

Supplementary Materials

Governance Determinants of AI-Enabled Mental Health Systems in LMICs: A Comparative Policy Analysis within Global Mental Health

Corresponding author: Effiong Ndarake Effiong

Journal: npj Digital Medicine

Table of Contents

1. PRISMA 2020 Flow Diagram: _____	2
2. Detailed Search Strategies by Database: _____	4
3. PRISMA 2020 Adaptation Note: _____	9
4. References: _____	9

PRISMA 2020 Flow Diagram
Governance Determinants of AI-Enabled Mental Health Systems in LMICs: A
Comparative Policy Analysis

IDENTIFICATION

Records identified through database searching (n = 592)

- PubMed (n = 31) | Date searched: 2 Jan 2026 | Filter: Jan 1, 2015–Dec 31, 2025 | English
- WHO IRIS (n = 561 after internal deduplication of 2,796 exported records) | Years: 2015–2025
- Web of Science Core Collection (n = 0) | Timespan: 2015–2025 | Indexes: SCI-EXPANDED, SSCI, A&HCI, ESCI

SCREENING

Records after cross-database duplicates removed (n = 487)

- Duplicates removed (n = 105)

Records screened (title and abstract) (n = 487)

Records excluded (n = 381)

- Not AI-enabled intervention/system (n = 156)
- Not LMIC setting (n = 124)
- No governance/implementation content (n = 87)
- Non-English language (n = 14)

ELIGIBILITY

Full-text articles assessed for eligibility (n = 106)

Full-text articles excluded (n = 28)

- Commentary/opinion without analytic contribution (n = 12)
- Governance mentioned only in passing (n = 10)
- Full text unavailable (n = 4)
- Duplicate publication/overlapping dataset (n = 2)

INCLUDED

Studies included in qualitative synthesis (n = 78)

- Peer-reviewed journal articles (n = 62)
- Policy documents and official reports (n = 16)

Methodological Notes

WHO IRIS performs full-text searching by default with a 500-record export limit. Six focused searches yielded 2,796 records; after internal deduplication, 561 unique records remained.

The Web of Science search returned zero records. Possible explanations include indexing delays, syntax incompatibility, institutional access limitations, or an overly restrictive search combination. Given substantial results from other databases, Web of Science was excluded from further analysis.

This review followed PRISMA 2020 reporting guidance. As a governance-focused policy synthesis, quantitative meta-analytic elements were not applicable.

SECTION 2: DETAILED SEARCH STRATEGIES BY DATABASE

2.1 PubMed

Date searched: January 2nd, 2026]

Search string:

("artificial intelligence" OR "artificial intelligence"OR "AI" OR "machine learning" OR "machine learning" OR "deep learning" OR "algorithm*" OR "chatbot*" OR "conversational agent*" OR "digital intervention*")

AND

("mental health" OR "mental disorder*" OR "mental" OR "psychiatric" OR "depression" OR "anxiety" OR "PTSD" OR "psychosocial" OR "psychological")

AND

("developing countr*" OR "low income countr*" OR "middle income countr*" OR "LMIC*" OR "Global South" OR "Africa" OR "Asia" OR "Latin America" OR "Afghanistan" OR "Bangladesh" OR "Benin" OR "Bhutan" OR "Burkina Faso" OR "Burundi" OR "Cambodia" OR "Cameroon" OR "Central African Republic" OR "Chad" OR "Comoros" OR "Congo" OR "Côte d'Ivoire" OR "Djibouti" OR "Egypt" OR "El Salvador" OR "Eritrea" OR "Eswatini" OR "Ethiopia" OR "Gambia" OR "Ghana" OR "Guinea" OR "Guinea-Bissau" OR "Haiti" OR "Honduras" OR "India" OR "Indonesia" OR "Iran" OR "Iraq" OR "Jordan" OR "Kenya" OR "Kiribati" OR "Korea" OR "Kyrgyz Republic" OR "Lao" OR "Lebanon" OR "Lesotho" OR "Liberia" OR "Libya" OR "Madagascar" OR "Malawi" OR "Maldives" OR "Mali" OR "Marshall Islands" OR "Mauritania" OR "Mexico" OR "Micronesia" OR "Moldova" OR "Mongolia" OR "Morocco" OR "Mozambique" OR "Myanmar" OR "Namibia" OR "Nepal" OR "Nicaragua" OR "Niger" OR "Nigeria" OR "Pakistan" OR "Palau" OR "Papua New Guinea" OR "Paraguay" OR "Peru" OR "Philippines" OR "Rwanda" OR "Samoa" OR "Sao Tome" OR "Senegal" OR "Sierra Leone" OR "Solomon Islands" OR "Somalia" OR "South Sudan" OR "Sri Lanka" OR "Sudan" OR "Syria" OR "Tajikistan" OR "Tanzania" OR "Thailand" OR "Timor-Leste" OR "Togo" OR "Tonga" OR "Tunisia" OR "Turkmenistan"

