Reach Alliance

Technology and Trauma:

Digital Mental Health Innovations for Refugees in Canada

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UNIVERSITY OF TORONTO

Center for Inclusive Growth

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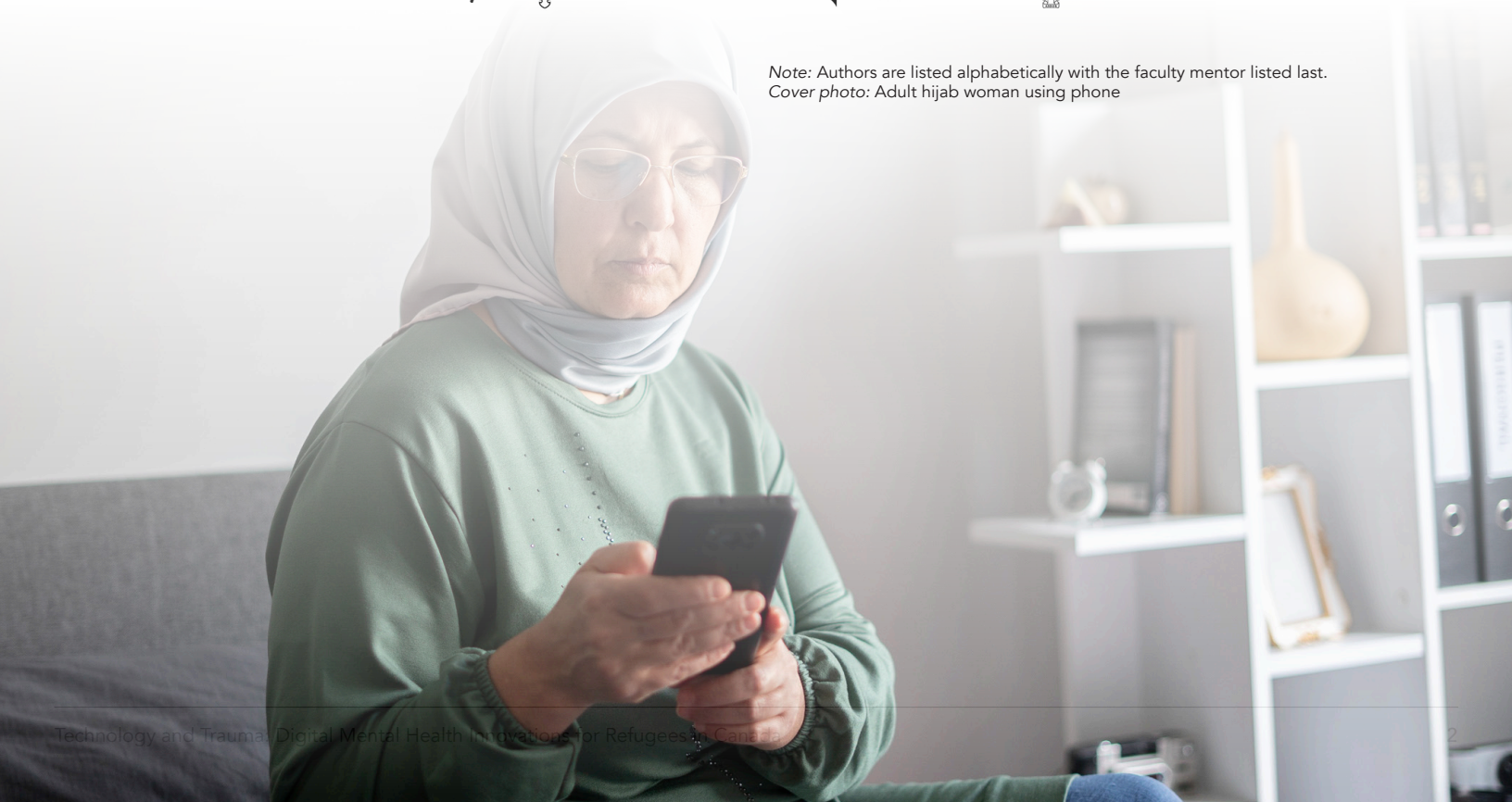

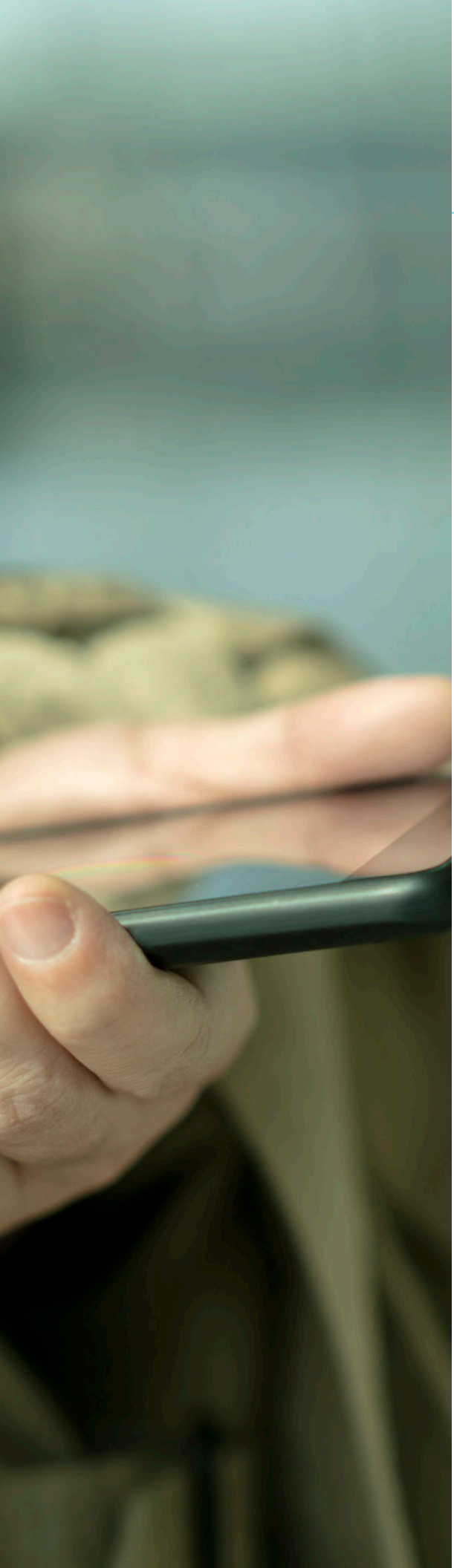

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Contribution	Contributor (initials)
Conception or design of the work	KE, JA, NK, MA, BE
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Executive Summary

Refugee populations in Canada experience disproportionately high rates of trauma-related mental health conditions such as post-traumatic stress disorder (PTSD), anxiety, and depression. The prevalence of PTSD or depression is much higher in refugee communities compared to the general population with one in three refugees likely to suffer from these illnesses. Despite the growing promise of digital mental health tools, refugees often face systemic barriers to access, including linguistic and cultural mismatches, stigma, limited digital literacy, and deep mistrust rooted in experiences of surveillance or persecution. Current digital offerings are rarely designed with refugees in mind and typically fall short in addressing the cultural and structural realities that shape mental health care for this group.

To explore these mental healthcare gaps, we conducted a qualitative study consisting of 15 semi-structured interviews across six stakeholder groups: founders, funders, regulators, academics, service providers, and training/incubator organizations. Participants offered front-line, policy, clinical, and innovation perspectives on how digital mental health tools are designed, financed, and implemented for refugees. This analysis was supplemented with a literature review and an environmental scan of existing Canadian digital mental health platforms.

