela* or vietnam* or viet nam* or yemen* or yugoslav* or zambia* or zimbabwe* or rhodesia* or arab* countr* or middle east* or global south or sahara* or subsahara* or magreb* or maghrib* or west indies* or caribbean* or central america* or latin america* or south america* or central asia* or north asia* or northern asia* or southeastern asia* or south eastern asia* or southeast asia* or south east asia* or west asia* or western asia* or east europe* or eastern europe* or developing countr* or developing nation* or developing population* or developing world or less developed countr* or less developed nation* or less developed world or lesser developed countr* or lesser developed nation* or lesser developed world or under developed countr* or under developed nation* or under developed world or underdeveloped countr* or underdeveloped nation* or underdeveloped world or middle income countr* or middle income nation* or middle income population* or low income countr* or low income nation* or low income population* or lower income countr* or lower income nation* or lower income population* or underserved countr* or underserved nation* or underserved population* or under served population* or under served nation* or under served population* or deprived countr* or deprived population* or high burden countr* or high burden nation* or countdown countr* or countdown nation* or poor countr* or poor nation* or poor population* or poor world or poorer countr* or poorer nation* or poorer population* or poorer world or developing econom* or less developed econom* or underdeveloped econom* or under developed econom* or middle income econom* or low income econom* or lower income econom* or low gdp or low gnp or low gross domestic or low gross national or lower gdp or lower gnp or lower gross domestic or lower gross national or lmic or lmics or third world or lami countr* or transitional countr* or emerging econom* or emerging nation*).ti,ab,kf. 2732292

9 psychotherapy/ or behaviour therapy/ or cognitive behavioural therapy/ or desensitization, psychologic/ or relaxation therapy/ or psychoanalytic therapy/ or psychosocial intervention/ or

psychotherapy, brief/ or psychotherapy, multiple/ or psychotherapy, psychodynamic/ or psychotherapy, rational-emotive/ or diagnosis/ or early diagnosis/ or relapse prevention/ 207635
10 secondary prevention/ or tertiary prevention/ 22882
11 ((prevent* and (relaps* or risk or indicated or selected or selective)) or monitor* or intervention or diagnos* or therapy or psychotherapy or CBT or treat or treatment or support or "peer support").ti,ab,kf. 10993507
12 1 or 2 953880
13 3 or 4 48895
14 5 or 6 or 7 844080
15 9 or 10 or 11 11048067
16 8 and 12 and 14 and 15 2022
17 8 and 13 and 14 453
18 16 or 17 2131
19 limit 18 to yr="2020 -Current" 1419

APA PsycInfo <1806 to January Week 1 2024>

1 internet access/ or internet usage/ or online social networks/ or augmented reality/ or virtual environment/ or virtual reality/ or computer simulation/ or computers/ or computer usage/ or computer systems/ or computer applications/ or digital gaming/ or computer games/ or digital game-based learning/ or "smartphone use"/ or mobile applications/ or text messaging/ or mobile phones/ or mobile technology/ or mobile devices/ or smartphones/ or digital technology/ or artificial intelligence/ or machine learning/ 99203
2 (digital or email or e-mail or telephone or phone? or web or web-based or website or "web site?" or internet or internet-based or online or electronic or "text messag*" or SMS or "short messag* service*" or texting or cellphone? or smartphone? or "electronic mail*" or "electronic reminder*" or "social media" or "electronic media" or mobile? or app or apps or application? or "social network*" or PDA or "personal digital assistant?" or "video game*" or computeri#ed or computer? or computer-based or "augmented realit*" or "virtual realit*" or augmented-realit* or virtual-realit* or gamified or gamification or "artificial intelligence?" or "machine learning" or AI or "Chat GPT").ti,id. 249337
3 virtual reality exposure therapy/ or computer assisted therapy/ or computer assisted diagnosis/ 3233
4 ("mobile health" or mhealth or "e-mental health" or etherapy or e-therapy or icbt or i-cbt or "online therap*" or e-cbt or ecbt or ((electronic or digital or mobile or internet) adj3 (CBT or therap* or support or intervention or diagnos#s))).ti,id. 5249
5 Mental disorders/ or anxiety disorders/ or generalized anxiety disorder/ or panic attack/ or panic disorder/ or phobias/ or anxiety/ or obsessive compulsive disorder/ or major depression/ or affective disorders/ or endogenous depression/ or postpartum depression/ or recurrent depression/ or treatment resistant depression/ or bipolar disorder/ or persistent depressive disorder/ or psychosis/ or affective psychosis/ or paranoid psychosis/ or schizophrenia/ or acute schizophrenia/ or catatonic schizophrenia/ or childhood onset schizophrenia/ or paranoid schizophrenia/ or precess schizophrenia/ or schizoaffective disorder/ or "schizophrenia (disorganized type)"/ or schizophreniform disorder/ or undifferentiated schizophrenia/ or posttraumatic stress disorder/ or complex ptsd/ 522665
6 mental health/ 93601
7 ("mental health" or (mental adj2 disorder?) or "mental illness*" or "mental ill-health" or anxiety or OCD or obsessive-compulsive or "obsessive compulsive" or "panic disorder*" or "phobic disorder*" or phobia? or "mood disorder?" or bipolar or depression or depressive or schizophreni? or "affective disorder?" or PTSD or (traumatic adj2 disorder*)).ti,id. 586088
8 (afghan* or africa* or albania* or algeria* or angola* or antigua* or barbuda* or argentin* or armenia* or aruba* or azerbaijan* or bahrain* or bangladesh* or bengal* or bangal* or barbados* or

