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ORIGINAL PAPER

Upscaling e-mental health in Europe: a six-country qualitative analysis and policy recommendations from the eMEN project

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Abstract

E-mental health (eMH) encompasses the use of digital technologies to deliver, support, or enhance mental health services. Despite the growing evidence for the effectiveness of eMH interventions, the process of implementation of eMH solutions in healthcare remains slow throughout Europe. To address this issue, the e-Mental Health Innovation and Transnational Implementation Platform North-West Europe (eMEN) project was initiated to increase the dissemination and quality of eMH services in Europe. In this project, status analyses regarding eMH in the six participating countries (i.e., Belgium, France, Germany, Ireland, The Netherlands, and the UK) were conducted and eight recommendations for eMH were developed. Expert teams from the six participating countries conducted status analyses regarding the uptake of eMH based on a narrative literature review and stakeholder interviews. Based on these status analyses, the eMEN consortium developed eight policy recommendations to further support the implementation of eMH in Europe. The status analyses showed that the participating countries are in different stages of implementing eMH into mental healthcare. Some barriers to implementing eMH were common among countries (e.g., a limited legal and regulatory framework), while others were country-specific (e.g., fragmented, federal policies). The policy recommendations included fostering awareness, creating strong political commitment, and setting reliable standards related to ethics and data security. The eMEN project has provided the initial recommendations to guide political and regulatory processes regarding eMH. Further research is needed to establish well-tailored implementation strategies and to assess the generalizability of the recommendations beyond the countries involved in the eMEN project.

Keywords e-Mental health · eMH · Mental health · Policy · Upscaling · Implementation

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Introduction

Mental disorders are the largest contributor to chronic disability and the third largest cause of disease burden, measured in disability-adjusted life years [1]. In the European Union, 17.3% of the adult population is estimated to experience a mental disorder each year [2]. The field of e-mental health (eMH) promises options of accessible, high quality, and affordable mental health care in connection with existing mental healthcare services [3–6]. However, thus far, general and country-specific legal and administrative barriers limit the upscaling of eMH in Europe. Thus, the e-Mental Health Innovation and Transnational Implementation Platform North-West Europe (eMEN) aimed to develop recommendations for the implementation of eMH services in Europe based on status analyses in six European countries.

Mental health in Europe

Mental health is a vital component of overall health. Mental health describes a state of well-being, in which an individual is able to lead a happy and fulfilling life, to cope with every-day stress, and to work productively [2, 7]. Mental ill-health, in turn, is defined as a disturbance of an individual`s mental well-being and is often marked by a combination of disturbed thoughts, emotions, or behavior [1]. Mental ill-health has mild forms, such as mild psychological distress, or severe states reaching the clinical threshold of a mental disorder [2]. Mental illness is associated with a negative impact on physical health, life expectancy, educational achievement, employment, and health risk behaviors [1, 2]. Although governments throughout Europe have acknowledged the burden of mental illness and have proposed action to reduce the prevalence of mental disorders [2], the long-term burden of mental disorders is expected to increase [8]. In 2015, the total cost of direct and indirect expenditures related to mental ill-health was estimated to exceed 4% of the European Union's gross domestic product [2].

e-Mental health (eMH)

There is a need for innovative and cost-effective solutions in mental healthcare because of a growing demand and limited resources in more traditional mental healthcare systems. eMH encompasses the use of digital technologies to deliver, support, or enhance mental health services [9]. Riper et al. define eMH as "a generic term to describe the use of information and communication technology (ICT)—in particular the many technologies related to the Internet—when these technologies are used to support and improve mental health conditions and mental health care, including care for people with substance use and comorbid disorders. E-mental health encompasses the use of digital technologies and new media for the delivery of screening, health promotion, prevention, early intervention, treatment, or relapse prevention as well as for improvement of health care delivery (e.g., electronic patient files), professional education (e-learning), and online research in the field of mental health" [10]. Research on these interventions is expanding and there is promising evidence for their use in mental health care [11–13].