We found that most digital mental health tools in Canada are not tailored to refugees' needs. Stakeholders emphasized three major systemic barriers: fragmented and unclear regulatory frameworks; unsustainable funding models; and failure to integrate end-user needs, particularly from equity-deserving communities. Founders and service providers stressed the importance of co-design, cultural safety, and "phygital" approaches that pair digital tools with in-person/physical support to build trust. Academics and funders called for a broader definition of evidence and a shift toward inclusive, impact-first funding.

Our case study explores cross-sectoral challenges and highlights promising practices for improving mental health equity through digital innovation. It also suggests clear stakeholder-informed recommendations for regulatory reform, inclusive design, and hybrid funding strategies to bridge existing gaps. These findings support Canada's commitments under United Nations Sustainable Development Goal (SDG) 3 (Good Health and Well-Being) and SDG 10 (Reduced Inequalities).

A key lesson is that digital mental health innovations must be rooted in the lived realities of refugees, not merely adapted post hoc. Building equity into design, funding, and regulation from the outset is essential for innovations to become effective. Moreover, digital tools must be deployed alongside human-centred care to establish trust. Sustainable progress will require a coordinated effort among governments, innovators, funders, and community partners to embed inclusion, trust, and cultural safety in all aspects of digital mental health delivery.

Mental Health Disparities Among Refugees: Some Background

OVERVIEW OF REFUGEE MENTAL HEALTH NEEDS

Refugee populations are disproportionately affected by mental health challenges resulting from exposures to extreme adversity before, during, and after migration. Experiences of war, persecution, torture, and forced displacement leave many individuals with lasting psychological effects. Among the most common conditions reported are post-traumatic stress disorder (PTSD), depression, and anxiety disorders.

One in three refugees who were resettled in high-income countries suffer from PTSD or depression. Recent studies show that the prevalence is significantly higher than in the general population given that refugees are ten times more likely to have PTSD and five times more likely to have depression.[1] This mental health burden is exacerbated by postmigration stressors in the external environment, such as language barriers, unemployment, housing instability, and uncertain legal status.[2]

Despite these well-documented needs, many health systems struggle to deliver equitable and responsive mental health care to refugee populations. Available services often lack cultural competence and multilingual capacity, or are constrained by legal status, financial, and administrative barriers. In some cases, health systems also fail to recognize or address stigma, help-seeking norms, or communication preferences. Collectively, these challenges hinder the full potential of mental health services, even in systems with universal healthcare.[3]

Addressing these disparities requires tailored interventions that combine clinical effectiveness with cultural sensitivity and accessibility. Increasingly, researchers and practitioners are exploring digital mental health tools to bridge service gaps, especially in low-resource or linguistically diverse settings.

THE ROLE OF DIGITAL MENTAL HEALTH TOOLS

Digital mental health tools such as mobile apps, online therapy platforms, and virtual support services are emerging as scalable and flexible solutions to long-standing barriers in mental health care access. These tools can provide low-cost, on-demand support that is less dependent on in-person infrastructure or formal referrals, making them especially valuable in contexts where provider shortages, long wait times, and cultural or linguistic mismatches limit care.[4] For refugee populations, digital tools offer the potential to deliver care in multiple languages, reduce stigma through anonymity, and extend services into geographically isolated or underserved areas.[5] As digital innovation continues to grow in the health

1 Clemence Due, Erin Green, and Anna Ziersch, "Psychological Trauma and Access to Primary Healthcare for People from Refugee and Asylum-seeker Backgrounds: A Mixed Methods Systematic Review," *International Journal of Mental Health Systems* 14, no. 1 (2020): 71.

2 Hala Bawadi, Zaid Al-Hamdan, Yousef Khader, and Mohammed Aldalaykeh, "Barriers to the Use of Mental Health Services by Syrian Refugees in Jordan: A Qualitative Study," World Health Organization, Regional Office for the Eastern Mediterranean.

3 Kevin Pottie, Christina Greenaway, John Feightner, et al., "Evidence-based Clinical Guidelines for Immigrants and Refugees," *Canadian Medical Association Journal* 183, no. 12 (2011): E824–E925.

4 Helena Carter et al., "The Emergence of Digital Mental Health in Low-income and Middle-income Countries: A Review of Recent Advances and Implications for the Treatment and Prevention of Mental Disorders," *Journal of Psychiatric Research* 133, (2020): 223–46.

5 Andrian Liem et al., "Digital Health Applications in Mental Health Care for Immigrants and Refugees: A Rapid Review," *Telemedicine and e-Health 27*, no. 6 (2021): 577–91.

sector, its application to refugee mental health is increasingly being recognized as both a necessary and promising avenue for intervention.

RELEVANCE TO THE SUSTAINABLE DEVELOPMENT GOALS

Provision of resources for improved access to mental health care for refugees, a group at high risk of PTSD and other mental health conditions following their experiences of war and displacement, naturally supports both SDG 3 (Good Health and Well-being) and SDG 10 (Reduced Inequalities).

By identifying key stakeholders, policy gaps, and challenges in digital mental health, this study highlights systemic and design-level barriers that impact access for refugee communities. The findings will help shape more inclusive healthcare policies, enhance digital mental health platforms, and create long-term solutions that promote equitable mental healthcare access for all.

Further, by supporting the development of resilient healthcare infrastructure, this study encourages collaboration between policymakers, healthcare providers, and tech innovators to ensure that digital mental health tools are inclusive, sustainable, and accessible to refugees in Canada.

The Excluded Population: Refugees and PTSD

DEFINING THE EXCLUDED POPULATION

In 2024, there were approximately 190,039 asylum applications referred to Canada's Refugee Protection Division, which has a 24.46 per cent claim-acceptance rate. These applications were in addition to 272,440 claims still pending processing from previous years.[6] A majority of these applicants have fled war and persecution, resulting in a disproportionately high risk of PTSD and other trauma-related conditions.[7] Broader demographic statistics in Canada show that 40 per cent of immigrants from nations in turmoil have experienced traumatic events before resettling, with PTSD estimates ranging from as low as 5 per cent to as high as 89 per cent.[8]

Despite experiencing higher incidences of PTSD than the general population, refugees report more barriers to accessing effective mental healthcare.[9] Structural barriers such as long wait times, high costs, geographic inaccessibility, and the lack of culturally adapted services create significant hurdles. Yet, structural barriers alone do not fully explain care gaps; stigma, language access issues, and intergenerational trauma remain critical obstacles to addressing mental health challenges in this community. Left untreated, PTSD may lead to the development of other mental disorders, including generalized anxiety disorder (GAD) and major depression, which interfere with daily functioning and social interaction.[10]

6 "Claims by Country of Alleged Persecution — 2024," Immigration and Review Board of Canada.

7 Cécile Rousseau, Kevin C. Pottie, Brett Thombs, and Marie Munoz, "(PDF) Post Traumatic Stress Disorder: Evidence Review for Newly Arriving Immigrants and Refugees," *Canadian Medical Association Journal* (2011).

8 "Immigrant, Refugee, Ethnocultural and Racialized Populations and the Social Determinants of Health — A Review of 2016 Census Data," Mental Health Commission of Canada.

9 Loprespub, "Mental Health Needs of Refugees in Canada," HillNotes, 20 June 2022.

10 Rachel Kronick, "Mental Health of Refugees and Asylum Seekers: Assessment and Intervention," *Canadian Journal of Psychiatry 63*, no. 5 (2018): 290–96.