barbadian* or bajan or bajans or belarus* or belorus* or byelarus* or byelorus* or belize* or benin* or dahomey or bhutan* or bolivia* or bosnia* or herzegovin* or botswan* or batswan* or bechuanaland* or brazil* or brasil* or bulgaria* or burkina* or burkinese* or upper volta* or burundi* or urundi* or cabo verde* or cape verde* or cambodia* or kampuchea* or khmer* or cameroon* or cameroun* or ubangi shari* or chad* or chile* or china* or chinese or colombia* or comoro* or comore* or comorian* or mayotte* or congo* or zaire* or costa rica* or "cote d'ivoir*" or "cote d' ivoir*" or cote divoir* or cote d ivoir* or ivory coast* or ivorian* or croatia* or cuba or cuban or cubans or "cuba's" or cyprus* or cypriot* or czech* or djibouti* or french somaliland* or dominica* or ecuador* or egypt* or united arab republic* or el salvador* or salvadoran* or guinea* or equatoguinea* or eritrea* or estonia* or eswatini* or swaziland* or swazi* or swati* or ethiopia* or fiji* or gabon* or gabonese* or gabonaise* or gambia* or ((georgia or georgian or georgians) not (atlanta or california or florida)) or ghana* or gibraltar* or greece* or greek* or grecian* or grenada* or grenadian* or guam* or guatemala* or guyana* or guiana* or guyanese* or haiti* or hispaniola* or hondura* or hungary* or hungarian* or india* or indonesia* or iran* or iraq* or isle of man* or jamaica* or jordan* or kazakh* or kenya* or karabati* or korea* or kosovo* or kosova* or kyrgyz* or kirgiz* or kirghiz* or laos or lao or laotian* or latvia* or lebanon* or lebanese* or lesotho* or lesothan* or lesothonian* or basutoland* or mosotho* or basotho* or liberia* or libya* or jamahiriya* or lithuania* or macedonia* or madagasca* or malagasy* or malawi* or nyasaland* or malaysia* or malay* federation or maldives* or maldivian* or indian ocean or mali or malian* or "mali's" or malta or maltese* or "malta's" or micronesia* or marshallese* or kiribati* or marshall island* or nauru or nauran or nauruans or "naurian's" or mariana or marianas or palau or paluan* or tuvalu* or mauritania* or mauritan* or mauritius* or mexico* or mexican* or moldova* or moldovia* or mongol* or montenegr* or morocco* or moroccan* or ifni or mozambique* or mozambican* or myanmar* or burma* or burmese or namibia* or nepal* or new caledonia* or netherlands antill* or nicaragua* or niger* or oman or omani or omanis or "oman's" or pakistan* or palestin* or gaza* or west bank* or panama* or paraguay* or peru or peruvian* or "peru's" or philippine* or philipine* or phillipine* or phillippine* or filipino* or filipina* or poland* or polish or pole or poles or portugal* or portuguese or puerto ric* or romania* or russia* or ussr* or soviet* or rwanda* or rwandese or ruanda* or ruandese or samoa* or navigator island* or pacific island* or polynesia* or "sao tome and principe*" or sao tomean* or santomean* or saudi arabia* or saudi or saudis or senegal* or serbia* or seychell* or sierra leone* or slovak* or sloven* or melanesia* or solomon island* or norfolk island* or somali* or sri lanka* or ceylon* or "saint kitts and nevis*" or "st kitts and nevis*" or kittian* or nevisian* or saint lucia* or st lucia* or saint vincent* or st vincent* or vincentian* or grenadine* or sudan* or surinam* or syria* or tajik* or tadjik* or tadzhik* or tanzania* or tanganyika* or thai* or timor leste* or east timor* or timorese* or togo or togoles* or "togo's" or tonga* or trinidad* or tobago* or tunisia* or turkiy* or turkey* or turk or turks or turkish or turkmen* or uganda* or ukrain* or uruguay* or uzbek* or vanuatu* or new hebrides* or venezuela* or vietnam* or viet nam* or yemen* or yugoslav* or zambia* or zimbabwe* or rhodesia* or arab* countr* or middle east* or global south or sahara* or subsahara* or magreb* or maghrib* or west indies* or caribbean* or central america* or latin america* or south america* or central asia* or north asia* or northern asia* or southeastern asia* or south eastern asia* or southeast asia* or south east asia* or west asia* or western asia* or east europe* or eastern europe* or developing countr* or developing nation* or developing population* or developing world or less developed countr* or less developed nation* or less developed world or lesser developed countr* or lesser developed nation* or lesser developed world or under developed countr* or under developed nation* or under developed world or underdeveloped countr* or underdeveloped nation* or underdeveloped world or middle income countr* or middle income nation* or middle income population* or low income countr* or low income nation* or low income population* or lower income countr* or lower income nation* or lower income population* or underserved countr* or underserved nation* or underserved population* or under served population* or under served nation* or under served population* or deprived countr* or deprived population* or high burden countr* or high burden nation* or countdown countr* or countdown nation* or poor countr* or poor nation* or poor population* or poor world or poorer countr* or poorer nation* or poorer population*

or poorer world or developing econom* or less developed econom* or underdeveloped econom* or under developed econom* or middle income econom* or low income econom* or lower income econom* or low gdp or low gnp or low gross domestic or low gross national or lower gdp or lower gnp or lower gross domestic or lower gross national or lmic or lmics or third world or lami countr* or transitional countr* or emerging econom* or emerging nation*).ti,ab,id. 536583
9 psychotherapy/ or behaviour therapy/ or cognitive therapy/ or relaxation therapy/ or Psychoanalysis/ or psychodynamic psychotherapy/ or psychosocial interventions/ or brief psychotherapy/ or diagnosis/ or relapse prevention/ 208113
10 preventative mental health services/ 0
11 ((prevent* and (relaps* or risk or indicated or selected or selective)) or monitor* or intervention or diagnos* or therapy or psychotherapy or CBT or treat or treatment or support or "peer support").ti,ab,id. 1873928
12 1 or 2 274926
13 3 or 4 8374
14 5 or 6 or 7 710536
15 9 or 10 or 11 1915445
16 8 and 12 and 14 and 15 1406
17 8 and 13 and 14 233
18 16 or 17 1447
19 limit 18 to yr="2020 -Current" 699

Embase <1974 to 2024 January 08>

1 "internet use"/ or internet access/ or Internet/ or social network/ or virtual reality/ or computer simulation/ or augmented reality/ or computer system/ or computer/ or gamification/ or mobile application/ or video game/ or mobile phone/ or smartphone/ or text messaging/ or digital technology/ or artificial intelligence/ or machine learning/ 639657
2 (digital or email or e-mail or telephone or phone? or web or web-based or website or "web site?" or internet or internet-based or online or electronic or "text messag*" or SMS or "short messag* service*" or texting or cellphone? or smartphone? or "electronic mail*" or "electronic reminder*" or "social media" or "electronic media" or mobile? or app or apps or application? or "social network*" or PDA or "personal digital assistant?" or "video game*" or computeri#ed or computer? or computer-based or "augmented realit*" or "virtual realit*" or augmented-realit* or virtual-realit* or gamified or gamification or "artificial intelligence?" or "machine learning" or AI or "Chat GPT").ti,kf. 984183
3 Computer assisted diagnosis/ or virtual reality exposure therapy/ or computer assisted therapy/ 48076
4 ("mobile health" or mhealth or "e-mental health" or etherapy or e-therapy or icbt or i-cbt or "online therap*" or e-cbt or ecbt or ((electronic or digital or mobile or internet) adj3 (CBT or therap* or support or intervention or diagnos#s))).ti,kf. 17249
5 Mental disease/ or anxiety disorder/ or generalized anxiety disorder/ or "mixed anxiety and depression"/ or obsessive compulsive disorder/ or panic/ or phobia/ or posttraumatic stress disorder/ or depression/ or mood disorder/ or bipolar disorder/ or depressive psychosis/ or major depression/ or perinatal depression/ or treatment resistant depression/ or mood disorder/ or schizophrenia/ or psychosis/ or schizophrenia spectrum disorder/ or catatonic schizophrenia/ or paranoid schizophrenia/ or simple schizophrenia/ or treatment-resistant schizophrenia/ or bipolar disorder/ or bipolar depression/ 1139132
6 mental health/ 216631
7 ("mental health" or (mental adj2 disorder?) or "mental illness*" or "mental ill-health" or anxiety or

OCD or obsessive-compulsive or "obsessive compulsive" or "panic disorder*" or "phobic disorder*" or phobia? or "mood disorder?" or bipolar or depression or depressive or schizophreni? or "affective disorder?" or PTSD or (traumatic adj2 disorder*)).ti,kf. 707863

