

# A Scoping Review on Digital Interventions in Mental Health in Nepal

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## Abstract

### Background

Digital interventions for mental health are gaining popularity in Nepal. They help address barriers to treatment seeking for mental health concerns and are one of the possible solutions for addressing the mental health treatment gap in Nepal. Given the impact digital interventions can have on the management of mental and substance use disorders, we have conducted this review with the aim of assessing the existing literature on digital interventions for mental health problems in Nepal.

### Material and methods

We conducted a literature search for original research studies that have explored digital intervention in Nepal till December 2025 in three databases (PubMed, SCOPUS, PsycINFO). The reference lists of all articles were searched for any studies not retrieved by the electronic search.

### Results

Out of 91 studies, 17 (18.7%) were included after exclusions. Eight studies (47%) were qualitative, four (24%) were pilot studies, and three (18%) were retrospective

chart reviews. Twelve studies (70.5%) used teleconsultation, mainly synchronous (N=6, 35.3%) as a mode of digital intervention.

### Conclusion

There has been emerging but limited research on digital mental health interventions in mental health in Nepal. They hold substantial promise for improving access, capacity building, scalability, and quality of care, and treatment outcomes across various health systems in Nepal. Their successful implementation requires a comprehensive approach addressing digital literacy, digital divide, and systemic barriers. Strengthening of the evidence is essential through robust research, and use of contextually relevant interventions in diverse and under-represented populations is necessary. There is a need for collaboration between multiple stakeholders to attain this goal.

### Keywords

Digital Intervention; Mental Health Gap; Nepal; Telepsychiatry; Digital Health

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## INTRODUCTION

According to the 2021 global burden of disease study, overall, 15% of the world's population experienced mental disorders.<sup>1</sup> Mental disorders such as depression, anxiety, and substance use disorders accounted to 17% of total years lived with disability in the world.<sup>1</sup> According to the National Mental Health Survey 2020, in Nepal, the lifetime

prevalence of any mental disorder was 10% in adults and 5.2% among adolescents.<sup>2</sup>

There is a huge treatment gap, such that only 23% of the individuals in Nepal had sought treatment for their mental health symptoms.<sup>2</sup> Among those who sought treatment, only about 21% of individuals had adhered to their treatment. The barriers to treatment were related to logistics, along with stigma and attitudinal barriers. These logistical issues included problems with transport, cost, and difficulty taking time off of work. The average expense per year for transportation, food, and accommodation, while seeking treatment was found to be Rs 16,053 (approximately 107.53 USD).<sup>2</sup> Data from 2021 showed that 92.54 percent of the Nepalese population took 15 minutes with

motorized travel mode and 94.63 percent took 60 minutes of walking distance to access health care facilities in Nepal.<sup>3</sup> A significant resource underutilized previously in health-care in Nepal was the network of phone and internet. As of early 2025, there were approximately 39.0 million active mobile connections in Nepal, which is equivalent to 132% of the population.<sup>4</sup> A national survey on Nepali media landscape showed that 90% of adults in Nepal carried a mobile phone, of which 67% carried smartphones.<sup>5</sup> In order to address the treatment gap due to accessibility and logistical issues, Nepal has moved to utilizing the existing network of mobile phone and internet connections. The COVID-19 pandemic accelerated the adoption of digital mental health services.<sup>6</sup> Patan Hospital started videoconferencing in May 2021, and Kanti Children's Hospital started in 2022. Since the pandemic, telepsychiatry has been widely used in private hospitals, clinics, NGOs. The various treatment modalities utilizing mobile phone connections and internet access in Nepal has included phone-based, web-based, app-based, and others. These include phone calls, messaging, online telepsychiatry platforms, interactive videos, videoconferencing software and social media apps. Given the widespread use, telemedicine guidelines for registered medical practitioners in Nepal was published by Nepal Medical Council in 2020.<sup>7</sup>

Therefore, in the context of Nepal's healthcare system, digital interventions offer a solution to longstanding challenges such as workforce shortages, weak referral pathways, overburdened health systems and geographic barriers.<sup>8,9</sup> Even though the use of digital media bridges the treatment gap, there are some caveats to their use in South Asia. Most notably, there is an absence of detailed regulation of technology platforms.<sup>10</sup> This increases easy access but does not ensure patient privacy. There is also a lack of a specified duration of record keeping. Other concerns are lack of explicit consent from patients and weak telemedicine platform governance.<sup>10</sup> Given the potential significant impact digital interventions can have on treatment of mental and substance use disorders in Nepal, we have conducted this review with the aim to collate existing literature on the use of digital interventions for mental health in Nepalese population.