STIGMA

Mental health stigma is a well-documented challenge in refugee communities, and it can affect how individuals perceive and engage with care. However, stigma does not arise in isolation; it is often reinforced or exacerbated by health systems that fail to accommodate diverse explanatory models, languages, and support pathways. For many refugees, mental health concerns are not openly discussed. Their traumas are often buried as a result of systemic limitations that create the fear of misunderstanding or judgment, preventing individuals from seeking help. Such stigma is also rooted in cultural beliefs and the trauma of displacement, creating an environment where it is difficult to acknowledge struggles or access care.

In many refugee communities, mental health might be understood through spiritual or religious frameworks instead of through a medical lens, for example, as the result of curses, evil spirits, or divine punishment.[11] As a result, individuals sometimes seek help from spiritual leaders or elders rather than through Western clinical systems. This does not reflect a lack of care or concern, but rather a mismatch between available services and how mental health is understood and addressed in different cultural paradigms.

To complicate matters, mental health terminology used in Western clinical discourse does not always align with culturally grounded understandings.[12] For example, terms like depression or anxiety can carry stigma or may not exist in the same form linguistically, leading to discomfort, disengagement, or early termination of treatment. By contrast, alternative phrasing like "low mood" can reduce stigma and foster greater openness to discussing psychological distress. In our view, it is the responsibility of care systems to meet patients where they are, both linguistically and culturally, rather than expecting universal alignment with Western frameworks.

STRUCTURAL INADEQUACIES AND INCOMPATIBLE LANGUAGE

The failure of mental health systems to provide inclusive, accessible services is a major contributor to the care gap that refugees experience. Geographic and financial constraints are common, particularly for those living in under-resourced urban areas or remote settlements where mental health services are limited or non-existent. Even when services are available, high costs, long wait times, and a lack of public awareness can hinder refugees' use of them.

Language access represents another major systemic gap. Many mental health services are not equipped to support patients in their native languages, making it difficult to accurately communicate psychological distress, understand treatment options, or engage meaningfully with providers.[13] This can result in misdiagnoses, feelings of alienation, and treatment plans that do not resonate with the individuals' experiences.

INTERGENERATIONAL TRAUMA

The burden of trauma further complicates these challenges. The experiences of war, persecution, and forced displacement leave lasting scars. Resettlement offers safety, but it does not erase the trauma of what has been lost. Instead, structural exclusion in the form of poverty, unstable housing, discrimination, and underemployment continues to affect mental

11 Dana Al Laham, et al., "Perceptions and Health-Seeking Behaviour for Mental Illness Among Syrian Refugees and Lebanese Community Members in Wadi Khaled, North Lebanon: A Qualitative Study," *Community Mental Health Journal 56*, no. 5 (2020): 875–84.

12 Laurence J. Kirmayer and Danielle Groleau, "Affective Disorders in Cultural Context," *Psychiatric Clinics of North America 24*, no. 3 (2001): 465–78.

13 Dimitrina Miteva et al., "Impact of Language Proficiency on Mental Health Service Use, Treatment and Outcomes: 'Lost in Translation,'" *Comprehensive Psychiatry 114* (2022): 152299.

health, intensifying conditions like depression, anxiety, and PTSD.[14] These systemic stressors make social integration into new communities more difficult.

Additionally, such effects of unaddressed trauma extend across generations. Children of refugees might internalize emotional burdens passed down through unspoken grief, silence, or maladaptive coping mechanisms. Emotional detachment, anxiety, and difficulty forming secure relationships can emerge as signs of intergenerational trauma, reinforcing cycles of distress. Without system-level interventions such as trauma-informed care and culturally relevant support, these struggles persist, reinforcing cycles of exclusion and distress.

The failure of mental health systems to provide inclusive, accessible services is a major contributor to the care gap that refugees experience.

Digital Innovation in Mental Health: A Promising Solution

The integration of digital technology into mental health care presents a transformative opportunity to enhance service delivery, especially for populations facing significant barriers to traditional care, such as refugees. Case studies of select platforms that are intentionally designed for refugee populations allow us to examine potential benefits these innovations could offer to the Canadian refugee population.

SAMPLE CASE STUDIES

We identified digital platforms through an environmental scan of publicly accessible sources such as Google searches, app stores, and AI-assisted research tools. While not a comprehensive list, these curated selections highlight commonly referenced and publicly available Canadian-developed digital tools, with a focus on those relevant to refugee mental health. We selected platforms based on their visibility, relevance to refugee populations, and availability of descriptive information about language access, cultural tailoring, and service offerings.

Table 1 outlines each platform's core services and indicates whether they provide tailored support for refugees, such as partnerships with refugee-serving organizations and culturally adapted care. It also indicates whether publicly accessible evaluation or usage data are available, including published studies, reports, or metrics. While several platforms are broadly accessible to the general population, only a few are explicitly designed to include refugee-specific adaptations. The following examples of such tailored platforms illustrate promising models of digital mental health care for refugees in Canada.

14 Jessica Mariana Carlsson and Charlotte Sonne, "Mental Health, Pre-migratory Trauma and Post-migratory Stressors Among Adult Refugees: Theory, Research and Clinical Practice," in *Mental Health of Refugee and Conflict-Affected Populations: Theory, Research and Clinical Practice*, edited by Nexhmedin Morina and Angela Nickerson (Cham, Switzerland: Springer, 2018), 15–35.

Table 1. Canadian-designed digital mental health platforms and refugee adaptation

Platform / App	Core Services	Refugee-adapted?	Research available	Notes
Foundry BC (App & Virtual)	Counselling, peer support, health services	Not found	Yes, provincial-level utilization data	Youth mental health focus[a]
Kids Help Phone	24/7 phone/text youth counselling	Yes	Yes, national usage statistics & outcome reports	Offers services in over 100 languages with interpreters for refugee youth[b]
AbilitiCBT	Therapist-guided iCBT programs[c]	Not found	Yes, third-party outcome measures	General population focus, government sponsored
Maple	On-demand and scheduled therapy, psychiatry, primary care services[d]	Not found	Not found	General population focus
MindBeacon (CloudMD)	iCBT, therapist-guided and self-directed[e]	Not found	Yes, third-party outcome measures	General population focus
MindShift CBT	Anxiety management using CBT[f]	Not found	Yes, third-party outcome measures	Developed by Anxiety Canada
MOODIE	Mood tracking and behaviour logs[g]	Not found	Partial, conference paper with outcome data	Generic Canadian self-help tool
PsyMood	Multilingual therapist-matching platform	Yes	Not found	Refugee-accessible, culturally/linguistically matched therapy[h]
Rootd	Panic attack/anxiety relief app	Not found	Partial, expert quality evaluation	Useful for self-management but not culturally adapted[i]
Savyn	Digital EMDR therapy for PTSD	Yes	Not found	Multilingual content, partners with refugee organizations[j]
Wellness Together Canada	Self-help tools, live counselling, PocketWell app[k]	Not found	Yes, third-party randomized control trial	Culturally sensitive

a Foundry BC, "Virtual Services."
b Kids Help Phone, "Support for Afghan and Ukrainian Newcomers."
c AbilitiCBT, "Home."
d Maple 4 Counseling.
e MindBeacon.
f Lance M. Rappaport et al., "North American Open-label 16-week Trial of the MindShift Smartphone App for Adult Anxiety," *Journal of Mood and Anxiety Disorders 4* (2023): 100036.
g Alaa Alslaity et al., "Insights from Longitudinal Evaluation of Moodie Mental Health App," in *CHI EA '22: Extended Abstracts of the 2022 CHI Conference on Human Factors in Computing Systems*, edited by Simone Barbosa et al. (New York: Association for Computing Machinery, 2022), 1–8.
h "Wayble Acquires PsyMood to Address Critical Need for Mental Health and Mentorship Support Among International Students," Newsfile Corp.
i Rootd.
j "Savyn Neurotech."
k "PocketWell Case Study," The Decision Lab.