8 (afghan* or africa* or albania* or algeria* or angola* or antigua* or barbuda* or argentin* or armenia* or aruba* or azerbaijan* or bahrain* or bangladesh* or bengal* or bangal* or barbados* or barbadian* or bajan or bajans or belarus* or belorus* or byelarus* or byelorus* or belize* or benin* or dahomey or bhutan* or bolivia* or bosnia* or herzegovin* or botswan* or batswan* or bechuanaland* or brazil* or brasil* or bulgaria* or burkina* or burkinese* or upper volta* or burundi* or urundi* or cabo verde* or cape verde* or cambodia* or kampuchea* or khmer* or cameroon* or cameroun* or ubangi shari* or chad* or chile* or china* or chinese or colombia* or comoro* or comore* or comorian* or mayotte* or congo* or zaire* or costa rica* or "cote d'ivoir*" or "cote d' ivoir*" or cote divoir* or cote d ivoir* or ivory coast* or ivorian* or croatia* or cuba or cuban or cubans or "cuba's" or cyprus* or cypriot* or czech* or djibouti* or french somaliland* or dominica* or ecuador* or egypt* or united arab republic* or el salvador* or salvadoran* or guinea* or equatoguinea* or eritrea* or estonia* or eswatini* or swaziland* or swazi* or swati* or ethiopia* or fiji* or gabon* or gabonese* or gabonaise* or gambia* or ((georgia or georgian or georgians) not (atlanta or california or florida)) or ghana* or gibraltar* or greece* or greek* or grecian* or grenada* or grenadian* or guam* or guatemala* or guyana* or guiana* or guyanese* or haiti* or hispaniola* or hondura* or hungary* or hungarian* or india* or indonesia* or iran* or iraq* or isle of man* or jamaica* or jordan* or kazakh* or kenya* or karabati* or korea* or kosovo* or kosova* or kyrgyz* or kirgiz* or kirghiz* or laos or lao or laotian* or latvia* or lebanon* or lebanese* or lesotho* or lesothan* or lesothonian* or basutoland* or mosotho* or basotho* or liberia* or libya* or jamahiriya* or lithuania* or macedonia* or madagasca* or malagasy* or malawi* or nyasaland* or malaysia* or malay* federation or maldives* or maldivian* or indian ocean or mali or malian* or "mali's" or malta or maltese* or "malta's" or micronesia* or marshallese* or kiribati* or marshall island* or nauru or nauran or nauruans or "naurian's" or mariana or marianas or palau or paluan* or tuvalu* or mauritania* or mauritan* or mauritius* or mexico* or mexican* or moldova* or moldovia* or mongol* or montenegr* or morocco* or moroccan* or ifni or mozambique* or mozambican* or myanmar* or burma* or burmese or namibia* or nepal* or new caledonia* or netherlands antill* or nicaragua* or niger* or oman or omani or omanis or "oman's" or pakistan* or palestin* or gaza* or west bank* or panama* or paraguay* or peru or peruvian* or "peru's" or philippine* or philipine* or phillipine* or phillippine* or filipino* or filipina* or poland* or polish or pole or poles or portugal* or portuguese or puerto ric* or romania* or russia* or ussr* or soviet* or rwanda* or rwandese or ruanda* or ruandese or samoa* or navigator island* or pacific island* or polynesia* or "sao tome and principe*" or sao tomean* or santomean* or saudi arabia* or saudi or saudis or senegal* or serbia* or seychell* or sierra leone* or slovak* or sloven* or melanesia* or solomon island* or norfolk island* or somali* or sri lanka* or ceylon* or "saint kitts and nevis*" or "st kitts and nevis*" or kittian* or nevisian* or saint lucia* or st lucia* or saint vincent* or st vincent* or vincentian* or grenadine* or sudan* or surinam* or syria* or tajik* or tadjik* or tadzhik* or tanzania* or tanganyika* or thai* or timor leste* or east timor* or timorese* or togo or togoles* or "togo's" or tonga* or trinidad* or tobago* or tunisia* or turkiy* or turkey* or turk or turks or turkish or turkmen* or uganda* or ukrain* or uruguay* or uzbek* or vanuatu* or new hebrides* or venezuela* or vietnam* or viet nam* or yemen* or yugoslav* or zambia* or zimbabwe* or rhodesia* or arab* countr* or middle east* or global south or sahara* or subsahara* or magreb* or maghrib* or west indies* or caribbean* or central america* or latin america* or south america* or central asia* or north asia* or northern asia* or southeastern asia* or south eastern asia* or southeast asia* or south east asia* or west asia* or western asia* or east europe* or eastern europe* or developing countr* or developing nation* or developing population* or developing world or less developed countr* or less developed nation* or less developed world or lesser developed countr* or lesser developed nation* or lesser developed world or under developed countr* or under developed nation* or under developed world or underdeveloped countr* or underdeveloped nation* or underdeveloped world or middle income countr* or middle income nation* or middle income population* or low income countr* or low income nation* or

low income population* or lower income countr* or lower income nation* or lower income population* or underserved countr* or underserved nation* or underserved population* or under served population* or under served nation* or under served population* or deprived countr* or deprived population* or high burden countr* or high burden nation* or countdown countr* or countdown nation* or poor countr* or poor nation* or poor population* or poor world or poorer countr* or poorer nation* or poorer population* or poorer world or developing econom* or less developed econom* or underdeveloped econom* or under developed econom* or middle income econom* or low income econom* or lower income econom* or low gdp or low gnp or low gross domestic or low gross national or lower gdp or lower gnp or lower gross domestic or lower gross national or lmic or lmics or third world or lami countr* or transitional countr* or emerging econom* or emerging nation*).ti,ab,kf. 3405503
9 psychotherapy/ or behaviour therapy/ or cognitive therapy/ or psychodynamic psychotherapy/ or psychosocial intervention/ or rational emotive behaviour therapy/ or relaxation training/ or diagnosis/ or early diagnosis/ or relapse prevention/ 1733439
10 secondary prevention/ or tertiary prevention/ 35991
11 ((prevent* and (relaps* or risk or indicated or selected or selective)) or monitor* or intervention or diagnos* or therapy or psychotherapy or CBT or treat or treatment or support or "peer support").ti,ab,kf. 14704180
12 1 or 2 1372485
13 3 or 4 65127
14 5 or 6 or 7 1424757
15 9 or 10 or 11 15266388
16 8 and 12 and 14 and 15 4196
17 8 and 13 and 14 499
18 16 or 17 4305
19 limit 18 to yr="2020 -Current" 2572

CENTRAL
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#3 MeSH descriptor: [Internet] this term only 5210
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#13 (digital or email or e-mail or telephone or phone? or web or web-based or website or internet or internet-based or online or electronic or (text NEXT messag*) or SMS or texting or cellphone? or smartphone? or "electronic mail" or (electronic NEXT reminder*) or "social media" or "electronic media" or mobile? or app or apps or application? or "online social network" or "personal digital assistant" or (video NEXT game*) or computerised or computer? or computer-based or "augmented reality" or "virtual reality" or gamified or gamification or "artificial intelligence" or (machine NEXT learning) or AI or "Chat GPT"):ti OR (digital or email or e-mail or telephone or phone? or web or web-based or website or internet or internet-based or online or electronic or (text NEXT messag*) or SMS or texting or cellphone? or smartphone? or