The eMEN project

Despite the growing evidence for the effectiveness of eMH interventions for those affected by mental disorders, the process of implementation and dissemination of eMH solutions in healthcare remains slow throughout Europe. To address this issue, the eMEN project was initiated as a six-country project in 2016, funded by the European Regional Development Fund within the funding area Interreg North-West Europe [14]. The project aimed to increase the dissemination and quality of eMH services. As part of the project's activities, a transnational policy with recommendations for upscaling eMH throughout the European Union and beyond has been created. The transnational policy maps out barriers and facilitators for the implementation of eMH, and proposes actions for EU policymakers and other eMH stakeholders. The following organizations from the six participating countries are members of the eMEN consortium: Arq Foundation (The Netherlands), German Association for Psychiatry, Psychotherapy and Psychosomatics (DGPPN, Germany)—German Alliance on Mental Health (ABSG, Germany), Interapy Nederland (The Netherlands), LVR (Rhineland State Council)—Institute for Healthcare Research (LVR-IVF, Germany), EPSM Lille Métropole—World Health Organization Collaborating Center for Research and Training in Mental Health (WHOCC, France), Mental Health Foundation (United Kingdom), Mental Health Reform (Ireland), Pulso Europe (Belgium), Thomas More University of Applied Sciences (Belgium), and VU University Amsterdam (The Netherlands).

The objective of this manuscript is to present the results of a transnational and multi-method study on the status quo of eMH implementation and dissemination in six countries of North-West Europe (Belgium, France, Germany, Ireland, The Netherlands, and the United Kingdom). Additionally, we present eight policy recommendations for a wider roll-out of eMH throughout Europe, which were developed within the eMEN project.

Methods

Status analysis of eMH in six European countries

The status analyses were conducted separately for each country by expert teams from the respective partner country in the eMEN project. The expert teams included psychotherapists, clinical psychologists, researchers in the field of clinical psychology, healthcare, and biomedical engineering, eMH consultants, and developers of online mental health tools. The composition of the expert teams differed between the participating countries. In the first step, all expert teams conducted a narrative literature review on eMH for their respective country. Current methodological guidelines recommend a narrative literature review rather than a systematic literature review when the relevant studies used diverse methodologies or when the topic of the literature review is broad in scope [15, 16]. As eMH covers a wide range of interventions that have been investigated in various different research designs, narrative literature searches were conducted that account for specificities of the participating countries.

There was a common framework for the status analyses including a narrative literature review and qualitative stakeholder interviews. The detailed search strategy for the narrative literature review differed to some extent between countries (e.g., due to the need to include country-specific databases). The following documents were included: scientific studies, policy solutions, public documents, national and regional policy agendas, legislation, and opinion papers concerning eMH. Documents published from January 2006 in English, Dutch, French, or German were included. Each expert group continuously developed and translated a set of keywords for their respective status analysis. These keywords indicated the type of literature (e.g., "clinical trial", "policy", or "legislation") combined with terms used for eMH (e.g., "e-health", "eMental Health"). The literature search was carried out between February and June 2017 with continuous updates until November 2019. The initial search until June 2017 yielded 172 relevant results, of which 103 were considered for the analyses. Online Appendix A provides a detailed overview of the literature search processes in the participating countries.

In addition to the narrative literature review, 52 expert interviews were conducted between April 2017 and May 2019. Table 1 provides an overview of the characteristics of the interviewed stakeholders. The first step in the sampling process was to define stakeholder groups that could provide relevant information. Science, politics, small-to-medium enterprises (SMEs), care providers, and patients were identified as relevant groups. For each stakeholder group, we selected a wide range of potential interview partners, considering a broad spectrum of knowledge, experience, and viewpoints. Interview participants were recruited via the partner organizations of the eMEN project. The partner organizations largely approached their already existing contacts. Selected contacts received an official invitation letter via e-mail (see Online Appendix B). Identified stakeholders who positively replied to the organizations' consultation were invited to the stakeholder interviews. At least five interviews were conducted in each country. The experts were national and regional health and mental health policy makers, representatives of EU eMH projects, social workers, nurses, patients associated with eMH, representatives of SMEs in the field of eMH, members of professional associations, representatives of mental health treatment centers, and interest groups in that field (see Table 1). We used semi-structured guideline-based interviews to investigate the interviewees' perspectives. Online Appendix C displays the semi-structured guideline for the stakeholder interviews