SAVYNTECH

SavynTech is a digital mental health startup founded in 2018. It provides digitized Eye Movement Desensitization and Reprocessing (EMDR) therapy, which has demonstrated clinical effectiveness in reducing PTSD symptoms. Such treatment prioritizes the emotional, psychological, and physical safety of individuals living with PTSD.[15] Early outcomes from a proof-of-concept study conducted at SickKids Hospital in Toronto demonstrated a 60 per cent reduction in PTSD symptoms within eight weeks without the need for therapist coaching or patient homework.[16]

As one of the few digital mental health interventions in Canada specifically designed using refugee pilot subjects, Savyn has responded to long therapy wait times, high costs, and limited service availability by partnering with refugee-settlement organizations across the country. With support from the NorthPine Foundation, the platform aims to reach 1,000 refugees by 2025, offering services in five languages and integrating with eight refugee-serving agencies nationwide.

PSYMOOD

PsyMood prioritizes culturally and linguistically tailored therapy by matching clients with therapists who speak their language or share their cultural background. Users can filter mental health professionals by over 35 languages and specific expertise, such as trauma, migration experiences, and refugee-related stressors.[17] The platform also collects user feedback to refine its matching algorithm and ensure relevance for communities with distinct cultural needs. Through these initiatives, PsyMood improves both comfort and trust in therapy for refugees and newcomers, making it a model for culturally competent digital care in Canada.

KIDS HELP PHONE

Kids Help Phone is Canada's national 24/7 youth mental health service offering phone, text, and live-chat counselling. Originally available in English and French, it has expanded to support refugees and newcomer youth by offering professional counselling with interpretation services in Dari, Pashto, Russian, Ukrainian, and additional languages. An internal report indicates that newcomer youth now account for nearly 10 per cent of crisis text line users, with 90 per cent reporting helpful interactions.[18] These targeted initiatives demonstrate Kids Help Phone's commitment to culturally responsive and accessible mental health care for refugee populations in Canada.

Despite the growing number of digital mental health tools available in Canada, the landscape remains uneven in its ability to meet the complex and culturally diverse needs of refugee populations. Most of these existing services are designed with the general population in mind. The mismatch between available services and refugee-specific needs raises important questions about who is being served, whose needs are prioritized in digital health design, and how refugees are able/unable to navigate and benefit from digital innovations. Understanding the full scope of both barriers and opportunities requires a deeper exploration of the perspectives of those directly involved in the development, delivery, use, and regulation of these platforms. It also means engaging with diverse stakeholders in identifying practical solutions and ensuring that future digital mental health innovations are truly responsive to the needs of refugee communities in Canada.

15 Francine Shapiro, *Eye Movement Desensitization and Reprocessing (EMDR) Therapy: Basic Principles, Protocols, and Procedures* (New York: Guilford, 2018).

16 Savyn — Company Profile," Innovation Factory.

17 "Wayble Acquires PsyMood to Address Critical Need for Mental Health and Mentorship Support Among International Students," Newsfile Corp, 14 January 2025.

18 "Featured Organization: Kids Help Phone Offers Mental Health Support in Multiple Languages," Newcomer Navigation Network.

About Our Research

RESEARCH QUESTION AND OBJECTIVES

Our research aimed to explore two key areas:

1. Understanding the Canadian digital health ecosystem (opportunities, challenges, and barriers to growth)

2. Examining how digital health technologies can effectively reach and serve hard-to-reach populations in Canada, such as refugees and other marginalized groups.

The guiding research question was: What are the barriers and facilitators to implementing and scaling digital mental health innovations for refugees in Canada, as perceived by key stakeholders?

STUDY DESIGN

To ensure a comprehensive understanding of the digital mental health landscape, we conducted 15 semi-structured interviews with individuals selected to reflect a diversity of roles, institutions, and sectors. We considered six key stakeholder groups: digital health founders, service delivery leaders, regulators, funders, academics, and training providers.

Each session lasted 30 to 40 minutes and explored participants' experiences with developing, implementing, or scaling digital mental health innovations, with a focus on perceived barriers, facilitators, and future priorities. The range of their professional roles offered a well-rounded view of both system-level dynamics and end-user challenges.

Participants included executives, front-line service providers, start-up founders, academic researchers, and individuals working at the intersection of public policy, innovation, and care delivery. Several participants held hybrid or interdisciplinary roles, combining clinical, academic, and leadership functions. Together, their perspectives offered valuable insight into the design, delivery, regulation, and evaluation of digital mental health solutions, particularly in contexts involving equity-deserving communities.

Table 2. Overview of interviews conducted by sector

Sector	Number of interviews conducted	Rationale
Regulators	3	To understand policy constraints, standards, and institutional frameworks that govern digital mental health implementation
Service delivery	2	To explore front-line perspectives on integrating digital tools into existing care models and addressing user needs
Funding agencies	2	To assess how funding priorities, models, and eligibility criteria shape access and sustainability of digital mental health initiatives
Research/ academics	2	To gather insights on evidence generation, evaluation methods, and knowledge translation in digital mental health
Training	4	To examine how capacity building, professional development, and digital literacy are addressed for both providers and users
Founders	2	To learn about the design process, innovation challenges, and ethical considerations faced by developers of digital mental health platforms

Interviews were held via Zoom and audio recorded on a separate device after participants provided informed consent. Each participant was then assigned a unique abbreviation based on their stakeholder group: R (Regulator), SD (Service Delivery), F (Funding Agency), AC (Research/ Academic), T (Training Provider), or FD (Founder).

CODEBOOK DEVELOPMENT

The team first open coded a subset of transcripts, meaning we each read through the interviews and noted recurring ideas or topics to inductively generate themes. Next, we refined these initial themes into a finalized set of 12 codes for the codebook, each with a clear definition as Table 3 indicates.

We also compiled valence cue words, that is, terms that signal the emotional or evaluative tone of a statement, indicating either barriers (e.g., *lack, risk, gap*) or opportunities (e.g., *enable, empower, sustainable*).

DATA PROCESSING

All interview transcripts were cleaned, de-identified, and loaded into a single folder in Google Colab and processed with Python. Python's range of libraries and tools generally helps streamline the data visualization process for qualitative and quantitative research alike, allowing researchers to efficiently manage and interpret complex data sets. Comparison of a Python-mediated thematic analysis to a manual

Table 3. Codebook for thematic analysis of stakeholder interviews

Code	Definition and Examples
Regulation	Statutes and policy documents (federal and provincial) that govern the development and deployment of digital-health innovations
Finance	Financial resources and investment dynamics that enable or restrict growth
Equity	Factors affecting fair reach across populations
Culture	Adaptations that respect local norms, beliefs, and practices
Technology	Technical features and constraints of hardware, software, and networks
Delivery	Modes and procedures through which mental health services are provided
Usability	Design elements that shape ease of use and engagement for end users
Support	Structures and relationships that help teams develop and scale products
Ethics	Professional and moral considerations around automated or AI-mediated care
Market	Activities and hurdles involved in gaining recognition and uptake
Evidence	Generation and use of empirical data to demonstrate safety and effectiveness

analysis revealed that Python's ability to process natural language and identify key themes from qualitative transcripts was on par with traditional methods.[19]

We standardized the transcripts (lowercasing, removing extra spaces/line breaks) and split them into paragraphs. Each paragraph was searched against the 12 codebook keywords to assign topic labels. We then counted barrier and opportunity cue words to classify sentiment as barrier, opportunity, or neutral. Finally, we generated summary counts, confirmed stakeholder group representation, and spot-checked excerpts for accuracy.