"electronic mail" or (electronic NEXT reminder*) or "social media" or "electronic media" or mobile? or app or apps or application? or "online social network" or "personal digital assistant" or (video NEXT game*) or computerised or computer? or computer-based or "augmented reality" or "virtual reality" or gamified or gamification or "artificial intelligence" or (machine NEXT learning) or AI or "Chat GPT"):kw 108482
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#15 MeSH descriptor: [Diagnosis, Computer-Assisted] this term only 762
#16 MeSH descriptor: [Therapy, Computer-Assisted] this term only 1481
#17 ("mobile health" or mhealth or "e-mental health" or etherapy or e-therapy or icbt or i-cbt or (online NEXT therap*) or e-cbt or ecbt or ((electronic or digital or mobile or internet) N3 (CBT or therap* or support or intervention or diagnosis))):ti OR ("mobile health" or mhealth or "e-mental health" or etherapy or e-therapy or icbt or i-cbt or (online NEXT therap*) or e-cbt or ecbt or ((electronic or digital or mobile or internet) N3 (CBT or therap* or support or intervention or diagnosis))):kw 2087
#18 MeSH descriptor: [Mental Health] this term only3670
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#23 MeSH descriptor: [Bipolar Disorder] this term only 3648
#24 MeSH descriptor: [Phobic Disorders] this term only 1299
#25 MeSH descriptor: [Schizophrenia Spectrum and Other Psychotic Disorders] this term only 36
#26 MeSH descriptor: [Schizophrenia] this term only 10047
#27 ("mental health" or (mental N2 disorder?) or (mental NEXT illness*) or "mental ill-health" or anxiety or OCD or obsessive-compulsive or "obsessive compulsive" or (panic NEXT disorder*) or (phobic NEXT disorder*) or phobia? or (mood NEXT disorder?) or bipolar or depression or depressive or schizophreni? or (affective NEXT disorder?) or PTSD or (traumatic N2 disorder*)):ti OR ("mental health" or (mental N2 disorder?) or (mental NEXT illness*) or "mental ill-health" or anxiety or OCD or obsessive-compulsive or "obsessive compulsive" or (panic NEXT disorder*) or (phobic NEXT disorder*) or phobia? or (mood NEXT disorder?) or bipolar or depression or depressive or schizophreni? or (affective NEXT disorder?) or PTSD or (traumatic N2 disorder*)):kw 131570
#28 (afghan* OR africa* OR albania* OR algeria* OR angola* OR antigua* OR barbuda* OR argentin* OR armenia* OR aruba* OR azerbaijan* OR bahrain* OR bangladesh* OR bengal* OR bangal* OR barbados* OR barbadian* OR bajan OR bajans OR belarus* OR belorus* OR byelarus* OR byelorus* OR belize* OR benin* OR dahomey OR bhutan* OR bolivia* OR bosnia* OR herzegovin* OR botswan* OR batswan* OR bechuanaland OR brazil* OR brasil* OR bulgaria* OR burkina* OR burkinese* OR upper-volta* OR burundi* OR urundi* OR cabo-verde* OR cape-verde* OR cambodia* OR kampuchea* OR khmer* OR cameroon* OR cameroun* OR ubangi-shari* OR chad* OR chile* OR china* OR chinese OR colombia* OR comoro* OR comore* OR comorian* OR mayotte* OR congo* OR zaire* OR costa-rica* OR (cote* AND *ivoir*) OR ivory-coast* OR ivorian* OR croatia* OR cuba* OR cyprus* OR cypriot* OR czech* OR djibouti* OR french-somaliland* OR dominica* OR ecuador* OR egypt* OR united-arab-republic* OR el-salvador* OR salvadoran* OR guinea* OR equatoguinea* OR eritrea* OR estonia* OR eswatini* OR swaziland* OR swazi* OR swati* OR ethiopia* OR fiji* OR gabon* OR gabonese* OR gabonaise* OR gambia* OR ((georgia OR georgian OR georgians) NOT (atlanta OR california OR florida)) OR ghana* OR gibraltar* OR greece* OR greek* OR grecian* OR grenada* OR grenadian* OR guam* OR guatemala* OR guyana* OR guiana* OR guyanese* OR haiti* OR hispaniola* OR hondura* OR hungary* OR hungarian* OR india* OR indonesia* OR iran* OR iraq* OR isle-of-man* OR jamaica* OR jordan* OR kazakh* OR kenya* OR karabati* OR korea* OR kosovo* OR kosova* OR kyrgyz* OR kirgiz* OR kirghiz* OR laos OR lao OR laotian* OR latvia* OR lebanon* OR lebanese* OR lesotho* OR lesothan* OR lesothonian* OR basutoland* OR mosotho* OR basotho* OR liberia* OR libya* OR jamahiriya* OR lithuania* OR macedonia* OR madagasca* OR malagasy* OR malawi* OR nyasaland* OR malaysia* OR malay-federation OR malaya-federation OR malayan-federation OR

maldives* OR maldivian* OR indian-ocean* OR mali* OR malta* OR maltese* OR micronesia* OR marshallese* OR kiribati* OR marshall-island* OR nauru OR nauran OR nauruans OR nauran* OR mariana OR marianas OR palau OR paluan* OR tuvalu* OR mauritania* OR mauritan* OR mauritius* OR mexico* OR mexican* OR moldova* OR moldovia* OR mongol* OR montenegr* OR morocco* OR moroccan* OR ifni OR mozambique* OR mozambican* OR myanmar* OR burma* OR burmese OR namibia* OR nepal* OR new-caledonia* OR netherlands-antill* OR nicaragua* OR niger* OR oman* OR pakistan* OR palestin* OR gaza* OR west-bank* OR panama* OR paraguay* OR peru* OR philippine* OR philipine* OR phillipine* OR phillippine* OR filipino* OR filipina* OR poland* OR polish OR pole OR poles OR portugal* OR portuguese OR puerto-ric* OR romania* OR russia* OR ussr* OR soviet* OR rwanda* OR rwandese OR ruanda* OR ruandese OR samoa* OR navigator-island* OR pacific-island* OR polynesia* OR sao-tome* OR santomean* OR saudi-arabia* OR saudi OR saudis OR senegal* OR serbia* OR seychell* OR sierra-leone* OR slovak* OR sloven* OR melanesia* OR solomon-island* OR norfolk-island* OR somali* OR sri-lanka* OR ceylon* OR saint-kitts* OR st-kitts* OR kittian* OR nevisian* OR saint-lucia* OR st-lucia* OR saint-vincent* OR st-vincent* OR vincentian* OR grenadine* OR sudan* OR surinam* OR syria* OR tajik* OR tadjik* OR tadzhik* OR tanzania* OR tanganyika* OR thai* OR timor-leste* OR east-timor* OR timorese* OR togo* OR tonga* OR trinidad* OR tobago* OR tunisia* OR turkiy* OR turkey* OR turk OR turks OR turkish OR turkmen* OR uganda* OR ukrain* OR uruguay* OR uzbek* OR vanuatu* OR new-hebrides OR venezuela* OR vietnam* OR viet-nam* OR yemen* OR yugoslav* OR zambia* OR zimbabwe* OR rhodesia* OR arab-countr* OR arabic-countr* OR middle-east* OR global-south OR sahara* OR subsahara* OR magreb* OR maghrib* OR west-indies* OR caribbean* OR central-america* OR latin-america* OR south-america* OR central-asia* OR north-asia* OR northern-asia* OR southeastern-asia* OR south-eastern-asia* OR southeast-asia* OR south-east-asia* OR west-asia* OR western-asia* OR east-europe* OR eastern-europe* OR developing-countr* OR developing-nation* OR developing-population* OR developing-world OR less-developed-countr* OR less-developed-nation* OR less-developed-world OR lesser-developed-countr* OR lesser-developed-nation* OR lesser-developed-world OR under-developed-countr* OR under-developed-nation* OR under-developed-world OR underdeveloped-countr* OR underdeveloped-nation* OR underdeveloped-world OR middle-income-countr* OR middle-income-nation* OR middle-income-population* OR low-income-countr* OR low-income-nation* OR low-income-population* OR lower-income-countr* OR lower-income-nation* OR lower-income-population* OR underserved-countr* OR underserved-nation* OR underserved-population* OR under-served-population* OR under-served-nation* OR under-served-population* OR deprived-countr* OR deprived-population* OR high-burden-countr* OR high-burden-nation* OR countdown-countr* OR countdown-nation* OR poor-countr* OR poor-nation* OR poor-population* OR poor-world OR poorer-countr* OR poorer-nation* OR poorer-population* OR poorer-world OR developing-econom* OR less developed-econom* OR underdeveloped-econom* OR under-developed-econom* OR middle-income-econom* OR low-income-econom* OR lower-income-econom* OR low-gdp OR low-gnp OR low-gross-domestic OR low-gross-national OR lower-gdp OR lower-gnp OR lower-gross-domestic OR lower-gross-national OR lmic OR lmics OR third-world OR lami-countr* OR transitional-countr* OR emerging-econom* OR emerging-nation*):ti,ab,kw 223707