## MATERIAL AND METHODS

The PRISMA guidelines for systematic reviews and meta-analysis were used for the literature search.<sup>11</sup> PubMed, SCOPUS, PsycINFO were used, and the search

included all publication years, up to December 2025. The keywords used for the systematic search were: "Nepal" or "telemedicine" or "Telepsychiatry" or "Videoconferencing" or "mHealth" or "mobile Applications" or "Mobile App" or "Smartphone" or "Cellphone" or "SMS" or "Telemessaging" or "Digital Health" or Digital Intervention" AND "Mental Health" or "mental disorders" or "Psychiatry" or "Psychology" or "Psychological intervention" or "Depression" or "Anxiety" or "Psychosis" or "Substance-Related Disorders" or "Smoking cessation" or mhGAP".

No particular definition of 'Digital Intervention' was used to operationalize the inclusion of studies. The inclusion criteria of the studies in this review were original research studies (cross-sectional, randomized control trial, retrospective, case-control, and cohort) that have explored digital intervention in Nepal. Exclusion criteria included reviews, opinions, and editorials. The reference lists of all articles were searched for any studies not retrieved by the electronic search. Upon completion of the search on the electronic database, titles and abstracts of the identified articles were assessed for their suitability to be included in the review and full texts were retrieved. Two researchers, BS and ND, did independent screening of the full text of the articles for eligibility and quality. Results were compared, and any discrepancies were resolved by mutual consensus. If the article met the inclusion criteria, it was included. Data extraction was carried out under headings as shown in Table 2.

## RESULTS

### Study selection

The initial search yielded 91 publications. A detailed search strategy has been appended in Appendix 1. After removing duplicate articles (n=19), 72 publications were screened by title and abstract to exclude those clearly unrelated to digital interventions in mental health. Twenty articles were removed after screening as they were related to non-psychiatric conditions (e.g., epilepsy, brain injury, cerebral palsy, cervical cancer, anaemia, diabetes mellitus, COPD, earthquake, pelvic organ prolapse, and pain management). Therefore, 52 full-text articles were retrieved and assessed for eligibility. We were unable to retrieve the full text of one article. Following a full-text review of 51 articles, 34 articles were excluded for not meeting the selection criteria. Finally, seventeen records were included for final quantitative analysis and qualitative thematic synthesis. A PRISMA 2020-style flow diagram has been added to Figure 1.

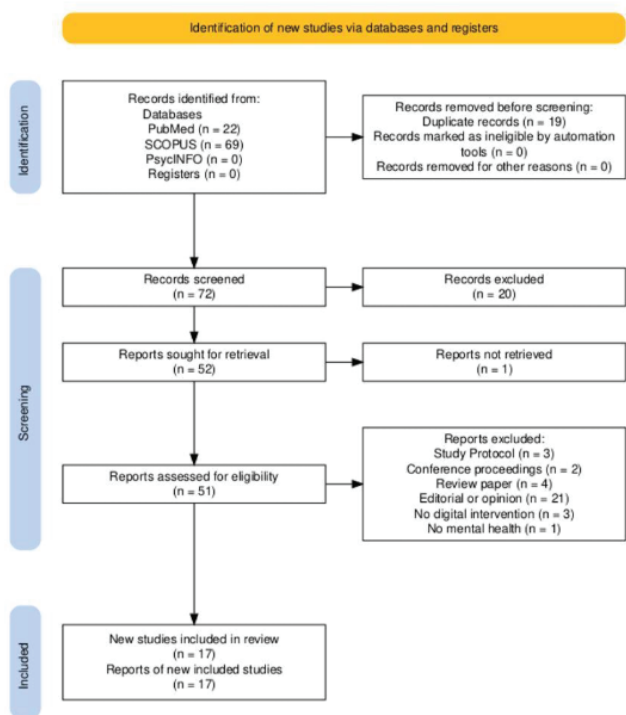


Figure 1: PRISMA style flow diagram

Study characteristics

Geographical distribution of studies

All studies were conducted on the Nepalese population. One study examined digital interventions for mental health in three countries, including Nepal.<sup>12</sup> The research into digital mental health interventions in Nepal shows a distribution that spans from the capital, Kathmandu, to remote rural districts in the far-western and eastern regions. While many studies are based in urban tertiary centres, their digital reach often extends across all seven provinces (Table 1).