Table 1 Characteristics of interviewed stakeholder groups ($n = 52$)

	Belgium	France	Ireland	Germany	The Netherlands	United Kingdom	Overall
Health professionals	2		3	4	2		11
Service providers					4		4
Individuals who have experienced mental health problems	1		1				2
Patients associations/organizations	2	1					3
Health care policy makers							
National	2			1	2	2	7
Regional	1	1					2
Research				1	2	2	5
Small and medium enterprises	2	2		3	3	1	11
Others		1	1	1	3	1	7
Overall	10	5	5	10	16	6	52

including guidance on interview preparation, equipment, introduction, closing remarks, and transcription. The interviews were conducted either face-to-face or via telephone and were recorded and transcribed. The transcriptions built the basis for further content mapping. The national expert teams additionally summarized the content of each interview in a standardized template (see Online Appendix D).

The national expert teams conducted a content analysis of the stakeholder interviews and the information collected in the narrative literature reviews to identify the most relevant aspects for eMH implementation. This analysis was based on Mayring's guide on qualitative content analysis [17] and Schmidt's guide on analyses of guideline-based interviews [18].

For the narrative literature review, each national expert team used an excel template to map relevant information from the literature (see Online Appendix E). The template was divided according to the type of literature into scientific, policy, or grey literature. Bibliography data, type of evidence, a summary of the content, and its relevance for the eMEN project were reported within this template. Based on the collected information, thematic categories were built. These were continuously adapted according to the information retrieved from the literature. Aside from that, references to international theoretical frameworks or policies, relevant policies, legislations, initiatives, or projects were extracted and listed.

Regarding the reports of the qualitative interviews, an initial deductive analysis, which involved the identification and grouping of similar data into a coding scheme, was performed. Identified key topics and categories were verified by the categories identified through the narrative literature review. A second inductive analysis followed, which used iterative readings to validate the coding scheme. The coding scheme and categories were adapted if necessary. For example, too specific categories were removed and added to a similar category; and categories that were missing were added (inductive construction).

Based on the final coding scheme, all interviews were recoded using the adapted coding scheme by one member of the investigative team. In addition, joint coding and analysis sessions involving other investigators were conducted to ensure the high quality of coding. The final thematic categories identified were: policy situation and regulations, awareness and attitudes, education and training, privacy and data protection, implementation in practice, development process, and concrete suggestions. We used the results from the narrative literature review and the stakeholder interviews to describe the status of eMH in the participating countries and summarized findings regarding the legal situation and potential barriers and facilitators. The eMEN project followed the principles of the World Medical Association's Declaration of Helsinki. Participants provided their informed consent prior to the interviews (see Online Appendix F for the consent form).

Development of recommendations for the dissemination and implementation of eMH in Europe

In a series of meetings involving the expert groups from all participating countries, the eMEN consortium developed a set of eight recommendations for the dissemination and implementation of eMH in Europe. The potential barriers and facilitators identified in the narrative literature review and the stakeholder interviews formed the basis for the development of recommendations for European policy makers and stakeholders. All eMEN project partners jointly agreed upon all recommendations.

Results

In the following paragraphs we present the combined results of the narrative literature review and the stakeholder interviews for each country. The status analyses integrated information gathered from the literature search and the stakeholder interviews to provide a holistic picture of the eMH implementation in the respective countries. Information on the policy situation and regulations as well as privacy and data protection were summarized under "legal aspects of eMH implementation". Information on awareness and attitudes, education and training, implementation in practice, and the development process of eMH products were summarized under "barriers and facilitators".

Status analyses

Belgium

Legal situation eMH in Belgium is currently underrepresented at policy and practice levels, but awareness is increasing among policy makers. At the national level, a general policy paper on mobile health care was developed in 2014 and action plans on e-health for the years 2013–2018 and 2019–2021 have been published, which dedicate one section specifically to mobile health [19, 20]. As part of the first action plan, the federal government has started 24 pilot projects in 2017 to evaluate e-health services. Their goals are the development of a validation process for health applications as well as a juridical framework and reimbursement model for e-health [21]. At the regional level, the Flemish Action Plan Mental Health, and ten policy actions introduced to the Flanders' Care Congress for Welfare and Public Health have been developed by the Flemish Minister of Wellbeing and Health in 2015 and 2016 [22, 23]. All of

these policies, however, focus more on e-health in general than on eMH. Yet, an increasing number of projects concerning eMH is currently evolving.