OR "Tuvalu" OR "Uganda" OR "Ukraine" OR "Uzbekistan" OR "Vanuatu" OR "Vietnam"
OR "West Bank" OR "Gaza" OR "Yemen" OR "Zambia" OR "Zimbabwe")

AND

("governance" OR "governance"OR "accountability" OR "stewardship" OR "regulation"
OR "policy" OR "implementation" OR "health system*" OR "equity" OR "ethics" OR
"data governance" OR "oversight" OR "monitoring"))

Filters applied: Publication date: January 1, 2015-December 31, 2025; Language: English

Results: 31 records

2.2 WHO Institutional Repository for Information Sharing (WHO IRIS)

Date searched: January 2nd, 2026

Platform characteristics: WHO IRIS performs full-text searching by default and has a 500 record export limit. Given these platform constraints, a pragmatic multi-search approach was employed using focused search combinations relevant to the research question.

Search strategy:

Due to platform limitations, searches were conducted using simplified keyword combinations:

Search No.	Search String	Total Records	2015–2019	2020–2025
1	"artificial intelligence" AND "mental health" AND "governance"	492	46	446
2	"AI" AND "mental health" AND "low income"	297	71	226
3	"digital mental health" AND "LMIC"	6	0	6
4	"mental health" AND "data governance" AND "developing countries"	23	3	20
5	"mental health" AND "digital" AND "policy" AND "Africa"	1,108	195	913
6	"mental health" AND "algorithm" AND "regulation"	373	107	226

Manual screening: All WHO technical reports, guidelines, and policy briefs on digital health, mental health, and AI governance (2015-2025) were manually reviewed for relevance.

Results: 69 records (after deduplication)

Processing: Results from all six searches were exported, combined in rayyan screeningplatform and duplicates removed. The initial combined total of 2,796 records was reduced to 561 unique records after deduplication.

Note on result variation: The substantial variation in results reflects WHO IRIS's full-text default searching and the broad versus narrow nature of different term combinations. For example, "algorithm" AND "mental health" AND "Africa" (Search 5) retrieves any document containing all three terms anywhere in full text, while "digital mental health" AND "LMIC" (Search 3) uses more specific terminology.

2.3 Web of Science Core Collection

Date searched: January 2nd, 2026

Search string:

TS=(((("artificial intelligence" OR "AI" OR "machine learning" OR "algorithm*" OR "chatbot*" OR "digital mental health"))

AND

TS= (("mental health" OR "mental disorders" OR "psychiatry" OR "depression" OR "anxiety"))

AND

TS= (("developing countries" OR "LMIC" OR "low income" OR "Africa" OR "Asia" OR "Latin America" OR "Afghanistan" OR "Bangladesh" OR "Benin" OR "Bhutan" OR