**Table 1. Geographical Distribution of Digital Interventions in Mental Health in Nepal**

Geographic Scope:	Key Locations/Districts Mentioned:
Urban Tertiary Hubs	Kathmandu, Lalitpur (Patan), Dharan (BPKIHS)
Rural Implementation	Achham, Ramechhap, Sindhuli, Dhankuta, Udayapur, Dhulikhel
Broad Provincial Reach	Bagmati, Koshi, Madhesh, Gandaki, Lumbini, Karnali, Sudurpaschim

**Study population, study designs, and sample size**

The studies included in this review were conducted across diverse study populations. The most common group of study participants in the included studies (47%, N=8) was health care workers.<sup>12, 13, 14, 15, 16, 17, 18, 19</sup> The other common group of participants were individuals seeking telepsychiatry help from the clinicians (n=3).<sup>20, 21, 22</sup> Three of the included studies have explored mental health concerns of special populations (e.g., homosexual men, mothers with depression, husbands of women with postpartum depression).<sup>23, 24, 25</sup> These studies have utilized different designs, including qualitative assessments alone (n=5),<sup>12, 14, 15, 18, 23</sup> pilot trials (n=3),<sup>13, 26, 27</sup> retrospective chart reviews (n=3),<sup>20, 21, 22</sup> mixed method studies (n=3),<sup>13, 24, 25</sup> cross-sectional surveys (n=1),<sup>28</sup> implementation study,<sup>17, 19</sup> and structured clinical trials (n=1)<sup>16</sup>. Likewise, the sample sizes of the respective studies varied widely. Details of the study design have been summarized in Table 2.

**Digital interventions and outcomes:**

Of the 17 included studies, one was a web-based survey on app-based fitness/wellness utilization and didn't include any digital intervention as part of mental health research.<sup>28</sup> The majority (70.5%, N=12) of the remaining studies have provided some form of teleconsultation, i.e., either doctor-to-patient, or collaborative care through community healthcare workers (HCW).<sup>12, 22, 24</sup> Three studies were COVID-19-related mental health services,<sup>12, 22, 27</sup> and one of them explored multi-tier capacity building in the community to address child and adolescent mental health problems during the COVID-19 pandemic.<sup>27</sup> The majority of these studies utilized one or more digital communication software, namely WhatsApp, Viber, Zoom, Skype, Google Meet, and MS Teams. Synchronous teleconsultations (N=6, 35.3%)<sup>12, 17, 20, 21, 22, 24</sup> were more common than asynchronous mode (N=6, 35.3%).<sup>13, 15, 16, 18, 19</sup> Five studies (29.4%) have explored utilization of short message service (e.g., mCIDT) or Android mobile app-based mental health service delivery (e.g., WHO-mhGAP) through non-specialist health workers.<sup>13-16, 19</sup> Three studies (17.6%) provided specialized clinical care using digital mode (e.g., intervention for smoking cessation, tailored counselling of husbands of women with postpartum depression, and passive sensing of behavioral patterns of mothers with depression).<sup>24-26</sup> Shah et al.<sup>20</sup>, Gupta et al.<sup>21</sup>, and Shakya et al.<sup>22</sup> have described clinician-driven telepsychiatry care delivery for help-seeking patients, but only Shah et al., 2025 has explicitly described free-of-cost telepsychiatry consultation.<sup>20-22</sup>

The included studies discussed diverse research outcomes, ranging from the experience of fitness app use in youth (e.g., joy, influence, and social connectedness) <sup>28</sup> to a randomized controlled trial assessing the effectiveness of app-based training for HCW to screen for mental health conditions in the community.<sup>16</sup> The majority (N=8, 47%) of the studies assessed the findings qualitatively, documenting the experiential accounts of community health workers and other stakeholders involved in digital mental health service delivery in Nepal.<sup>12-19</sup> These studies have explored barriers to the adoption of digital interventions for mental health services. Specialized app- and SMS-based mental health service delivery studies assessed feasibility, acceptability, referral rates, and diagnostic accuracy.<sup>13-16,19</sup>

One study assessed the screening rate for mental health conditions in Nepal using mobile-based apps by primary care workers and compared it with those in two other countries.<sup>16</sup> Two studies from one study group described passive sensing technology parameters (global positioning system, accelerometers, Bluetooth beacons, and processed audio) as outcome measures among study participants living in rural Nepal.<sup>24,25</sup> A brief summary of the individual digital interventions and study outcomes is provided in Table 2 below.