A lack of regulations and a complex state structure are partly responsible for the slow implementation of eMH into routine care. As communities and regions hold their own juridical responsibilities and as Belgium has three different official languages, legislation processes are slow and no overall concept for the implementation exists. No general system for the reimbursement of eMH services has yet been established. This might, however, start to change with the recognition of clinical psychologists as a health profession in 2016 and with the start of a pilot project in autumn 2018 to reimburse their services as a standard part of Belgian mental health care [24, 25]. It remains to be seen whether these measures will be sufficient to accelerate the dissemination of eMH.

Barriers and facilitators Many health professionals mentioned lacking awareness of eMH solutions as a main implementation barrier. Furthermore, in addition to organizational difficulties, outdated Internet technology systems, and a lack of technical competencies, few options for training and education are available. The fear of being replaced also hinders the implementation of eMH. From a patient perspective, lacking knowledge and the fear of eMH services being impersonal and non-transparent are important reasons for the slow uptake of eMH. Active campaigning to inform public and health professionals about eMH services and promote their application is, therefore, seen as a tool to facilitate the acceptance of eMH.

Concerns about privacy and data protection additionally limit the implementation of eMH solutions. On one hand, regulations for access to data are either missing or not sufficiently defined, which leads to insecurities of users. On the other hand, outdated restrictions, e.g., for data storage, sharing of data, or the informed consent forms for research participants, keep developers from starting new projects. The EU General Data Protection Regulation, which has been applied since 2018 and provides updated guidance for secure data handling, is hence perceived as a tool to strengthen the uptake of eMH. In summary, a more supportive regulatory framework is needed to enable developers to work on suitable eMH solutions and to allow implementation into routine care. Additionally, active promotion might raise awareness and acceptance of health professionals and patients.

France

Legal situation Interest in e-health and eMH solutions is currently rising in France. In 2016, the first national e-health strategy was released by the government, which has the general scope to implement more digital resources into health care by the year 2020 [26]. Furthermore, a roadmap for mental health and psychiatry has been presented in 2018, which specifically includes the action 'mental health promotion 3.0′ on e-mental health by proposing the organization of educational seminars, exchange of knowledge and practices across Europe, and fostering further research [27]. The national health strategy *Ma santé 2022,* also published in 2018, plans to enable every patient to have digital access to their medical records and other services, such as online appointments or education and prevention tools [28]. The roadmap *Accelerating the Digital Shift* included in this strategy, equips France with a strategic vision. It articulates orientations towards strengthening digital governance in health, enhancing the security and interoperability of health information systems, accelerating the deployment of digital services, deploying digital health platforms at a national level, stimulating innovation, and fostering stakeholder engagement [29].

In 2018 as well, telemedicine became part of the common law of medical practice and one of its components, teleconsultation, is now reimbursed. Considering the context of the digital transformation in health, a ministerial working group was created on the theme of mental health 3.0 to anticipate this transformation in the mental health field.

More recently, at the end of 2019, the Minister of Health officially appointed a ministerial delegate for digital health, which continues to give concrete expression to the development of e-health in France.

Barriers and facilitators Implementation of eMH solutions in routine care is still slow-paced. From health professionals' perspective, conservative attitudes towards eMH are perceived as an important implementation barrier. These attitudes are often based on a few opportunities for training, organizational constraints, and the fear of losing relevance. On both the professionals' as well as patients' side, the awareness of existing services is lacking and concerns about data protection limit the use of eMH solutions. From the developers' perspective, development costs are relatively high and development ideas are often not financially viable. The market is unstable, since the development of eMH services is often not integrated into global business models. Additionally, legislative regulations for developers are often very restrictive and difficult to follow. To facilitate the dissemination of eMH services, health experts suggest the development of economic models and quality certification systems. Additionally, users may need to be involved in the development process to tailor eMH services to their needs and to increase their acceptability.