#29 MeSH descriptor: [Psychotherapy] this term only 3927

#30 MeSH descriptor: [Cognitive Behavioral Therapy] this term only 10976

#31 MeSH descriptor: [Psychosocial Intervention] this term only 241

#32 MeSH descriptor: [Psychotherapy, Psychodynamic] this term only 131

#33 MeSH descriptor: [Diagnosis] this term only 5214

#34 MeSH descriptor: [Secondary Prevention] this term only 4029

#35 MeSH descriptor: [Secondary Prevention] this term only 4029

#36 MeSH descriptor: [Tertiary Prevention] this term only 8

#37 ((prevent* and (relaps* or risk or indicated or selected or selective)) or monitor* or intervention or diagnos* or therapy or psychotherapy or CBT or treat or treatment or support or "peer support"):ti,kw 1076217

#38	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13	108482
#39	#14 or #15 or #16 or #17	4577
#40	#18 or #19 or #20 or #21 or #22 or #23 or #24 or #25 or #26 or #27	133860
#41	#29 or #30 or #31 or #32 or #33 pr #34 or #35 or #36 or #37	1076542
#42	#28 AND #38 AND #40 AND #41	1063
#43	#28 AND #39 AND #40	104
#44	#42 or #43	1089
#45	#44 with Publication Year from 2020 to 2024, in Trials	566

Appendix 3: Additional review methods

Appendix 3.1: Inclusion and exclusion criteria

Participants

Inclusion:

People of any age receiving mental health support for, or with a diagnosis of a particular menta health condition, for instance, an anxiety disorder (generalised and specific, including PTSD), depression (including both major and minor depressive episodes and dysthymic disorder) or psychosis (including schizophrenia, schizoaffective disorder, schizophreniform disorder or delusional disorder).

Exclusion:

People with mental health disorders which are not considered to be depressive, anxiety or psychotic disorders, such as substance misuse disorders, eating disorders, personality disorders, neurodegenerative disorders or neurodevelopmental disorders (dementia, Alzheimer's, autism, ADHD). People with a comorbid diagnosis were included where one condition fitted our inclusion criteria.

Interventions

Inclusion:

- Software or artificial intelligence intended to be used for one or more: diagnosis, prognosis, targeted prevention, treatment, relapse prevention, maintenance of treatment effects, or monitoring of: depression, anxiety and psychosis; that perform these purposes without being part of a hardware medical device
- Standalone or adjunct treatments were included
- Delivered by a practitioner or self-guided

Exclusion:

- Apps or treatments/interventions that do not solely use already existing applications such as Zoom but rather offer their own platform or means to access their intervention.

Context

Interventions used in any clinical, organisational, community or other context for people seeking support for mental health problems.

Exclusion:

- Interventions used on already existing platforms such as zoom, skype, teams or any other communications platforms not solely developed for the purpose of digital mental health delivery, telehealth.
- Wellbeing apps used only for general mental health problem prevention

Types of sources

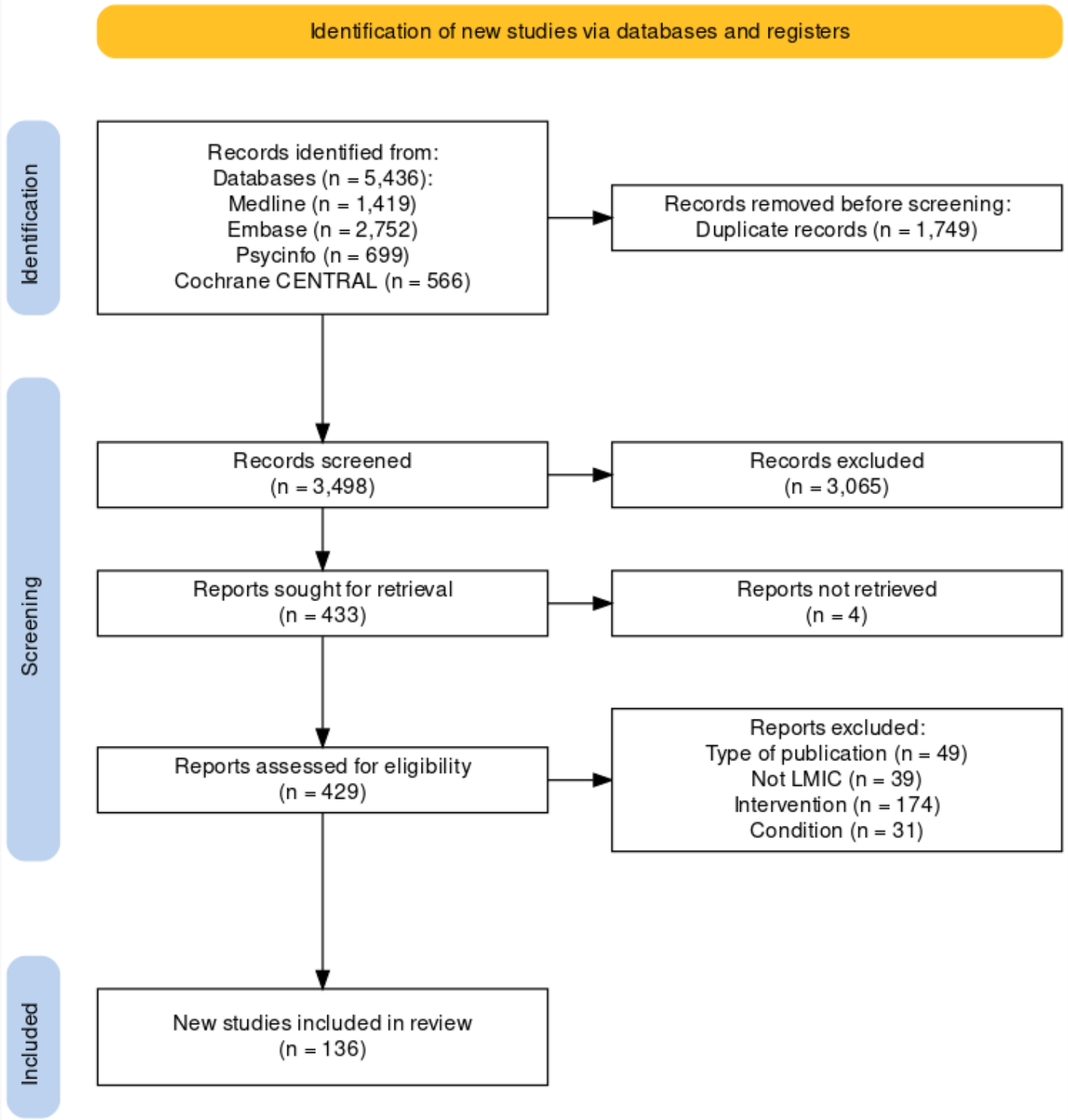
Inclusion:

- Studies and protocols of digital interventions that already have a minimal viable product or prototype.
- Descriptive, observational and (randomised or non-randomised) trial designs

Exclusion:

Conference abstracts without additional information available, narrative reviews, systematic reviews, dissertations

Appendix 3.2: PRISMA diagram of study inclusion



Appendix 3.3: Detail on intervention grouping

Stage of care:

We grouped each intervention according to their stage of care, these were defined as follows:

- Treatment: Interventions developed to support people who show symptoms of mental health problems through psychoeducation, therapeutic techniques or other.
- Diagnosis: Interventions developed to aid with identifying mental health problems.
- Prediction: Interventions developed to predict and calculate the risk of developing a mental health condition or to help analyse factors that could contribute to a condition.
- Diagnosis and treatment: Interventions that aimed to identify as well as treat symptoms of mental health problems.
- Monitoring: Interventions that facilitate the follow-up process of patients and follow their treatment intake.

Type of digital technology used:

We described each intervention as one of the following forms of digital technology.

- Artificial intelligence/artificial networks
- Machine/deep learning
- Virtual reality
- Mobile or tablet apps
- Websites/web-based platforms (either hosted their interventions on websites or referred to the interventions as “internet-based”)
- Chatbot or plugins (apps with a specific innovation/add-on stated)
- Computer software (interventions which require a programme to be downloaded onto a computer to be used offline)

Stage of intervention development:

We extracted information on the author-described stage of development of the intervention. Where authors described multiple stages, each was noted.