**Table 2. Summary of Studies on Digital Intervention for Mental Health in Nepal**

Author, Year	Study Type	Study Population	Study Objective	Intervention Type	Digital Modality	Findings
Pedersen et al., 2023 <sup>12</sup>	Qualitative study (applied approach)	27 practitioners (9 in Nepal), including specialists and non-specialists	Determine practitioners' experiences rapidly adapting to remote psychological support during COVID-19	Remote psychological support	Videoconferencing and telephone (Zoom, Viber, Skype, WhatsApp)	Feasible and useful, but raised safety/privacy concerns; identified a need for standardized training like simulated role plays
Bhardwaj et al., 2020 <sup>13</sup>	Mixed-method pilot study	36 Female Community Health Volunteers (FCHVs) in Sindhuli district	Pilot an SMS referral system (mCIDT) to improve timeliness of mental health case reporting and follow-up	Proactive community case detection and referral	Structured SMS (text messaging) via feature phones	Low referral rates (8 cases); accuracy was lower than paper-based methods, especially among older health volunteers with lower education. The FCHVs found this SMS based approach useful due to less travel burden, but reported task overburden, lack of perceived need for "mansik" healthcare, privacy concerns, and high social stigma associated with mental illness
Shah et al., 2025 <sup>20</sup>	Retrospective observational study	145 patients receiving telepsychiatry at Patan Hospital	Describe profiles and experiences of patients using a free videoconferencing telepsychiatry service	Telepsychiatry consultation (clinical, diagnostic, and therapeutic)	Videoconferencing (WhatsApp, Viber)	Provided 430 consultations; 81.67% of patients preferred telepsychiatry over face-to-face visits for initial consultations
Gupta et al., 2024 <sup>21</sup>	Retrospective analysis	10,901 patients across various OPDs at BPKIHS	Evaluate a telemedicine program providing specialist services to remote mountainous districts during lockdown	Teleconsultation/ Telemedicine	Mobile voice calls (39.62%) and WhatsApp video (30.08%)	Effective for facilitating access for women and remote residents; 10.37% of total consultations were for psychiatry
Luitel et al., 2023 <sup>14</sup>	Qualitative study	15 primary healthcare workers (HCWs) in Jhapa district	Assess perception and experience of HCWs using a mobile app-based version of the WHO mhGAP Intervention Guide	Decision support for mental health detection and treatment	Mobile application (WHO e-mhGAP-IG)	App helped verify diagnosis and bring uniformity, but adoption was hindered by low tech literacy and poor internet