Germany

Legal situation Topics concerning e-health and eMH are met with increasing interest by policymakers in Germany. In 2015, a first law on e-health was approved, focusing on

the development of a digital infrastructure for health care providers and the introduction of an electronic health insurance card [30]. A further step was taken in 2018, when the Assembly of the German Medical Association as well as the Assembly of the Federal Chamber of Psychotherapists both decided to change their professional codes to permit physicians and therapists the use of remote consultations in routine care [31, 32]. Additionally, the reimbursement of video consultations irrespective of the indication was enabled in 2018 [33]. In November 2019, the Digital Health Care Act was approved by the federal parliament, which enables, among other things, the prescription of medical apps [34]. All of these laws address the uptake of e-health in Germany; however, no specific focus on eMH has been set. To accelerate the development, evaluation, and implementation of new solutions in health care, the Federal Government has created the German Innovation Fund [35]. Among other research programs, it also supports several projects in the field of eMH.

Barriers and facilitators The slow uptake of eMH may partly be due to low awareness and acceptance. Whereas professional organizations, like health insurances, mostly show a positive attitude and have implemented eMH solutions into their programs, health professionals often fear a devaluation of their profession or an increasing work load. Awareness of the general population about eMH services is currently still low. Professionals as well as patients fear that the use of eMH services will be too impersonal, especially in psychotherapy, where the human relationship is a key component. Privacy is also a topic of high concern within the population and among professionals. As long as there is a perceived uncertainty regarding data storage and protection, acceptance of eMH solutions will most likely remain low. Some of these concerns might be addressed with training and the provision of information materials. Awareness and informed decision-making are necessary to accelerate the implementation of eMH solutions. Additionally, a consistent digital infrastructure throughout health care institutions needs to be established first and liability issues should be clarified. Some of these barriers might be overcome with the Digital Health Care Act.

Ireland

Legal situation Ireland shows a strong interest in eMH solutions at policy and practice levels. In 2013, the Irish e-Health Strategy was published, which proposes a roadmap for the implementation of digital solutions into the Irish health care system and mentions mental health as one field in which digital services might be introduced [36]. Ireland's overall mental health strategy is currently based on *A Vision for Change*, which was published in 2006, and is currently being revised to cover current developments [37]. The 2006 version does not address the use of eMH. In 2015, a good practice guide on *Technology, Mental Health and Suicide Prevention in Ireland* was released by the non-profit organization ReachOut Ireland with the support of the Irish Health Service's (HSE) National Office for Suicide Prevention [38]. For children and young people, the implementation of age-appropriate eMH solutions into service provision was more recently, in 2017, recommended in a report by the Youth Mental Health Taskforce [39]. In 2017, the Irish Association for Counselling and Psychotherapy published a guideline on online counselling, even though it focuses more on remote counselling rather than eMH solutions for therapy [40]. A 2018 report funded by Mental Health Reform and the HSE provides an overview of the field of eMH in Ireland and suggests actions for its implementation in mainstream mental health services [41]. Overall, the HSE and adjacent non-governmental health organizations express a positive attitude towards eMH and a number of projects for products and services are currently under development.

Barriers and facilitators Deployment of eMH products in mainstream mental health services is still lacking. Individuals with mental health problems and health professionals interviewed in this study expressed the concern that while eMH products improve access to therapy, the human relationship is essential in psychotherapy and cannot be replaced. eMH solutions are, therefore, viewed as a good supplement to cognitive behavioral therapy or as a tool for prevention. Furthermore, on the health professionals' side, limited digital literacy, as well as missing guidance were perceived as barriers to implementation. More opportunities for training were, therefore, suggested for the uptake of eMH. Other concerns involved confidentiality and privacy issues, and the lack of standards and suitable certification systems to ensure high-quality eMH products. To accelerate eMH implementation, the interviewees recommended more transparent visibility, e.g., on social media and websites, but also in local settings like schools, more investment, and a demand-oriented approach.