DATA ANALYSIS

For the analysis, we created visual summaries to highlight key findings. These included charts showing how often different themes appeared, comparisons between stakeholder perspectives, and breakdowns of whether discussions leaned more toward challenges or opportunities. We also examined how often themes appeared together and whether new interviews were still revealing new insights or if we had reached a point of diminishing returns.

LIMITATIONS

While our study yielded valuable insights, several limitations shape its scope. First, most participants were Ontario-based, even though policy contexts for digital health, healthcare, and innovation vary across provinces. We sought to address this by including stakeholders with perspectives on national policy and stakeholders with multi-provincial experience. Second, we were unable to interview refugees directly, a critical gap when studying lived experiences. We address this by speaking with front-line providers and organizations with close community ties, but interpretation may still remain researcher and institution-driven rather than refugee-led. Third, our reliance on expert stakeholders introduces potential institutional bias because participants may frame challenges in ways aligned with their organizational mandates. Finally, while automated coding in our data processing was efficient, it risked oversimplifying complex narratives.

Stakeholder Perspectives: Challenges and Opportunities

To identify the most prominent areas of concern and discussion, we examined how often each thematic code appeared across interviews. Figure 1 illustrates the distribution of these codes and highlights the themes that stakeholders engaged with most frequently. Delivery and technology emerged as the two dominant themes, indicating that stakeholders are especially focused on how digital mental health tools are implemented and developed. Equity and finance also appeared prominently, reflecting concerns about access and sustainability.

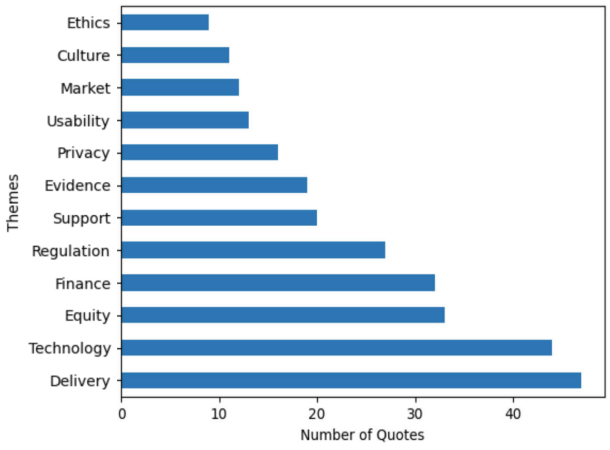
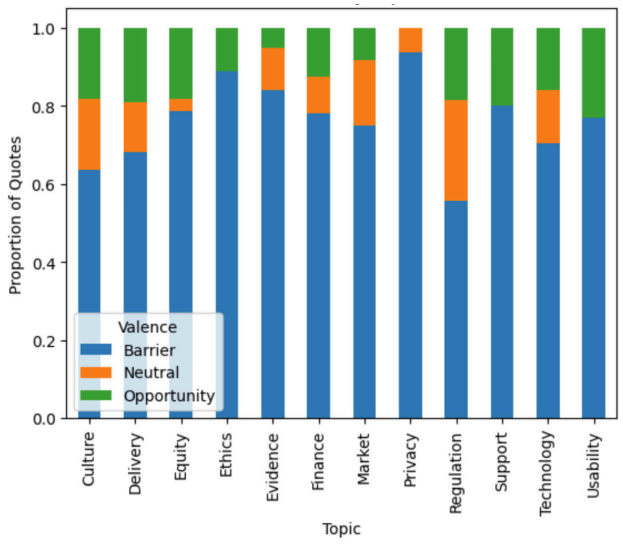


FIGURE 1. Frequency of key themes across stakeholder groups

19 Marissa Abram, Karen Mancini, and David Parker, "Methods to Integrate Natural Language Processing into Qualitative Research," *International Journal of Qualitative Methods 19* (2020): 1609406920984608.

We also explored how stakeholders framed their insights, whether as challenges, opportunities, or neutral observations. Figure 2 presents the distribution of valence by topic, revealing where optimism, concern, or neutrality clustered in the data. Across most themes, perspectives leaned strongly toward barriers, but these barriers were not limited to front-line service delivery. Rather, they reflected a wider set of systemic issues, including fragmented regulation, unsustainable funding, cultural and linguistic mismatches, and mistrust shaped by past experiences of surveillance or exclusion. Opportunities and neutral reflections appeared less frequently but were evident in areas such as technology, delivery, and support, where stakeholders saw potential for culturally adapted innovation, hybrid models of care, and improved infrastructure if the right enabling conditions were in place.



Notes: Each topic is represented as a stacked vertical bar segmented by sentiment: barrier (blue), neutral (orange), and opportunity (green). The figure illustrates the emotional or evaluative tone attached to each thematic area across all stakeholder interview quotes (n = 89).

FIGURE 2. Valence distribution by topic

SERVICE DELIVERY: MENTAL HEALTH EXPERTS AND REFUGEE AGENCIES

Stakeholders delivering mental health services and refugee support emphasized that digital integration is changing care delivery, but it also creates practical and structural challenges. For refugee-serving agencies, continuity of care in virtual settings was often fragile. SD001 described how limited digital literacy, language barriers, and stigma made digital sessions less accessible, especially for those most in need. Additionally, without steady funding, culturally adapted content, and staff training, digital tools risk bypassing the very populations they are meant to reach: "We've discussed launching something similar at our [refugee] centre but lack the funding."

For community-based refugee agencies, the main gaps are resources and cultural fit. For hospitals, the challenge is infrastructure and design.

Hospital-based providers highlighted a different set of issues. SD002 noted that "the learning management systems that are available are a little bit more limited … it's not as interactive as I would like it to be. Trying to get AI and trying to be really innovative in the digital space is a challenge based on available systems." Here the concern was not basic adoption, but also the limits of existing platforms. SD002 also pointed to the emotional side of adoption, saying "we forget to take into consideration the anxiety and the fear … when they're coming into a new system … we do need to do a much better job of getting people comfortably started."

Together, these accounts show how barriers to digital mental health differ across settings. For community-based refugee agencies, the main gaps are resources and cultural fit. For hospitals, the challenge is infrastructure and design. Both stress that digital tools will support equity only if systems invest in inclusive and well-supported approaches, rather than assuming technology alone can close access gaps.

RESEARCHERS AND ACADEMICS

Research and academic stakeholders brought systems-level views, centring on two themes: evidence and equity. On evidence, they raised concerns about the weak research base behind many digital mental health tools. Few innovations undergo randomized controlled trials (RCTs), and those that do often lag behind the rapid pace of technological change. As one participant put it, "By the time the randomized control trial ends, the app has been updated 25 times." This mismatch between research timelines and technology cycles undermines confidence in claims of effectiveness.

> **AC001:** "Of all the evaluations I've done, only one had done a randomized trial before. All the rest didn't have a placebo — didn't have a control."

