

Artificial Intelligence and Mental Health Services in Somalia: Opportunities and Health-System Considerations

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Abstract: Somalia faces a substantial mental health treatment gap driven by severe workforce shortages, limited specialist services, and weak health-system infrastructure. Artificial intelligence (AI) is increasingly promoted as a tool to strengthen health systems, yet its application in low-resource and conflict-affected settings requires careful consideration of feasibility, governance, and equity. This commentary examines realistic opportunities for integrating AI into mental health research and service delivery in Somalia. It requires AI to be viewed as a system-support tool rather than a substitute for clinicians, with potential to strengthen task-shared primary care, supervision, referral pathways, and routine data use within the District Health Information Software 2 (DHIS2) platform. Examples of potential applications include WHO Mental Health Gap Action Programme (mhGAP)-aligned decision-support tools, automated data-quality checks, supervision dashboards, and mobile-based appointment reminders with privacy safeguards. Key constraints include uneven digital connectivity, affordability barriers, limited regulatory capacity, and evolving data protection frameworks under Somalia's 2023 Data Protection Act. Ethical considerations such as confidentiality, stigma, algorithmic bias, and digital exclusion are highlighted, alongside the need for human in-the-loop oversight and monitoring of performance across vulnerable groups. In low-resource settings such as Somalia, responsible AI integration requires feasibility, equity, and accountability. Successful implementation also requires alignment with existing health-system platforms, strong governance safeguards, measurable outcomes, and sustained investment in workforce capacity. When carefully deployed, AI can support but not replace mental health system strengthening in Somalia.

Keywords: artificial intelligence, mental health, Somalia, task-sharing, mhGAP, digital health, low-resource settings, health-system strengthening

Introduction

Artificial intelligence (AI) is increasingly being integrated into mental health care to support clinical decision-making, improve service delivery, strengthen health information systems, and enable data-driven planning. Applications such as clinical decision-support tools, automated symptom screening, predictive analytics, and digital mental health interventions have demonstrated potential to improve access, efficiency, and quality of care. However, their implementation also raises important ethical, legal, and governance challenges, including privacy, algorithmic bias, transparency, accountability, and equitable access, particularly in settings with limited digital infrastructure and regulatory capacity.¹⁻⁶

In low-resource including Somalia, AI is increasingly viewed as a means of strengthening rather than replacing existing mental health services.¹⁻⁵

Somalia's mental health needs are substantial, yet service availability and specialist capacity remain constrained, creating a treatment gap. In this context, AI can support task-shared care by assisting non-specialist health workers through decision support, supervision, referral coordination, and improved use of routine health data, complementing clinicians and health-system investment.^{7,8}

Additionally, public-sector specialist workforce is limited; national strategy documents and reviews have reported only three psychiatrists working in public facilities, with general practitioners often filling psychiatric roles. A recent study suggests that WHO Mental Health Gap Action Programme (mhGAP)-based training for front-line health workers can improve knowledge, skills, and readiness to manage mental, neurological, and substance use (MNS) conditions in primary care settings.^{7–10} These realities imply that the most feasible near-term AI applications are those that strengthen task-sharing, supervision, referral pathways, and continuity of care within primary care while keeping clinical decision-making accountable to trained providers.^{1,4,7–10}

The major opportunities, associated risks, and implementation priorities are summarized in Table 1.

This commentary provides an evidence-informed conceptual analysis of the opportunities, risks, and implementation considerations for integrating artificial intelligence into mental health services in Somalia, drawing on existing literature and policy sources rather than primary empirical data. It does not present primary data or empirical results; rather, it synthesizes these sources into thematic and context-specific insights to inform policy and practice in Somalia.