Stages identified were:

- Cultural adaptation
- Formative research
- Validation
- Pilot/feasibility trial
- Acceptability study
- Intervention development
- Implementation study
- Economic evaluation
- Effectiveness study.

Mental health condition:

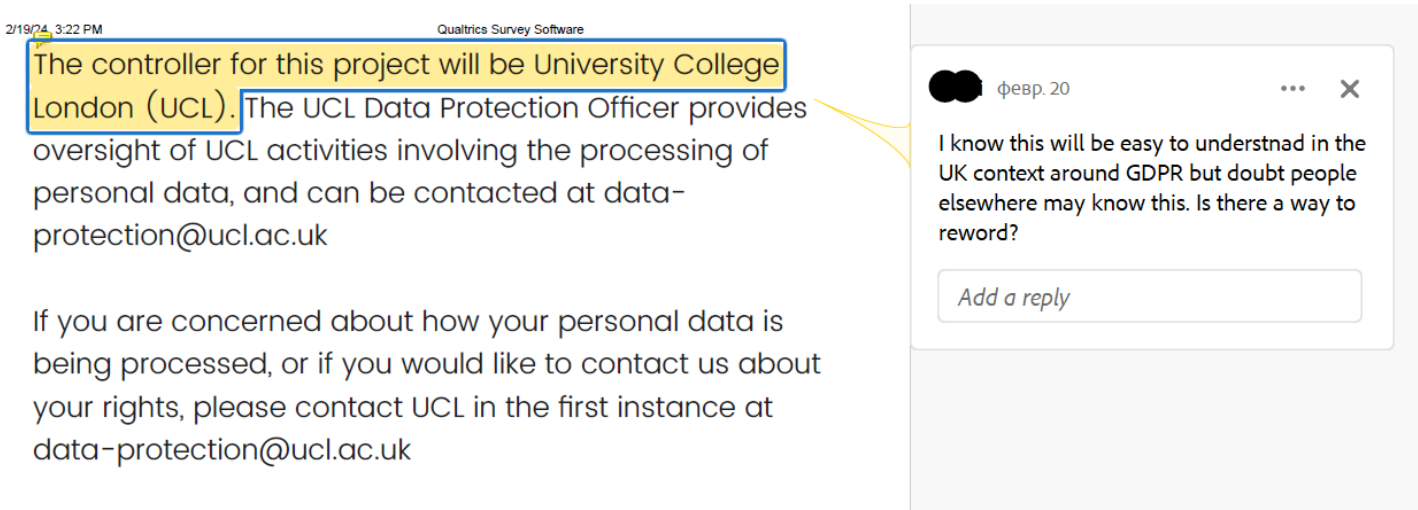
We also extracted information on the mental health condition (or associated symptoms) targeted by the intervention. Overall, interventions focused on the following conditions: (any) anxiety condition, depression, depression and anxiety, depression and suicide, post-traumatic stress disorder (PTSD), obsessive compulsive disorder (OCD), trauma, schizophrenia, psychosis, bipolar disorder and multiple symptoms or conditions. The multiple symptoms or conditions group also included studies that looked at wider emotional problems.

Appendix 4: Feedback from one of the Steering Group Members on the draft interview schedule

Introduction and warm-up 5 minutes	Hello, thank you all so much for your time to join us for this online interview today! My name is *(…introducing all RREAL team members on the call)*, and I/we work with colleagues at the Rapid Research Evaluation and Appraisal Lab at University College London on a study where we aim to map digital mental health intervention in Low to Middle-Income Countries, LMIC, in short. If I could quickly ask you to let me know where you are based, and what kind of mental health work you do or how you are connected to the mental health field. Great, thank you. PN feedback: Are you asking about geographic? Then best to ask directly "which country you are based?" Present brief summary of our aim and the steps followed up to now in the project. As a reminder, ahead of our call today you will have received: - a consent form which I hope you all have had a chance to complete – if not, please do so as soon as possible after our call now. - We have also shared a link with you to a survey where we are collecting some sociodemographic information about everyone taking part in these interventions so that we can describe our participants later. We'll pop the link to that survey in the chat here too just in case you haven't completed that yet. In this call today, I/we just want to get some more information from you on the DMHI you are working on or maybe the ones you are aware of. Mainly we are interested in identified the WHO? WHAT and WHERE of the DMHI in LMICS. So this is all in terms of background and plans. Do you have any questions before we get started? *(wait for any questions)*. If anything is unclear as we go along, please of course also ask questions as and when anything pops into your mind. I'll be taking notes during the interview.
WHO WHERE WHAT	Slide 1: Here is the table of the interventions we have already identified. Do you recognise any of these or maybe have been a part of the research or development team? Can you spot any DMHI that are missing from the list? What countries/institutions/companies would you say are very active in DGMHI scene in lmics? What type of interventions are being innovated in DMHI?
PWLE involvement	Can you speak on the People With Lived experience involvement in the development of the DMHI? PN feedback: Might be useful to explain this. Not everyone might be aware what PWLE outside the UK settings. Probe: Did any PWL contribute to the development? The testing? ... Did they contribute as participants

	or as active members of the team? How?
Conclusions 10 minutes	So this takes us to the end of our discussion. Thank you very much for your inputs, it has been really interesting and helpful to hear your reflections. (If there's time, flag up any point that prompted particular discussion or that sticks to your mind from the discussion.) Before we finish, are there any final points you would like to share? *(wait for any inputs)* Would there be anyone that you would recommend that we interview or share the survey with? In terms of what happens next with the project, we are conducting a few of these interviews, and the reflections we gather from these will help us move to map all the interventions and innovations in LMIC. You have our contact details; in case you would like to add anything after the interview. If there is anything you would like to check with us later on, or if any further thoughts or questions come to mind, please feel free to contact us. We would be happy to hear from you, whether that relates to questions of your participation, any further thoughts you might have about the topics we have discussed today, or anything else relating to this project or your involvement that you might like to talk about. Thank you again so much for your time today and for taking part in this study. (If we know that someone has not completed their consent forms, remind them again here to please complete and return asap. Same for the sociodemographics survey, remind all to complete that.) We will let you get on with the rest of your days, thank you so much! And if you have any questions please just drop us an email. (End call.)

Example Input from a Lived experience on the survey



If you are concerned about how your personal data is being processed, or if you would like to contact us about your rights, please contact UCL in the first instance at data-protection@ucl.ac.uk

Thank you for reading this informatio considering taking part in this consensus process.

We appreciate your time.

февр. 20

Any simpler way of putting this term?

Add a reply

I have read and understood the information provided and I agree to take part in this research project.

- ○ Yes

Sociodemographic Information

What best describes your gender?

- ○ Woman
- ○ Man
- ○ Non-binary
- ○ I identify in another way
- ○ Prefer not to say

февр. 20

This is becoming complicated to ask. Not sure people in low to middle income countries necessarily would relate to non-binary. But for simplicity i would have suggested as 1) Male, 2) Female, 3) I identify in another way and 4)I prefer not to say. Only cos someone may ask how about adding trans, then someone else may ask how about adding another category.

Add a reply

What is your age group?

- ○ 18 - 24 years
- ○ 25 - 34 years
- ○ 35 - 44 years
- ○ 45 - 54 years
- ○ 55 - 64 years
- ○ 65 or older
- ○ Prefer not to say

Is there lived experience involvement in the development of the interventions you have mentioned? If so, please elaborate for which intervention and at what capacity lived experience is a part of the intervention development.

When we mention "lived experience" we refer to participation and collaboration with people with lived exeprience of mental health conditions.