Author, Year	Study Type	Study Population	Study Objective	Intervention Type	Digital Modality	Findings
Pokhrel et al., 2021 <sup>15</sup>	Qualitative study	43 HCWs (8 medical officers, 35 prescribing workers)	Assess HCW perception of the feasibility and benefits of a mobile app-based clinical guideline	Clinical guideline support for detection and treatment	Mobile smartphone/tablet application	Positive attitudes toward standardisation and remote supervision; internet connectivity and typing skills were potential barriers
Poudel et al., 2023 <sup>26</sup>	Single-armed pilot trial	48 people with HIV who smoke in Kathmandu	Assess the feasibility and effects of a video-based smoking cessation intervention	Smoking cessation counselling (Phase-Based Model)	Streaming video clips watched on smartphones	High feasibility (100% retention); 39.6% biochemically verified 7-day abstinence at 3-month follow-up
Shakya et al., 2021 <sup>22</sup>	Institute-based observation	104 subjects receiving telepsychiatry at BPKIHS	Observe telepsychiatry service delivery during the COVID-19 pandemic	Telepsychiatry consultation	Virtual platforms (Google Meet, Zoom) and mobile phones	Telepsychiatry was identified as a viable method for improving service access; mood and anxiety were the top complaints
Kohrt et al., 2025 <sup>16</sup>	Cluster randomized clinical trial (cRCT)	25 primary care facilities (67 HCWs) in Nepal	Test if an app version of the mhGAP-IG improves depression detection rates	Training using standard mhGAP-IG vs. e-mhGAP-IG	Android-based mobile application (e-mhGAP-IG)	In Nepal, the app was used for only 10% of assessments; detection was lower than in Nigeria (82% app use), showing that context matters
Gautam et al., 2024 <sup>23</sup>	Qualitative study (FGDs)	28 cisgender Men Who Have Sex With Men (MSM) in Kathmandu	Explore mental health concerns and preferred mHealth interventions among MSM	mHealth application preferences	Smartphone apps (Zoom for counseling)	Preferred features include LGBTQIA+-friendly provider directories, peer support forums, and discreet app designs
Swar et al., 2019 <sup>19</sup>	Implementation (Program evaluation) study	Primary care providers, counselors, and patients in rural Achham	Describe strategies to address challenges in a remote teleconsultation collaborative care model	Collaborative Care Model (CoCM) with remote supervision	Synchronous teleconsultation (Google Hangouts, Skype, Viber)	Found that quarterly site visits and synchronous feedback helped mitigate psychiatrist discomfort and infrastructure issues
van Heerden et al., 2024 <sup>24</sup>	Mixed-method study	24 mothers with depression (PHQ9 score>9)	Integrate a passive sensing platform into a psychological intervention delivered by paraprofessional counsellors to test for proof of concept	Psychological intervention (HAP) and Digital passive sensing	Electronic Behaviour Monitoring using app installed in android mobile	There was a statistically significant improvement in BDI score from week 1 to week 6 during the intervention
Angdembe et al., 2017 <sup>18</sup>	Formative Qualitative (KII and FGD)	69 participants in 9 focus group discussions. 26 KIIs (Key informant interviews), including policy makers (n=4); health workers (n=6), community members (n=8), and service users (n=8) in Pyuthan, Nepal	Situational analysis to inform community-based care for severe mental disorders	Development of the Comprehensive Community Mental Health Services (CCMHS) package	Mobile health(mHealth) (mobile technology for service delivery)	Stakeholders generally supported mHealth despite low initial familiarity with technology; they identified lack of awareness and stigma as major barriers
Luitel et al., 2023 <sup>19</sup>	Implementation (Feasibility study)	15 health care workers (HCWs) in Chitwan, Nepal	Describe development and functioning of the mhGAP app prototype	Co-design and iterative prototype testing	Mobile application (WHO e-mhGAP-IG)	Prototype was useful for reminding HCWs of assessment steps but was initially slow with technical issues like app freezing during role plays

Author, Year	Study Type	Study Population	Study Objective	Intervention Type	Digital Modality	Findings
Bhardwaj et al., 2024 <sup>25</sup>	Mixed methods study	13 husbands of women experiencing postpartum depression (PPD) in Kavrepalanchowk District, North-east of Kathmandu, semi-urban Nepal	Explore husbands' perspectives on engaging in counseling augmented with digital health components for PPD	Tailored counseling with a digital component	StandStrong platform (passive sensing via smartwatch, smartphone, and beacons)	Husbands with equitable gender norms provided better emotional and instrumental support, aiding wife's recovery; work and home time were primary engagement barriers
Joshi et al., 2025 <sup>28</sup>	Web-based survey (cross-sectional observational)	385 fitness app users in Nepal, online data collection, not bound to any geographical location but within Nepal	Examine how fitness app joy, usefulness, and social connectivity influence overall well-being	Fitness application user experience	Mobile fitness applications (running, workout, diet, yoga apps)	Social connectivity was the strongest predictor of well-being ( $\beta = 0.515$ ), followed by joy and usefulness; together these factors explained 71.8% of well-being variance
Dhonju et al., 2021 <sup>27</sup>	Conceptual framework paper	28,597 children, parents, teachers, and caregivers; online training across all seven provinces of Nepal	Address COVID-19 related child and adolescent mental health (CAMH) problems	Multi-tier CAMH capacity building and outreach	Online platforms (Zoom, MS Teams) and teleconsultation	Feasible framework that conducted 1,415 sessions; linked local facilitation to specialized Child and Adolescent (CAP) services via teleconsultation

## DISCUSSION

The seventeen studies that have been included in this review have been conducted with different study designs and among diverse populations. The digital modalities included mobile based, applications based and internet-based interventions. The majority of existing studies have demonstrated positive outcomes in Nepal and have highlighted the challenges among both service providers and users.