The Netherlands

Legal situation Within the EU countries, The Netherlands is one of the early starters regarding the dissemination of eMH solutions. Research and development started at the end of the 1990s. In the beginning, the market developed in a rather fragmented way. In 2012, the *National Implementation Agenda e-health* was started, in which patient associations collaborate with general practitioners and health insurance providers to develop a systematic approach to implement e-health into routine care [42]. The Ministry of Health, Welfare and Sports announced the encouragement of e-health use in 2014 and set the goals to improve access to medical records, enable health

monitoring and online contact with care providers until the end of 2019 [43]. In 2017, a €105 million government-funded program, the *Acceleration programme information exchange patient and professional* (VIPP), was started to implement consistent standards for information exchange and to introduce value-based e-health and eMH throughout health care providing organizations [44, 45]. Since 2013, the National Competence Centre for e-health also publishes an annual report on the current state of e-health care in The Netherlands. The report of 2017 specifically mentions the field of eMH. Accordingly, most mental health nurse practitioners have used eMH products for some of their patients. A common opinion, however, is that eMH products do not suit all patients, since available options do not always match with the educational level or digital skills of patients [46]. Another report by the Dutch Health Care Authority on general mental health care from 2017 noticed that waiting lists for mental health treatments were long and that treatment of patients had shifted from specialized level to basic level (GP level) [47]. As a result, an action plan was developed by the Ministry of Health, health care insurers, caregivers, and local authorities. This action plan mentions, for example, thorough screening as an action to prevent unnecessary treatment and, therefore, to reduce waiting lists. The use of eMH at the level of general practice is now widespread and structurally integrated in treatment approaches. From 2022, a new activity-based model and reimbursement system for mental health care will be introduced in The Netherlands. The reimbursement system based on the currently used DBC (Diagnostic Treatment Combination) will be modified and will force service providers to fully and effectively integrate eMH into their mental health care pathways.

Barriers and facilitators Despite The Netherlands being more advanced compared to other European countries, some barriers to the broad implementation of eMH in routine care still remain. Health experts interviewed in this study mostly mentioned that the current reimbursement structure is hindering implementation. As mentioned before, a new reimbursement system is, however, planned for 2022. Furthermore, the added value of eMH solutions for the end-user is unclear to many interviewees and no urgency for change is seen. The topic of eMH is also not thoroughly taught in higher education curricula. Research was perceived as often lacking continuity or requiring too much time. Privacy issues are also of concern. Perceived facilitators are government guidance, for example by setting specific goals for eMH use, establishing quality and privacy standards, or by providing a platform for information sharing between researchers and developers.

United Kingdom

Legal situation Matters of health care in the United Kingdom are the responsibility of the parliaments and assemblies of its member countries: England, Northern Ireland, Scotland, and Wales. Every country therefore pursues differing policies and funding priorities.

In England, mental health care strategies have strongly targeted eMH solutions. In 2014, the National Information Board recommended within its framework for action to place digital solutions at the heart of mental health approaches [48]. The *Mental Health Five Year Forward View* in 2016 committed to expanding access to eMH services and to investing in digital infrastructure [49]. The *Framework of Mental Health Research* by the Department of Health also highlighted the opportunities of digital approaches to mental health and suggested the expansion of digital data use in mental health research [50]. Furthermore, NHS England supports digitally advanced mental health trusts to become *Global Digital Exemplars* [51]. These exemplars are already advanced in their implementation of digital technologies and agree to share their knowledge with the other trusts. Furthermore, web apps and smartphone apps for depression, anxiety, or stress are publicly available through the NHS Apps Library [52]. This all has led to an acceleration of eMH use in England, with two out of three general practitioners now already using eMH solutions for the treatment of depression [53].

Meanwhile, Northern Ireland's approach on e-health within its overall health strategy is rather minimal and focuses mostly on electronic patient records [54]. A report by Invest Northern Ireland mentions health care as one area of opportunity for digitalization, but no reference to mental health has been made [55]. An expert panel, which was set up to underpin the reconfiguration of health and social care services, underlined the importance of expansion of e-health to efficiently drive health care [56].

Scotland's overall health strategy released in 2016 recognizes the role of computerized cognitive behavioral therapy (cCBT) services for improving access to mental health support and aimed to roll out services nationally by 2018 [57]. However, Scotland's mental health strategy mentions digital approaches to mental health care only superficially, besides one specific goal to support the development of a digital tool for young people with eating disorders [58]. A digital health and care strategy has been released in 2018; however, no specific remark on eMH has been made [59].