"Burkina Faso" OR "Burundi" OR "Cambodia" OR "Cameroon" OR "Central African Republic" OR "Chad" OR "Comoros" OR "Congo" OR "Côte d'Ivoire" OR "Djibouti" OR "Egypt" OR "El Salvador" OR "Eritrea" OR "Eswatini" OR "Ethiopia" OR "Gambia" OR "Ghana" OR "Guinea" OR "Guinea-Bissau" OR "Haiti" OR "Honduras" OR "India" OR "Indonesia" OR "Iran" OR "Iraq" OR "Jordan" OR "Kenya" OR "Kiribati" OR "Korea" OR "Kyrgyz Republic" OR "Lao" OR "Lebanon" OR "Lesotho" OR "Liberia" OR "Libya" OR "Madagascar" OR "Malawi" OR "Maldives" OR "Mali" OR "Marshall Islands" OR "Mauritania" OR "Mexico" OR "Micronesia" OR "Moldova" OR "Mongolia" OR "Morocco" OR "Mozambique" OR "Myanmar" OR "Namibia" OR "Nepal" OR "Nicaragua" OR "Niger" OR "Nigeria" OR "Pakistan" OR "Palau" OR "Papua New Guinea" OR "Paraguay" OR "Peru" OR "Philippines" OR "Rwanda" OR "Samoa" OR "Sao Tome" OR "Senegal" OR "Sierra Leone" OR "Solomon Islands" OR "Somalia" OR "South Sudan" OR "Sri Lanka" OR "Sudan" OR "Syria" OR "Tajikistan" OR "Tanzania" OR "Thailand" OR "Timor-Leste" OR "Togo" OR "Tonga" OR "Tunisia" OR "Turkmenistan" OR "Tuvalu" OR "Uganda" OR "Ukraine" OR "Uzbekistan" OR "Vanuatu" OR "Vietnam" OR "West Bank" OR "Gaza" OR "Yemen" OR "Zambia" OR "Zimbabwe"))

AND

TS(("governance" OR "accountability" OR "stewardship" OR "regulation" OR "policy" OR "implementation" OR "health system*" OR "equity" OR "ethics" OR "data governance" OR "oversight" OR "monitoring")))

Timespan: 2015-2025

Indexes: SCI-EXPANDED, SSCI, A&HCI, ESCI

Results: 0 records

Explanation: The Web of Science search returned zero results. This may be attributable to one or more of the following factors:

- Institutional access limitations at the time of search
- Indexing delays for 2024-2025 publications
- Syntax incompatibility with the Web of Science platform
- The highly specific combination of terms may have been overly restrictive

Given that supplementary searches in PubMed and WHO IRIS yielded substantial relevant results, the Web of Science search was excluded from further analysis to avoid misrepresentation.

SECTION 3: PRISMA 2020 ADAPTATION NOTE

This review employed a structured search and framework synthesis approach consistent with PRISMA 2020 reporting guidance [1]. As this was a governance-focused policy and framework synthesis using best-fit framework synthesis methodology [2] rather than an intervention-effect meta-analysis, several PRISMA items were not applicable:

- Items related to risk of bias assessment (11, 18): Not applicable, as the analysis focused on governance content rather than intervention effect sizes
- Items related to effect measures and meta-analysis (12, 13e, 19, 20b): Not applicable, as no quantitative synthesis was performed
- Items related to certainty assessment (15, 22): Not applicable, as GRADE frameworks are designed for intervention effect estimates

The flow diagram in Section 1 documents the identification, screening, and inclusion process. The search strategies in Section 2 provide full reproducibility. This adaptation is consistent with published guidance on applying PRISMA to scoping reviews and policy syntheses [3].

References (for Supplementary Material)

1. Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*. 2021;372:n71. doi.org/10.1136/bmj.n71
2. Carroll, C., Booth, A. & Cooper, K. A worked example of "best fit" framework synthesis: A systematic review of views concerning the taking of some potential chemopreventive agents. *BMC Med Res Methodol* **11**, 29 (2011). doi.org/10.1186/1471-2288-11-29
3. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, Moher D, Peters MDJ, Horsley T, Weeks L, Hempel S, Akl EA, Chang C, McGowan J, Stewart L, Hartling L, Aldcroft A, Wilson MG, Garritty C, Lewin S, Godfrey CM, Macdonald MT, Langlois EV, Soares-Weiser K, Moriarty J, Clifford T, Tunçalp Ö, Straus SE. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med*. 2018 Oct 2;169(7):467-473. doi: 10.7326/M18-0850.