Please, be mindful not to enter any identifiable information into free-text answers

- ○ Yes
- ○ No
- ○ Not sure

[redacted] февр. 20

Perhaps this definition could come before the statement above?

Add a reply

Appendix 5: Interview Schedule

Introduction and warm-up 5 minutes	Hello, thank you all so much for your time to join us for this online interview today! My name is *(…introducing all RREAL team members on the call)*, and I/we work with colleagues at the Rapid Research Evaluation and Appraisal Lab at UCL on a study where we aim to map digital mental health intervention in LMICs. If I could quickly ask you to let me know where you are based geographically, and what kind of mental health work you do or how you are connected to the mental health field. Great, thank you. Present brief summary of our aim and the steps followed up to now in the project. As a reminder, ahead of our call today you will have received: - a consent form which I hope you all have had a chance to complete – if not, please do so as soon as possible after our call now. - We have also shared a link with you to a survey where we are collecting some sociodemographic information about everyone taking part in these interventions so that we can describe our participants later. We'll pop the link to that survey in the chat here too just in case you haven't completed that yet. In this call today, I/we just want to get some more information from you on the DMHI you are working on or maybe the ones you are aware of. Mainly we are interested in identified the WHO? WHAT and WHERE of the DMHI in LMICS. By DMHI we mean any innovative way of delivering mental healthcare for diagnosis, treatment, monitoring, prediction and other.

	Do you have any questions before we get started? *(wait for any questions)*. If anything is unclear as we go along, please of course also ask questions as and when anything pops into your mind. I'll be taking notes during the interview.
WHO WHERE WHAT	Slide 1: Here is the table of the interventions we have already identified. Do you recognise any of these or maybe have been a part of the research or development team? Can you spot any DMHI that are missing from the list? What countries/institutions/companies would you say are very active in DMHI scene in lmics? What type of interventions are being innovated in DMHI? Do you know anyone else working in this area in LMICs?
PWLE involvement	When we mention "lived experience" we refer to participation and collaboration with people with lived exeprience of mental health conditions. We understand lived experience as a unique form of knowledge, insight, and expertise, that comes from having experience of mental health challenges. Can you speak on the PWLE involvement in the development of the DMHI? Probe: Did any PWL contribute to the development? The testing? ... Did they contribute as participants or as active members of the team? How?

Conclusions 10 minutes	So this takes us to the end of our discussion. Thank you very much for your inputs, it has been really interesting and helpful to hear your reflections. (If there's time, flag up any point that prompted particular discussion or that sticks to your mind from the discussion.) Before we finish, are there any final points you would like to share? *(wait for any inputs)* If there were to be help to develop Digital mental health in your region, what do you think would be the most useful support? Would there be anyone that you would recommend that we interview or share the survey with? In terms of what happens next with the project, we are conducting a few of these interviews, and the reflections we gather from these will help us move to map all the interventions and innovations in LMIC. You have our contact details; in case you would like to add anything after the interview. If there is anything you would like to check with us later on, or if any further thoughts or questions come to mind, please feel free to contact us. We would be happy to hear from you, whether that relates to questions of your participation, any further thoughts you might have about the topics we have discussed today, or anything else relating to this project or your involvement that you might like to talk about. Thank you again so much for your time today and for taking part in this study. (If we know that someone has not completed their consent forms, remind them again here to please complete and return asap. Same for the sociodemographics survey, remind all to complete that.) We will let you get on with the rest of your days, thank you so much! And if you have any questions please just drop us an email.

	(End call.)

Appendix 6: Online Survey Text

Wellcome Digital Mental Health

Start of Block: Survey Information and Greetings

Q1 Our team at the Rapid Research Evaluation and Appraisal Lab (RREAL) is conducting a study to map and explore digital mental health interventions in Low- and Middle-Income countries (LMICs).

As a part of this we are conducting online interviews and a survey to learn about existing digital mental health interventions in LMICs.

We are asking you to please complete this online survey to identify and expand on the information on digital mental health interventions.

This brief survey asks about general sociodemographic information (e.g. gender, age group, ethnicity, stakeholder affiliation, geographic area of work), and questions around mapping digital mental health interventions should take only a few minutes to complete.

This survey is anonymous, we will not ask for your name or contact information and your answers will not be linked to you personally at any point. Your participation in this survey is voluntary. You may refuse to take part in the survey or exit the survey at any time without any penalty.

If you have any questions or *you are interested in taking part in an interview*, please, contact Dr Norha Vera San Juan (n.verasanjuan@ucl.ac.uk) or Miss Akerke Makhmud (akerke.makhmud@ucl.ac.uk) from the Rapid Research, Evaluation and Appraisal Lab (RREAL) at University College London.

Many thanks for your support with our research. By starting the survey and completing the questionnaire you indicate your consent to take part in this research. Your participation is fully voluntary and anonymous.

End of Block: Survey Information and Greetings

Start of Block: Block 2

Q2 **Data Protection Privacy Notice**

All information that we collect about you throughout this online survey is fully anonymous, and will be kept strictly confidential.

The controller for this project will be University College London (UCL). The UCL Data Protection Officer provides oversight of UCL activities involving the processing of personal data, and can be contacted at data-protection@ucl.ac.uk

If you are concerned about how your personal data is being processed, or if you would like to contact us about your rights, please contact UCL in the first instance at data-protection@ucl.ac.uk

Thank you for reading this information and for considering taking part in this survey.

We appreciate your time.

Q4 I have read and understood the information provided and I agree to take part in this research project.
- o Yes (1)

End of Block: Block 2

Start of Block: Demographic questions collected to characterise participants

Q22 Sociodemographic Information

Q1 What best describes your gender?
- o Woman (1)
- o Man (2)
- o I identify in another way (4)
- o Prefer not to say (5)

Q2 What is your age group?
- o 18 - 24 years (1)
- o 25 - 34 years (2)
- o 35 - 44 years (3)
- o 45 - 54 years (4)
- o 55 - 64 years (5)
- o 65 or older (6)
- o Prefer not to say (7)

Q23 What is your ethnic origin?
Select all areas that apply to you.
- ▢ Western Europe (e.g., Greece, Sweden, United Kingdom) (1)
- ▢ Eastern Europe (e.g., Hungary, Poland, Russia) (2)
- ▢ North Africa (e.g., Egypt, Morocco, Sudan) (3)
- ▢ Sub-Saharan Africa (e.g., Kenya, Nigeria, South Africa) (4)
- ▢ West Asia / Middle East (e.g., Iran, United Arab Emirates, Saudi Arabia) (5)
- ▢ South and Southeast Asia (e.g., India, Indonesia, Singapore) (6)
- ▢ East and Central Asia (e.g., China, Japan, Uzbekistan) (7)
- ▢ Pacific / Oceania (e.g., Australia, Fiji, Papua New Guinea) (8)
- ▢ North America (Canada, United States) (9)
- ▢ Central America and Caribbean (e.g., Jamaica, Mexico, Panama) (10)

- ☐ South America (e.g., Brazil, Chile, Colombia) (11)
- ☐ Other ethnic origin or ancestry (12)
- ☐ Prefer not to answer (13)

Q4 Do you consider yourself to be disabled and/or to have any long-term conditions that impact your health or day-to-day activities?

- o I consider myself disabled and/or to have a long term health condition (1)
- o I do not consider myself disabled and/or to have a long term health condition (2)
- o Prefer not to answer (3)

Q5 Which of the following stakeholder groups would you consider your primary affiliation?
Select all groups that apply to you.