In Wales, approaches for the implementation of eMH services currently play a minor role within the Welsh Assembly. The *Mental Health Delivery Plan* published in 2016 only includes education in digital rights for children [60]. The Welsh *Plan for Health and Social Care* aims at building a digital national architecture for health care from 2018

onwards; however, it does not make reference to eMH services specifically [61].

For all of the UK, *Thriving at Work: the Stevenson/Farmer review* published a total of 40 recommendations on how to support employees in need of mental health care. Among others, the report emphasized the role of digital tools and products as an opportunity for support [62]. The Government in England has accepted these recommendations, the Health and Safety Executive announced a revision of its stress guidance to address more mental health issues [63].

Barriers and facilitators Even though the four countries are differently advanced in their implementation of eMH services, some common barriers exist in all the UK countries. The health experts interviewed in this study identified the lack of knowledge about the availability and efficiency of eMH products, the lack of guidance for implementation, and communication issues between developers and service providers and service users as the most imminent barriers. Furthermore, for Wales, privacy issues, lack of technology infrastructure, and lack of budget for Welsh-language versions to give equal access for all members of the population add to the list of barriers. Northern Ireland is specifically hampered by the ongoing suspension of its Assembly, since January 2017, which has led to a lack of leadership, with responsibility for the government during this time lying with the parliament in Westminster. The interviewees recommended coproduction between developers, clinicians, and service users to create bottom-up designs and ongoing communication between researchers and providers as accelerators for the implementation of eMH. Additionally, ensuring that eMH is considered not only in mental health, but also in general health policies as well as in wider, cross-government policies (the *Mental Health in All Policies* approach) will further help the development of eMH in the UK.

Recommendations for the implementation and dissemination of eMH in Europe

To address the most relevant barriers for the implementation and dissemination of eMH in Europe, the eMEN consortium developed eight recommendations based on the status analyses in the six participating countries. These recommendations are directed towards policymakers at EU and at national level. More specific actions based on the recommendations are suggested to the European Commission and other politically involved parties at the national level [64]. The recommendations are as follows:

1. Promote and advocate strong political commitment, governance, and leadership for the development, dissemination, implementation, and adoption of eMH.
2. Ensure legal clarity and ethical correctness, and avoid insecurities in users with regard to the safeguarding of human rights, privacy, and data security in the digital age.
3. Develop adequate financing strategies and guarantee the financial viability of eMH in the long term.
4. Stimulate, promote, and fund eMH research within existing and future European research programs (e.g., Horizon Europe) and specifically focus on effectiveness, evaluation methods, and eMH implementation.
5. Promote and facilitate eMH development and research processes that are based on the highest standards of usability and interoperability.
6. Ensure that only high-quality eMH products and services are implemented in the (mental) health care sector.
7. Increase awareness and acceptance of eMH products and services, foster trust in digital tools in mental health care and prevention efforts, and enhance digital health literacy and skills in the public and the (mental) health workforce.
8. Integrate eMH into established (mental) health care models and other key areas of interest such as mental health in the workplace or mental health in schools.

Discussion

The eMEN project provides eight recommendations for the implementation and dissemination of eMH in Europe based on status analyses in six participating countries. The analyzed countries are in various stages of implementing eMH into mental healthcare. Whereas The Netherlands and the United Kingdom (particularly England) are relatively advanced, Germany and Belgium are rather slow in their uptake of eMH solutions. France has been a late-starter regarding eMH implementation, but has made progress at policy level within the past 3 years. Ireland can be placed somewhat in-between the early and the late starters. When eMH is available, it mostly relates to remote mental health care provision (teleconsultation or telepsychiatry).