This stakeholder group also questioned the rush toward AI-driven tools. They cautioned that language models sometimes assume a narrow way of expressing distress, which risks excluding marginalized users.

> **AC002:** "The biggest emerging topic is AI and chatbots … No one's really talking about whether AI tools actually support marginalized groups, especially those whose first language isn't English."

Equity concerns ran deeper than infrastructure or access. Translation alone was seen as insufficient, since many communities carry different cultural codes around illness. One example was how, in some cultures, saying someone is "sad" is considered offensive, while other terms are acceptable. Without cultural adaptation, even accurate translations risk alienating users. As AC001 put it, "Translating something to a language doesn't mean it's culturally adapted."

Translating something to a language doesn't mean it's culturally adapted.

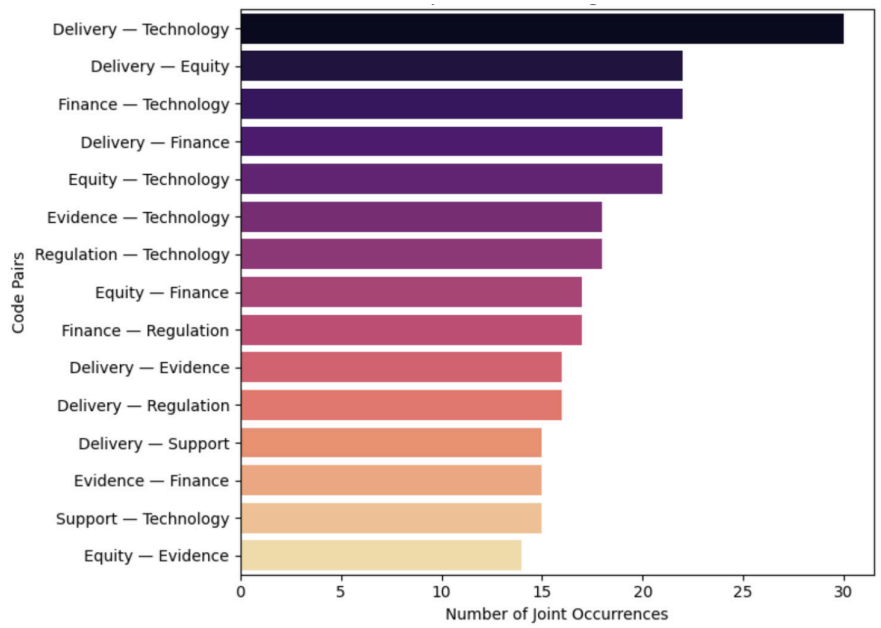
Trust was another barrier. For refugees from authoritarian regimes, fears of surveillance make digital platforms unusable, regardless of how well-designed or evidence-based they are. AC001 explained how "Some communities … people who come from oppressive regimes … will not do anything online just because they think they are being watched."

Together, these perspectives challenged common assumptions: that evidence in randomized controlled trials guarantees effectiveness, that access ensures use, and that translation equals cultural fit. Instead, they argued that digital mental health must be judged on whether it is trusted, relevant, and adaptable to the communities it seeks to serve. In the words of AC002: "You can have a great evidence-based tool, but if it's not accessible, relevant, or interesting to the user, it's not going to be applied. That makes the evidence sort of moot."

Figure 3 shows how concepts are clustered across interviews. This figure underscores how these issues are interdependent. Technology was rarely discussed without reference to delivery or equity, reflecting the reality that digital tools succeed or fail at their points of integration into care systems. Similarly, evidence was most often paired with questions of finance and implementation, suggesting that stakeholders see proof of effectiveness as inseparable from sustainability and system readiness.

TRAINING: INCUBATORS AND ACCELERATORS

Incubators and accelerators, categorized under training, offered important reflections on capacity-building and community engagement. A major barrier highlighted by this group of stakeholders was the disconnect between digital innovations and user needs. This limitation often



Notes: This figure visualizes how often themes co-occurred in stakeholder interview quotes (n = 89). Darker shades represent stronger pairings. Delivery and technology had the highest co-occurrence (30), followed by delivery and equity (21), and finance and technology (21), underscoring the interplay between infrastructure, accessibility, and funding in digital mental health.

FIGURE 3. Co-occurring keyword pairs

leaves early-stage health startups unsure of who their real users are, whether clinicians, hospitals, or community organizations. Accelerators therefore act as guides, helping ventures through the difficult work of finding and understanding stakeholders. As T002 said, "Understanding who you're building it for and who you have to talk to can be difficult in itself."

Participants raised concerns about the rise of "tech for tech's sake," especially with artificial intelligence. Many start-ups describe themselves as AI-enabled to attract attention, yet few offer tools that truly reflect the needs of equity-deserving groups. Without some element of human connection, these technologies risk losing the trust and relationships that mental health care depends on. T004 told us "AI certainly… one thing that we often look for is the human in the loop."

Another theme was the value of "phygital" models, where digital platforms are paired with local in-person delivery. This mixed approach was seen as important for building trust in settings such as refugee mental health care. Yet accelerators also noted a repeated mistake. Too often, start-ups failed to keep users involved once development began. This lack of feedback blurred the differences between various direct users of technology, such as clinicians and the ultimate beneficiaries (e.g., refugees), making it nearly impossible to design solutions that truly centre people.

These reflections link to a wider pattern in the system. As one policy architect observed, the market is crowded with digital health products, yet visibility and credibility remain hard to secure. Without serious attention to user needs, new ventures risk becoming lost in the noise. The lesson for accelerators is that training is not only about helping startups grow, but it also about ensuring they stay rooted in real-world problems instead of chasing scale for its own sake.

To connect innovation with refugee needs, stakeholders suggested new ways of funding:

1. Blended models that combine philanthropy, public grants, and earned revenue.

2. Conditional grants that require direct work with underserved communities.

These approaches were presented not only as financial fixes, but as ways to reset incentives as well as embed fairness and accountability into the structure of innovation.

REGULATORS: GOVERNMENT POLICYMAKERS AND HEALTH TECH LEGAL EXPERT

Stakeholders in this group brought a systems-level view that connected finance and technology regulation. Their work across policy and funding gave them perspective on both the barriers that hold the system back and the levers that could move it forward. They stressed the need to reform funding models, allow for local adaptation, and move away from outdated budgeting practices. R003 said, "We should fund based on the work being done and the people being served — not just on legacy budgets."

Flexibility in regulation was a recurring theme. One policymaker stressed that a province as large and diverse as Ontario cannot be served by a one-size-fits-all model. Communities need space to use the tools and methods that fit their realities. "Ontario is large and diverse … Organizations should be empowered to use the tools and methods best suited to their communities" (R003).

Still, regulators emphasized that fragmented governance, unclear procurement pathways, and the lack of a national digital health strategy create uncertainty. Yet they saw openings for progress through equity-focused procurement, better data infrastructure, and funding tied to outcomes.

> **R002:** "There's really an absence of a national strategy linking refugee health with e-mental health innovation."
>
> **R003:** "We could move toward volume-based or outcomes-based funding."
>
> **R002:** "There's a big opportunity to include refugees in national mental health parity legislation."

R001 added a legal and international perspective that sharpened these insights. He pointed to Canada's new Software as a Medical Device (SaMD) guidance document by the Government of Canada, which considers how digital health innovations such as AI-based chatbots may be regulated as medical devices. That shift raises the bar for compliance and shows how quickly policy can reshape innovation. He also drew attention to global models like Germany's cultural sensitivity requirements, the UK's equality impact assessments, and Australia's inclusion of Indigenous and refugee priorities that illustrate what is possible when regulation actively promotes equity. Together, these reflections highlight that regulation often slows innovation, but it can also set the standards that make digital mental health both safe and inclusive.