- ☐ Person with lived experience of mental illness (1)
- ☐ Person with lived experience of mental illness, applying expertise in research/advocacy/policy (2)
- ☐ Advocate or other representative (3)
- ☐ Family member/caregiver/carer (4)
- ☐ Academic/researcher (5)
- ☐ Clinician/service provider within e.g. the health, education or charitable sector (6)
- ☐ Charitable sector, NGOs (7)
- ☐ Policy maker/government official (8)
- ☐ Technology/Innovation representatives (9)
- ☐ Other (please, specify) (10) _____
- ☐ Prefer not to answer (11)

Q6 What is your primary region of residence?
If more than one response applies, please chose your predominant region of residence.

- ☐ North America (Canada, United States) (1)
- ☐ Europe (e.g. Britain, France, Italy, Poland, Russia) (2)
- ☐ Middle East and North Africa (e.g. Turkey, Jordan, Lebanon, Tunisia) (3)
- ☐ Asia/Pacific (e.g. Australia, China, Malaysia, Pakistan, Philippines) (4)
- ☐ Latin America (e.g. Argentina, Chile, Mexico) (5)
- ☐ Sub-Saharan Africa (e.g. Ghana, Nigeria, Senegal, Uganda) (6)
- ☐ Prefer not to answer (7)

Q7 What is the region where your digital mental health work/activity predominantly takes place?
Select all groups that apply to you.

- ☐ North America (Canada, United States) (1)
- ☐ Europe (e.g. Britain, France, Italy, Poland, Russia) (2)

- ☐ Middle East and North Africa (e.g. Turkey, Jordan, Lebanon, Tunisia) (3)
- ☐ Asia/Pacific (e.g. Australia, China, Malaysia, Pakistan, Philippines) (4)
- ☐ Latin America (e.g. Argentina, Chile, Mexico) (5)
- ☐ Sub-Saharan Africa (e.g. Ghana, Nigeria, Senegal, Uganda) (6)
- ☐ Does not apply (8)
- ☐ Prefer not to answer (7)

End of Block: Demographic questions collected to characterise participants

Start of Block: Digital MH Interventions

1 Digital Mental Health Interventions in Low and Middle Income Countries

2 In this section, we will ask you to provide answers about digital mental health intervention initiatives FROM LOW- AND MIDDLE-INCOME COUNTRIES (LIMCs). You can find a list of LMICs below. These might be interventions you are aware of or interventions in which you have been actively involved in the development stage or implementation stage. For your reference, this is the list of countries classified as LMICs:

LMICs list:

Afghanistan	Guinea-Bissau	Paraguay
Albania	Guyana	Peru
Algeria	Haiti	Philippines
Angola	Honduras	Rwanda
Argentina	India	Saint Helena
Armenia	Indonesia	Samoa
Azerbaijan	Iran	São Tomé and Príncipe
Bangladesh	Iraq	Senegal
Belarus	Jamaica	Serbia
Belize	Jordan	Sierra Leone
Benin	Kazakhstan	Solomon Islands
Bhutan	Kenya	Somalia
Bolivia	Kiribati	South Africa
Bosnia and Herzegovina	Democratic People's Republic of Korea	South Sudan
Botswana	Kosovo	Sri Lanka
Brazil	Kyrgyzstan	Saint Lucia
Burkina Faso	Lao People's Democratic Republic	Saint Vincent and the Grenadines
Burundi	Lebanon	Sudan
Cabo Verde	Lesotho	Suriname
Cambodia	Liberia	Syrian Arab Republic
Cameroon	Libya	Tajikistan
Central African Republic	North Macedonia	Tanzania
Chad	Madagascar	Thailand

China (People's Republic of)	Malawi	Timor-Leste
Colombia	Malaysia	Togo
Comoros	Maldives	Tokelau
Democratic Republic of Congo	Mali	Tonga
Congo	Marshall Islands	Tunisia
Costa Rica	Mauritania	Turkey
Côte d'Ivoire	Mauritius	Turkmenistan
Cuba	Mexico	Tuvalu
Djibouti	Micronesia	Uganda
Dominica	Moldova	Ukraine
Dominican Republic	Mongolia	Uzbekistan
Ecuador	Montenegro	Vanuatu
Egypt	Montserrat	Venezuela
El Salvador	Morocco	Vietnam
Equatorial Guinea	Mozambique	Wallis and Futuna
Eritrea	Myanmar	West Bank and Gaza Strip
Eswatini	Namibia	Yemen
Ethiopia	Nauru	Zambia
Fiji	Nepal	Zimbabwe
Gabon	Nicaragua	
Gambia	Niger	
Georgia	Nigeria	
Ghana	Niue	
Grenada	Pakistan	
Guatemala	Panama	
Guinea	Papua New Guinea	

Q1 We have identified some digital mental health interventions from LMICs by conducting a literature review. Please, screen this list and complete the table below with any other digital mental health interventions that you know which are not included there. If you are able to provide only the name of the intervention, that would be very helpful too.

If the intervention was developed in a high income country and culturally adapted for a LMIC, the intervention would be of interest. However, if there were no contextual or cultural adaptations, those interventions would be out of scope.

A Prelimenary List of Interventions identified through Literature Review:

Inuka app (problem-solving therapy for depression and anxiety) **Smiling is Fun platform** (cognitive behavioural therapy based for depression) **Healthy Psychological Station** (cognitive behavioural therapy based for depression and anxiety) **Deprexis** (intervention to help cope with depressive symptoms) **Dialog +** (based on cognitive-behavioural therapy and solution-focused therapy for depression and anxiety) **Cuida tu Ánimo** (Take Care of Your Mood; psychoeducation for depression) **mindLAMP**

(intervention for relapse prevention among individuals with schizophrenia spectrum disorders) **Mentali** (primary screening of anxiety and depression) **Step-by-Step** (psychoeducation and training of skills that could assisst with depressive symptoms) **El Buen Consejo Movil** (the Mobile Sound Advice; psycho-education using a CBT "toolbox" for depression) **CONEMO** (Intervention based on behavioural activation for depression)

	Name (1)	Organisation/Individuals leading development (5)	Implementation Location (2)
Digital Mental Health Intervention 1 (4)			
Digital Mental Health Intervention 2 (5)			
Digital Mental Health Intervention 3 (6)			
Digital Mental Health Intervention 4 (7)			
Digital Mental Health Intervention 5 (8)			
Digital Mental Health Intervention 6 (9)			
Digital Mental Health Intervention 7 (16)			

Digital Mental Health Intervention 8 (17)			
Digital Mental Health Intervention 9 (18)			
Digital Mental Health Intervention 10 (19)			

Page Break

Q2 When we mention "lived experience" we refer to participation and collaboration with people with lived exeprience of mental health conditions. We understand lived experience as a unique form of knowledge, insight, and expertise, that comes from having experience of mental health challenges.

Is there lived experience involvement in the development of the interventions you have mentioned? If so, please elaborate for which intervention and in what capacity lived experience is a part of the intervention development.

We appreciate that teams may have different levels of experience of involving and collaborating with lived experience experts for example in intervention planning, design, data collection, data analysis, governance, dissemination, reporting etc.

_____
_____
_____
_____
_____

Page Break

Q3 Please, answer this question if you identify yourself as a person with lived experience of mental health problems or an informal carer.

Have you been directly involved in the development of a digital mental health intervention in or for LMICs?

If yes, please share how the developing company ensured equitable and meaningful involvement and how did the developing team take into consideration the lived experience perspective?

- o Yes (4) _____
- o No (5)

Page Break

Q115 Do you have any other comments or suggestions relevant to digital mental health interventions in LMICs?

_____
_____
_____
_____
_____

Page Break

Q120 If you are interested in participating in an interview or think that someone in your network would be interested in participating in an interview to explore and map digital mental health interventions in low- and middle-income countries, please choose "yes" and leave an email address through which we could contact you. For a person in your network, please just leave their full name.

Please, note that if you choose to leave your email address you give consent for us to contact you directly.

- o Yes (1) _____
- o No (2)

End of Block: Digital MH Interventions