Across all countries, there are currently shared barriers for the implementation of eMH solutions. Most importantly, awareness of eMH is still limited at the policy level, the organizational level, and the end-user level. All countries included in this study have started to incorporate e-health in their policy agendas. Limited awareness on the policy level is also the reason for another major barrier: the lack of a legal and regulatory framework, which is, in turn, a cause for the absence of a coordinated implementation approach in most involved countries. Additionally, comprehensive reimbursement schemes are still largely missing. Reasons for a lack of acceptance of eMH tools may also include the negative attitudes of professionals, which may stem from low expectancy towards performance versus a high effort expectancy [65]. A perceived loss of the therapeutic relationship

between patient and professional may also be regarded as a drawback of eMH [66]. Concerns regarding data security and privacy protection are also prevalent among providers and users of mental health services. Some of the current concerns may stem from a lack of education on eMH solutions, since medical professionals usually lack training on eMH interventions [67]. As eMH is a comparatively new research field and technology advancement is very dynamic, available long-term research on efficacy and cost-effectiveness is still limited, which might be another reason for some professionals' scepticism [68].

Future development of eMH in Europe and beyond

The eMEN project has provided the initial recommendations for the implementation of eMH in Europe. However, further research is needed to support the dissemination of eMH services. First, thus far, there is no common framework for quality control in the context of eMH. Quality indicators are required, particularly for mobile phone and web applications, which are currently still subject to very limited control. Second, the growing field of implementation science may provide insights into the most efficient strategies to upscale eMH in Europe. Thus far, a wide range of implementation strategies has been developed for mental healthcare [69]. The scope of these strategies ranges from simple single interventions such as seminars or the distribution of educational materials to multi-facetted strategies combining a variety of tools [69]. However, it is unclear which of these strategies is most efficient for the implementation of eMH services. Third, it is unclear which country-specific characteristics (e.g., concerns regarding privacy) predict the uptake of eMH. Identifying these predictors would allow the development of specifically tailored implementation programs for each country. This topic is closely connected with the question of whether and how a transnational policy such as the one provided by eMEN can facilitate the upscaling of eMH. Thus far, healthcare systems are largely in the hands of the EU member states (based on the principles of subsidiarity). However, the common barriers identified in this study highlight the potential of a common approach to eMH upscaling. It will be a great challenge to ensure that the results from the eMEN project enter the political and regulatory processes on both EU and national levels.

Limitations

There are several limitations to this study. The eMEN project was limited to six European countries, all of which are in the North-Western Region of the EU. Thus, the results from this study may not be representative for all EU member states. Particularly, perspectives from countries with fewer healthcare resources are missing. Further research is needed to test whether the recommendations developed in this project can be generalized to all EU member states and beyond. Additionally, we did not systematically assess the perspectives of specific vulnerable groups within the participating countries (e.g., refugees and migrant communities).

Another limitation was the distribution of the status analyses among different expert groups, which used slightly different methods for the literature search. This procedure had the advantage that country-specific experts could be involved, and national specificities could be taken into account. However, the use of country-specific keywords and databases for the literature search complicates comparisons between countries.

The expert interviews took place over the course of two years during the project phase. It therefore needs to be acknowledged that some of the shared knowledge and attitudes provided at a slightly earlier stage may not represent the most recent developments in a country. However, we sought to address this matter by constantly updating the policy context of the countries. Additionally, there were some differences between the participating countries in the characteristics of the interviewed stakeholders (see Table 1). We did not recruit persons who had experienced mental health problems in all participating countries. Some country-specific barriers may only become evident when interviewing those affected by mental health problems and may thus have been missed.

To date, there is no standard procedure for the development and evaluation of a transnational status analysis regarding the uptake of new practices in the field of mental healthcare. In our study, we included narrative literature reviews and stakeholder interviews conducted by country-specific experts. Future studies could use further data sources, such as healthcare records, the number of users of eMH online portals, or the number of downloads of eMH mobile applications. Additionally, a large proportion of the information gathered in this report focuses on barriers to eMH implementation rather than facilitators. Future research is needed that specifically focuses on the facilitators of eMH implementation in different European countries from the perspectives of different stakeholders.

Conclusion

This study provided status analyses of eMH implementation in six North-Western European countries. The selected countries are in various stages of implementing eMH in mental healthcare. Although awareness and implementation are increasing, policy and regulatory frameworks are still limited. Based on the status analyses, the eMEN consortium developed eight recommendations for the upscaling of eMH in Europe. Recommendations include fostering awareness,

creating strong political commitment, and setting reliable standards related to ethics and data security.

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Compliance with ethical standards

Conflict of interests The authors declare that they have no conflicts of interest.

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