FUNDING AGENCIES

Funding agencies focused on finance, technology, and regulation, echoing concerns raised by training and regulator stakeholders. A central issue was the lack of sustainable funding for early- to mid-stage digital health start-ups, driven by the "missing middle": the gap between small research grants and larger institutional investments that leaves promising tools stuck at the pilot stage. Risk aversion in federal government streams further limits long-term backing for refugee-focused initiatives. F002 told us "Canadians as a country and as a society are risk averse … That's why … there is no institutional firm that does early-stage healthcare investments … in digital health. Full stop. Period."

Many noted that the digital mental health space has lost investor appeal compared to diagnostics and AI-assisted clinical tools, especially after the COVID-19 pandemic. Venture capitalists are generally discouraged from investing because they perceive marginalized groups as "small markets" with little return and high legal liability and the evidence available for successful programs is limited. In a single-payer system where adoption depends on public procurement, these constraints are especially pronounced.

Still, funders described ways to reframe financing toward inclusion. Promising approaches included:

- **Incentivizing diversity**. Some funders now tie grants to meaningful engagement with underserved groups, requiring design processes that include early user research, cultural adaptation, and multilingual access.

- **De-risking equity innovation.** Impact-first investors help absorb early losses to support projects for equity-deserving populations. As one explained, "We always take the first loss … innovators need that before they can take things to scale" (F001).

- **Coalition and peer models.** Programs are experimenting with collective support that addresses capital needs but also mentorship, community, and founder well-being.

Together, these perspectives call for shifting investment from short-term profit to long-term impact, with funding judged by social outcomes, user needs, and equity.

FOUNDERS

The founders group, made up of digital health entrepreneurs and start-up leaders, offered a market-driven perspective that centred on equity, technology, and delivery. Like funding agencies, several described the "missing middle," with few investors willing to support solutions for populations seen as low return. This creates a funding landscape that sidelines refugee-focused digital mental health innovation. As FD001 put it, "There is a big challenge trying to find private funding since it is for refugees and mental health. Both are at the bottom of the list for ROIs."

Despite these barriers, founders showed the strongest equity focus across stakeholder groups. Many designed mobile-first, culturally adapted tools with features like anonymity, low data use, and nonclinical language ("struggling" or "lonely" rather than *depression* or *PTSD*) to reduce stigma and expand access among refugee and low-income users.

Co-design was a cornerstone of their development approach. Founders emphasized iterative consultation with community members, diaspora clinicians, and refugee-serving agencies to ensure that solutions reflected lived experience. This included needs assessments, usability testing, content localization, and validation with trusted community leaders. As FD001 explained, "We engage people with lived refugee experiences not just as testers but as co-creators to ensure the product reflects their realities."

Still, many acknowledged the commercial reality of needing to pivot toward co-designing with broader audiences to survive. FD002 captured this tension when reflecting on the wider sector: "A lot of presumptions being made about what an equity-deserving population might want to use … actually without taking into consideration the opinions and desires of someone who they may be targeting." This highlighted how co-design was not only a method but also a critique of prevailing industry practices.

Founders also valued early-stage support from accelerators and incubators, especially for mentorship, pilot testing, and building credibility. Yet several noted that accelerator programs are often misaligned with their evolving needs, requiring time-intensive activities focused on skills they had already developed or did not match their stage of growth. Even so, early pilot studies and institutional connections were critical for demonstrating real-world impact and securing buy-in.

Discussion

While digital tools promise increased accessibility and efficiency, stakeholders repeatedly emphasized the need for trust, cultural sensitivity, and context-specific approaches. Three critical

areas of concern emerged: evidence-based approach for building trust, persistent funding and policy challenges, and the invisibility of user needs in product design. Together, these insights suggest that scaling digital mental health interventions requires more than technological innovation. Meaningful progress also depends on systemic reforms that centre the needs of equity-deserving populations.

TRUST AND EVIDENCE

Stakeholders pointed to a disconnect between tool builders, clinicians, and refugee clients that weakens trust and usability. Human-centred design is difficult without consistent feedback from end users. Although AI-enabled products are popular in the market, few meet the needs of marginalized groups. The most impactful innovations are those that integrate some form of human contact, whether in-person or virtual.

Initial in-person contact was considered crucial for building trust. Stakeholders emphasized that refugees with complex mental health needs often prefer one-on-one interaction, at least for the initial intake, and may resist digital interactions until the face-to-face foundation is established. After trust is built, digital follow-ups become more feasible. This idea also raises questions about how far digital tools can go without the foundation of human connection.

Another persistent concern among stakeholders was the lack of rigorous, real-world evidence demonstrating the effectiveness and appropriateness of many digital mental health tools currently on the market. While randomized controlled trials (RCTs) were consistently upheld as the gold standard for evaluation, researchers noted that most tools fail to meet this bar. One participant shared that out of all the digital tools they had evaluated, only one had undergone an RCT.

However, some academics pushed back against overly rigid applications of traditional research hierarchies, stating that most people do not receive care in lab settings. Therefore, "what constitutes evidence" must expand to accommodate real-world conditions, lived experiences, and user preferences. Researchers argued for a more context-sensitive lens that asks, *who does this work for, why, and under what circumstances?*

FUNDING AND POLICY CHALLENGES

The current funding landscape in Canada is unsupportive of early-stage digital mental health innovations. Investors are generally risk averse, and few are willing to back solutions that target low-return populations such as refugees. Even when mental health is funded, the focus often falls on diagnostics or tools for the general population, leaving equity-focused innovations sidelined.

Some stakeholders noted that fragmentation in both the Canadian digital mental health space and the broader health system further increases perceived risk. Definitions of what counts as a digital service remain inconsistent, governance is split across provinces, and there is still no national digital health strategy. Globally, "digital mental health" spans everything from WhatsApp messaging to mobile radio to Zoom counselling, yet Western markets continue to emphasize app-based solutions. This narrow framing adds both financial and clinical risks. Several interviewees pointed out that when pathways are unclear, equity-deserving populations often rely on generic wellness apps, which may not address trauma or cultural needs and can even delay access to proper care. Others emphasized that short-term pilot funding creates cycles of innovation that start and stop, leaving communities without sustained support and making it harder to build trust in new tools.

INVISIBLE USER NEEDS

Stakeholders widely critiqued the tendency to design digital mental health tools without

addressing broader systemic barriers such as digital readiness, cultural nuance, and language diversity. Translation, for example, is often used as a proxy for accessibility, but meaningful engagement requires deeper cultural adaptation. This failure is not the fault of individual developers or users; instead, it reflects a broader system in which dominant epistemologies shape tool development, leaving diverse expressions of mental distress overlooked.

Cultural stigma also shapes how tools are received, particularly in how mental health terminology is framed. Service providers noted that softer, more familiar language (e.g., *mood* instead of *depression*) can improve engagement and reduce stigma. Without culturally sensitive framing, even well-designed tools can fail to resonate with their intended users.

Without culturally sensitive framing, even well-designed tools can fail to resonate with their intended users.

Among refugee and newcomer populations, digital mistrust is often rooted in their lived experiences of surveillance and authoritarian control. Even when tools are functional, the fear of being monitored or having their data misused can deter engagement. These concerns are not just individual anxieties — they are also reflections of systemic failures to build trust, ensure privacy, and design for trauma-informed care.