Digital interventions have demonstrated potential in serving specific populations. A feasibility study conducted in Nepal examining a video-based smoking cessation intervention among people living with HIV showed high acceptability, with over 90% of eligible participants consenting to participate.<sup>26</sup> This reflects a strong interest in digitally delivered behavioral interventions in resource-limited settings. Similarly, a study used a passive sensing technology via an electronic behavior monitor app to monitor behavioral changes while providing psychological intervention by paraprofessional counsellors to depressed adolescent and young mothers. The result showed a significant reduction in depressive symptoms.<sup>24</sup> This highlights

the potential of personalized, data-driven approaches in improving maternal and child mental health outcomes. Further, in a study among cisgender Men Who Have Sex with Men (MSM) in Kathmandu, the participants reported a need for smartphone applications, which have LGBTIQ+ -friendly provider directories, peer support forums, and discreet app designs.<sup>23</sup> Telemedicine has also played a significant role in improving healthcare access, particularly for women and individuals in remote areas, by reducing travel burden and exposure risks.<sup>21</sup> The majority of service users were adults from across Nepal. The reason for this might be that this group of the population has more digital technology literacy. Substantial barriers to telepsychiatry exist for the older population, such as difficulty navigating technology and video platforms, hearing and language difficulties, and a lack of desire to see providers virtually. Likewise, children and adolescents lack privacy from caregivers as they need support for using the service.<sup>20</sup>

The digital interventions have been used for various purposes with multiple benefits in Nepal. The service users were people from communities with no mental health problems to those with a wide range of mental problems,

such as depression, anxiety, stress, nicotine use, insomnia, and severe mental disorders, such as psychotic disorder, and bipolar disorder as well. A multi-tier CAMH intervention model developed by Children and Adolescents' (C&A) hospital based in Kathmandu with Zoom application, trained 16,571 are C&A and 12,026 are parents, teachers and caregivers across all 7 provinces of Nepal.<sup>27</sup> Similarly, in a primary health care setting, an RCT conducted in Nepal and Nigeria evaluating the electronic Mental Health Gap Action Programme Intervention Guide (e-mhGAP-IG), along with a clinical dashboard and mobile-based supervision, demonstrated improved detection of depression compared to the traditional paper-based mhGAP-IG.<sup>16</sup> This suggests that digital integration can enhance both scalability and quality of mental health services within primary care settings.<sup>18,29</sup>

At the community level, innovations such as the Community Informant Detection Tool (CIDT) have shown promise in facilitating early detection and help-seeking. Furthermore, mobile-based telehealth services, including telemonitoring and video consultations, have further contributed to improved disease prevention, risk identification, and lifestyle modification, especially during and after the COVID-19 pandemic.<sup>14, 15, 16</sup> One study showed that telepsychiatry services had high levels of patients' satisfaction.<sup>20</sup> The benefits of telepsychiatry services could be potentially due to reduced stigma, increased convenience, and improved communication through virtual platforms in Nepal.<sup>20, 22</sup> Also, free services could have influenced the patients' positive experience.<sup>20</sup> The other two studies on teleconsultation and telepsychiatry by Gupta et al. and Shakya et al. have not provided information about the cost of the services.<sup>21, 22</sup> These telepsychiatry services were being provided by tertiary hospitals. Another study highlighted that experiencing greater joy when using fitness apps, perceiving apps as beneficial to their health, and having social interaction features like virtual assistants and community connections increase wellbeing of the fitness app users. It provides valuable insights for developers looking to enhance fitness app functionality.<sup>28</sup>

Despite these promising findings, several challenges remain. Systemic barriers include inadequate infrastructure and digital record keeping, unreliable electricity, and poor internet connectivity. Another key barrier that is hindering the widespread implementation is the uncertain financial sustainability for the setup and maintenance and inconsistent funding stream.<sup>17, 20</sup> The digital divide not only