Digital and Data Foundations

Somalia's digital landscape is mobile-first; recent national digital profiles report growth in mobile connections and estimate that roughly three-quarters of connections are "broadband" (3G/4G/5G), which matters for app-based tools but does not guarantee reliable coverage or affordability for the poorest households. On the health-system side, Somalia has been implementing DHIS2 and related digital health initiatives, with explicit concern that coordination is needed to avoid fragmentation and duplication of electronic information systems. WHO's assessment of Somalia's health information system describes DHIS2 roll-out and notes that HIV, tuberculosis, and logistics data have been added as part of integrated disease surveillance and response efforts—an important signal that routine platforms exist, even if completeness and quality remain variable.^{8, 10}

Table 1 AI for Mental Health Services in Somalia; Opportunities, Risks, and Implementation Priorities

Area	Key Opportunity	Key Risk	Implementation Priority and Measurable Outcome
Task-shared primary care (mhGAP)	Decision-support prompts, structured assessments, and visit checklists to improve fidelity in mhGAP-aligned care. ^{4,6}	Over-reliance on prompts; unsafe recommendations without supervision.	Tie tools to mhGAP workflows and supervision; measure adherence to protocols and referral completion rates. ⁶
Workforce and supervision	Remote case review support and automated summaries to reduce documentation burden for scarce clinicians.	Increased workload from poorly designed tools; unclear accountability.	Co-design with front-line staff; measure time per visit and supervision coverage (eg, % clinics receiving monthly supervision)
Service continuity and outreach	SMS-based appointment reminders and follow-up check-ins where mobile connectivity exists. ⁸	Confidentiality breaches via shared phones; stigma risks.	Privacy-by-design messaging (neutral content, opt-outs); measure follow-up rates and missed-appointment reduction.
Routine data and research	Automated data-quality flags and rapid dashboards using DHIS2-aligned systems to improve planning and learning. ^{9,10}	"Garbage in, garbage out"; biased inferences from incomplete data.	Data-quality improvement plan first; measure completeness, timeliness, and concordance with source registers. ¹⁰
Data protection and trust	Standardized consent, access controls, and audit trails aligned with national data protection direction. ^{11,12}	Re-identification, secondary misuse, or vendor lock-in.	Data-sharing agreements, local data stewardship, independent audits; track incidents and remediation times.
Equity and inclusion	Somali-language, low-literacy interfaces; offline-first delivery to reduce digital exclusion. ⁸	Urban/rural and gender gaps widen if tools assume smartphones and data.	Equity targets (rural sites included; free-to-user access); measure uptake by region and vulnerable groups.

For mental health research and service planning, the practical opportunity is not “big data”, but better use of small, routine data: AI-assisted data quality checks (missingness, implausible values), automated aggregation, and rapid-cycle dashboards for supervision and outreach—embedded within DHIS2-aligned workflows. Where patient-level AI tools are considered (eg, triage prompts, symptom check-ins), offline-first design (on-device processing, intermittent sync) and SMS/USSD fallbacks can reduce exclusion when smartphones, data bundles, or electricity are unreliable.^{9,10}

Governance, Ethics, and Regulation

Somalia’s data governance capacity is evolving: the 2023 Data Protection Act establishes a national data protection authority and sets out its mandate and functions. Secondary commentary on implementation notes the authority’s formal launch in February 2024, indicating an emerging institutional home for privacy oversight—though practical enforcement capacity will take time to mature.^{11,13}

Given the sensitivity and stigma often associated with mental health, Somalia should adopt a “minimum safe governance package” for any AI-enabled mental health tool: clear purpose limitation, data minimization, explicit consent where feasible, defined retention periods, and auditable access controls. These measures align with WHO’s guidance on ethics and governance of AI for health, including principles on autonomy, safety and public interest, transparency, accountability, equity, and sustainability. In fragile settings, ethical safeguards should also include: (1) explicit “do-no-harm” pathways for crisis content (self-harm, violence, abuse), (2) human-in-the-loop escalation to trained staff, and (3) model performance monitoring by sex, age, displacement status, literacy, and geography to detect systematic exclusion.¹³

Regulatory capacity is a binding constraint: procurement, certification, and post-market surveillance for software-based tools are often underdeveloped in low-resource systems. WHO’s AI governance guidance underscores the need for accountability across developers, implementers, and health authorities; in Somalia, that translates into simple, enforceable requirements—model cards, data sheets, version control, incident reporting, and independent evaluation—before scale-up.¹³

Abbreviations

AI, Artificial Intelligence; DHIS2, District Health Information Software 2; FMOH, Federal Ministry of Health; LMICs, Low- and Middle-Income Countries; MNS, Mental, Neurological and Substance use disorders; mhGAP, Mental Health Gap Action Programme; SMS, Short Message Service; USSD, Unstructured Supplementary Service Data; WHO, World Health Organization.

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Disclosure

The authors declare no conflicts of interest in this case report.

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