Moreover, many digital mental health tools are built with assumptions about user literacy, digital fluency, and device access. These assumptions create structural barriers for older adults, individuals with low literacy, or those unfamiliar with Western-style app interfaces. Stakeholders emphasized that for these users, the presence of the tool alone is insufficient; proactive support, such as live onboarding, visual instructions, or in-person guidance, is often necessary. Several stakeholders also observed that while developers increasingly talk about co-design, in practice user voices are often consulted late or only superficially, limiting how well tools align with lived realities.

Lessons Learned

Canada has invested heavily in mental health services for the general population, yet refugee communities remain on the margins of these systems. Stigma persists in refugee communities alongside incompatible language and long-term effects of intergenerational trauma. Our interviews suggest that these same barriers are often replicated in digital health, where digital tools risk reproducing inequities rather than overcoming them.

Based on our findings and stakeholder perspectives, three key domains where targeted action can improve on accessibility and cultural responsiveness of digital mental health services emerged: regulation, equity, and funding

RECOMMENDATION 1: ADDRESS REGULATORY FRAMEWORKS FOR DIGITAL INNOVATIONS

Stakeholders, particularly those from government and innovation incubators, highlighted the lack of unified regulatory frameworks as a major barrier to equitable service access. Regulation matters for investments because clear structures reduce perceived risk and signal long-term institutional support.

Improved frameworks could provide stability amid shifting political priorities while also broadening the prevailing definition of digital mental health. At present, policy and funding often default to app-based models, overlooking more familiar tools like Zoom, WhatsApp, or moderated peer-to-peer communities that refugees are already using. Recognizing the legitimacy of these

modalities would expand the range of safe, acceptable interventions.

Some stakeholders also emphasized that regulation should move beyond approval to include ongoing monitoring of equity outcomes. A national registry of approved digital tools, including information on safety, effectiveness, and uptake among marginalized groups, could increase accountability and visibility. One stakeholder proposed the creation of a Pan-Canadian licensure, which would allow mental health clinicians to serve refugees across provincial and territorial boundaries. This approach could address gaps in access while reducing administrative friction.

RECOMMENDATION 2: EQUITY IN DESIGN AND DELIVERY

A promising avenue for equity in design and delivery lies in combining digital tools with human oversight — what one stakeholder called a "phygital model." In this model, rather than choosing between digital or in-person care, having both concurrently allows for adaptability to refugees' diverse and shifting identities. While digital tools can streamline access, offer basic translation, and reduce overall wait times, human providers remain essential for needs assessment and conveying cultural nuance, especially in trauma care. Anchoring digital tools in human connection can help overcome systemic barriers tied to language, trust, and cultural responsiveness.

Funding agencies urged a shift from market-first thinking to impact-first investment models.

Equity-focused design also recognizes the unique, long-term mental health challenges of settled refugees, who are often overlooked. Sustainable solutions include peer-led and community-centred models that build trust and cultural relevance for both newcomers and settled refugees. Additionally, low-barrier, short-term digital "drop-in" services could offer unregistered refugees timely culturally competent support when they might otherwise go without care.

RECOMMENDATION 3: SUSTAINABLE FUNDING

Funding emerged as a major barrier to advancing digital mental health solutions. To close the "missing middle" gap between early-stage grants and later-stage investments, stakeholders stressed the importance of creating sustainable funding pathways that combine public and private sector efforts.

First, government commitment is critical. Elevating refugee mental health as a policy priority can unlock more stable public funding. This requires engaging policymakers through targeted briefings, case studies, and knowledge-translation efforts that show digital tools' effectiveness in similar contexts. Interviewees also noted the need for joint funding initiatives such as academic, philanthropy, and government partnerships that prioritize cultural relevance over market returns.

Second, funding agencies urged a shift from market-first thinking to impact-first investment models. This involves prioritizing long-term social outcomes over short-term profits, stabilizing projects through mentorship, pilot studies, and incubators, and adopting blended finance models that weigh equity and human-centred design alongside financial metrics.

Finally, private investment can be encouraged through targeted incentives. Tax relief mechanisms for high-net-worth individuals (e.g., income or capital gains exemptions) were cited as promising tools to spur early-stage investments in refugee-focused digital mental health. Overall, hybrid funding approaches combining public leadership with private and philanthropic backing are key to ensuring these innovations scale sustainably.

POTENTIAL AREAS FOR FURTHER STUDY

Future research should go beyond questions of adoption to consider how digital mental health tools interact with the lived realities of refugee populations. Several priority areas emerged:

- **Long-term engagement.** More evidence is needed on whether early uptake of digital tools leads to sustained use and meaningful mental health outcomes. Longitudinal studies could help distinguish between short-term novelty and durable impact.
- **Intergenerational dynamics.** Refugee families often span multiple levels of digital literacy and cultural comfort with mental health. Research could explore how young people act as digital mediators for older relatives.
- **Ethics, privacy, and anonymity.** While anonymity may reduce stigma and increase initial access, research should examine whether privacy-preserving approaches can maintain therapeutic effectiveness while incorporating the community connections and cultural practices central to refugee mental health.
- **Financing and delivery models.** Outcome-based funding, blended finance, and integration with community services could help sustain equity-focused innovation. Studies should also assess how mobility across provinces and countries affects refugees' ability to access digital services.

CONCLUSION

Refugees face disproportionately high rates of psychological distress, including PTSD, depression, and anxiety. These conditions are intensified by language barriers, stigma, limited geographic access, and cultural mismatches between available services and refugee needs. Although digital tools offer promising solutions, their impact depends on how well they align with refugees' cultural, regulatory, and structural contexts.

A key issue we identified is the misalignment between existing digital health innovations and the real-world requirements of refugee mental health care. Most digital platforms are not designed with refugees in mind and are rarely integrated into publicly funded systems. This disconnect stems from a lack of tailored design, fragmented policies, unstable funding, and limited culturally competent outreach and digital literacy efforts.

Overall, by aligning digital innovation with culturally safe practices, regulatory coherence, and long-term community engagement, Canada can strengthen its mental health infrastructure in ways that better serve refugees and, by extension, all marginalized communities. In doing so, this work supports the realization of key global commitments, including Sustainable Development Goals 3 (Good Health and Well-being) and Goal 10 (Reduced Inequalities), and contributes to the development of a more accessible and responsive mental health system for refugees.

Research Team

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Meerab Anwar is a masters of biotechnology candidate at the University of Toronto. She has volunteered with refugees on multiple occasions, from booking COVID-19 vaccine appointments during the pandemic to developing nutritional content for refugees facing food insecurity. She worked in the Department of Community and Family Medicine as a student researcher helping launch a five-year intervention study studying diabetes in Indigenous populations in the Sioux Lookout region. She has presented an abstract at the Conference for Canadian Global Health for an upcoming study that will apply the One Health Framework to investigate the TB crisis in Inuit populations in Nunavut. She has several years of experience analyzing quantitative and qualitative data and conducting scooping and literature reviews.

Khyati Eda is a BSc candidate in neuroscience and psychology at the University of Toronto. She has over five years of experience working with underserved communities as a former president of Ink Movement Mississauga, a community-based organization improving well-being through community workshops and national anthology publications. She recently completed a research assistant position at the Olsen Lab in Baycrest's Rotman Research Institute, investigating memory recall across diverse demographics. She also has experience independently designing and implementing a study investigating the impact of cynical and hopeful literature on mental health. In both these roles, she gained experience in research standards, participant recruitment, and quantitative data collection and analysis.

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