restricts access, particularly among women, rural populations, and older adults but also hinders work of service providers, especially older, those with lower education, and technical expertise.<sup>19</sup> This can be due to inadequate resources and limited digital literacy. Additionally, challenges such as poor documentation, low motivation and incentive to use new technology and recommendations, high turnover among primary care providers, lack of trained health professionals, and communication gaps between different tiers of health professionals may further limit its effectiveness.<sup>12, 13, 17</sup> Similarly, the unique geographical and socio-economic context of Nepal further compounds these challenges. Poverty, low mental health awareness, and limited governmental prioritization contribute to the persistent treatment gap.<sup>12</sup> Cultural factors such as language diversity, stigma, and low acceptance of technology can limit its engagement. While telepsychiatry proved particularly valuable during the pandemic, it should be further expanded and integrated as a routine mode of service delivery.<sup>22</sup> There are no national telepsychiatry guidelines and published literature on structured telepsychotherapy services. The drug category rules, 2043, which guides prescribing the psychotropics according to the national telemedicine guidelines 2020, needs to be updated. Also, the need of the technology to adapt to local context and the importance of multisite feasibility studies was highlighted by Kohrt and colleagues.<sup>16</sup> Additionally, many mental health apps lack proper regulation, raising concerns about data privacy, confidentiality, and insufficient evidence-based validation, which may affect their safety and effectiveness. Ensuring digital platforms are secure, ethical, and accessible is essential to building trust among service users.<sup>23</sup> The long-term effectiveness, supervision and sustainability of digital interventions are still uncertain, as many studies report outcomes limited to short-term follow-up periods. As a member state of the World Health Organization, Nepal should strive to align with the WHO Guideline: Recommendations on Digital Interventions for Health System Strengthening (2019) to advance progress toward universal health coverage.<sup>30</sup>

The studies included in the review have a number of shortcomings. There are only seventeen studies on digital interventions in mental health problems in Nepal, with no long-term follow-up. Only one study gathered service users' experiences.<sup>20</sup> The study reported positive experiences of service users with telepsychiatry. Yet the findings of the study cannot represent the Nepalese population, as it was a

retrospective survey conducted in a single center in a tertiary public hospital and the service was initiated during the COVID-19 pandemic, and was free of cost. The majority of the studies were conducted during and after COVID-19 and among a heterogeneous group of health care workers (HCW). Therefore, the findings cannot be generalized in the current time frame and across different HCWs groups. The inclusion of participants with diverse socio-economic, cultural, and ethnic backgrounds in qualitative studies may have introduced heterogeneity that is difficult to interpret. There is also potential for information loss during the translation of qualitative data. Finally, the lack of cost-related data and standardized outcome measures across studies limits the ability to compare findings and assess their scalability.

This review has several strengths. It provides a comprehensive synthesis of emerging evidence on digital mental health interventions in Nepal. By including studies across clinical, primary care, and community settings, it offers a broad overview of how digital tools are being utilized within the mental health system in different scenarios. The review highlights both effectiveness and implementation challenges, offering valuable and timely insights for future research and policy development in Nepal. However, some limitations should be considered when interpreting the findings. Although we used three widely used search engines, we did not search other engines such as MEDLINE, Google Scholar, Web of Science, and Cochrane Database for Systematic Reviews. So, we may have missed some studies. To overcome this limitation, we looked into the reference lists of all articles and searched for any studies not retrieved by the electronic search. Similarly, the digital divide might have led to underrepresentation of children, adolescents, older adults, and other marginalized populations in our study. Therefore, we are unable to explore the feasibility and acceptability of digital interventions in these populations. Since the research is in its early stages, there is significant scope for advancement. Future research should focus on longitudinal study designs with larger samples. The studies should be conducted in a more representative population and across socioeconomic, gender, cultural, and geographic diversities to address disparities due to digital access. Systematic evaluation on various mental health problems across a diverse population is essential. Studies should prioritize service users' experience. There should be context-specific adaptations of interventions to ensure that these interventions achieve sustained and equitable impact. Finally, there

is also a need for studies evaluating newer and emerging digital mental health interventions, including artificial intelligence, virtual realities, and personalized digital therapeutics.

## CONCLUSION

There has been emerging but limited research on digital mental health interventions in mental health in Nepal. Current research demonstrates a range of digital mental health interventions hold substantial promise for improving access, capacity building, scalability, and quality of care and treatment outcomes across clinical, primary care, and community settings in Nepal. It has the potential to be an acceptable and feasible intervention. Successful implementation and sustainability require a comprehensive approach addressing digital literacy, digital divide, systemic barriers such as infrastructural limitations, lack of trained and adequate workforce and regulatory frameworks. Strengthening of the evidence is essential through robust research, and implementation of contextually relevant interventions in diverse and underrepresented populations is necessary. Finally, collaborative efforts among policymakers, health-care providers, researchers, technologists, and communities will be vital to realizing the full potential of digital mental health interventions in Nepal.

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