Access to Longitudinal Mental Health Data in Africa: Lessons from a Landscape Analysis by the INSPIRE Network Datahub

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Abstract

Background: Data from longitudinal mental health research in Africa is critical to understanding the complexities of mental health disorders in the continent's diverse contexts. To be useful data need to adhere to FAIR principles—Findability, Accessibility, Interoperability, and Reusability.

Methods: A literature search from 1970 to 2022 identified longitudinal studies on depression, anxiety, and psychosis in Africa using Artificial Intelligence (AI) and Natural Language Processing techniques to find data from more studies. The search engaged with stakeholders to understand data sharing practices and barriers, and to categorize methods and challenges for sharing data

Results: The initial search yielded 18,019 articles, of which 284 were eligible for review, and 226 passed quality assessments. A significant effort to access data directly from researchers yielded positive responses for 100 articles with available data statements, from which datasets were requested, through online repositories and direct correspondence. Analysis revealed significant disparities in the distribution of mental health research across countries, with a concentration of studies in specific areas and on certain conditions. The study also highlighted a varied adherence to FAIR principles, with only 16 datasets adhering to data-sharing practices.

Conclusion: Despite the challenges encountered in data accessibility and the manual adjustments required, the study's findings irradiate the path toward a more equitable and effective mental health research ecosystem on the continent. By fostering collaboration and embracing advanced methodologies and technologies, this study advocates for a concerted effort to improve the accessibility, interoperability, and reusability of mental health data. Ultimately, the project aims to contribute to the understanding of data-sharing dynamics in Africa, paving the way for informed interventions and policies.

Keywords: Depression; Anxiety; Psychosis; Longitudinal Mental Health Research; FAIR Guiding Principles; Data Sharing; Data Request Process; Africa; Landscape Analysis.

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1 Introduction

Longitudinal mental health research is needed in Africa to understand the incidence, management and resolution of mental health disorders within the continent's multifaceted cultural contexts. Mental health is fundamentally about achieving a state of well-being where individuals can effectively manage life's stressors, utilize their abilities, and contribute meaningfully to their community. The World Health Organization, estimated that 116 million Africans were living with mental health disorders [1]. Despite its importance, mental health remains a challenging goal globally; as of 2019, over one billion people worldwide suffered from mental and addictive disorders. These conditions not only lead to personal suffering but also contribute significantly to global disease burden, accounting for 418 million (16%) Disability-Adjusted Life Years (DALYs) [2], [3]. Longitudinal studies are uniquely suited to mental health research as they allow for the examination of changes over time, providing valuable insights into causal relationships and the dynamics between individual and environmental influences. This type of data is indispensable for understanding the chronic nature of mental health conditions. For example, the Avon Longitudinal Study of Parents and Children (ALSPAC) provided insights into how early-life factors influence mental health trajectories into [4]. These findings validate the use of longitudinal approaches to decipher the complex interplay of genetic, environmental, and personal factors over time.

Depression, anxiety, and psychosis were selected as focal areas due to their significant prevalence and impact on global public health. These mental health disorders were selected based on the alarming statistics reported by the World Health Organization. Currently, depressive and anxiety disorders are among the most common, affecting approximately 280 million and 301 million people globally, respectively [5]. Furthermore, the prevalence of these conditions was estimated by the World Health Organization (WHO) to have a global rise of 25% post-pandemic [6], [7]. These figures highlight the extensive burden these conditions impose on societies worldwide and underscore the critical need for targeted research to better understand their dynamics and to improve intervention strategies. Consequently, this analysis, spearheaded by the INSPIRE Network Datahub, delved into the realms of data accessibility for these specific conditions. The initiative emphasized the adoption of the FAIR principles—Findability, Accessibility, Interoperability, and Reusability. Prioritizing these principles in the study's framework reflects their role as foundational elements that support the overarching goal of enhancing the management and utility of research data in addressing the pressing issues posed by depression, anxiety, and psychosis. The use of landscape analysis in literature review and data collection has also been emphasized in numerous studies. For instance [8] underscored the significance of systematic methodologies in their review of early intervention in psychotic disorders, which relied heavily on longitudinal data to establish causality and progression of the disorder. Similarly, a meta-analysis by [9] on depression highlighted how a systematic review of longitudinal studies assists in identifying patterns of symptom progression and the effects of various interventions over time.

Due to the complex and expansive nature of the field, a systematic search strategy was used to ensure comprehensive coverage and maximization of the discovery of relevant studies. Both conventional and novel methodologies were employed in the systematic search strategy to facilitate a more robust analysis. Traditional methods were utilized to anchor the search within well-established frameworks and theories, ensuring a solid theoretical grounding. Concurrently, novel approaches were integrated to introduce fresh perspectives and innovative analytical techniques. This dual approach was instrumental in broadening the scope of the analysis and enhancing its rigor. Notably, the incorporation of machine learning models in the analysis of longitudinal data was pivotal. This method opened new avenues for predicting mental health outcomes from large datasets, as exemplified by the work [10], who demonstrated the potential of advanced computational techniques in enhancing the understanding of mental health trajectories. This methodological integration was therefore important for leveraging the strengths of both traditional and contemporary approaches in capturing and analysing the complexities of mental health data effectively.

The integration of artificial intelligence (AI) in refining the selection and analysis of relevant literature marked a significant advancement in the research methodology. This technological application facilitated the identification of studies that not only align with the geographical and thematic priorities pertinent to Africa but also demonstrate the potential of longitudinal approaches to unveil the temporal dynamics associated with mental health conditions.

Additionally, the research initiative placed a strong emphasis on collaborative efforts to augment the dataset through strategic partnerships, highlighting the critical role of collaboration in expanding the scope and depth of the research landscape. This aspect of the study not only aimed at enriching the analysis but also at ensuring a comprehensive understanding of mental health dynamics across different African settings [11] [12].

However, the deployment of prompters and artificial intelligence presented a set of challenges, particularly in crafting tools that are both precise and encompassing. Achieving thematic relevance while ensuring a broad coverage required a delicate balance, necessitating manual adjustments and fine-tuning to adapt the prompters to various datasets and repositories effectively. This process underscored the complexity of handling mental health data and the necessity for detailed attention to detail in the research context.

Cognizant of these challenges, the study underscores the imperative need to examine the adherence of utilized data and metadata to the FAIR principles, aiming to enhance the infrastructure supporting scholarly longitudinal data's reusability. The initial analysis set the stage for a comprehensive examination of data-sharing practices, road infrastructure adequacy, and the alignment of African mental health research with global data stewardship standards. Through this detailed exploration, the paper seeks to contribute to the development of more equitable, accessible, and impactful mental health research practices, navigating the intricate balance between data stewardship principles and the practical realities of accessing and sharing longitudinal mental health data in Africa.

2 Methods

Prompters to categorize methods and challenges of data sharing: "Prompters" are the factors or prompts that initiate discussions or considerations regarding data sharing in mental health. In that case, "prompters" can be understood as the catalysts or triggers that lead to discussions or actions related to data sharing. In the realm of mental health, there are various prompters used to categorize methods and challenges of data sharing. Some of the key ones are:

- Ethical Guidelines: Data sharing boundaries, anonymization, and consent processes.
- Legal Frameworks: HIPAA, GDPR, etc.
- Data Security: Protection from breaches and misuse.
- Interoperability Standards: Effective data sharing between different systems and databases while maintaining data integrity and security.
- Anonymization: Protection of patient's privacy during sharing.
- Consent Mechanisms: Informed consent and exceptions.
- Data Ownership and Governance: Define rights on the data and oversight.
- Technical Infrastructure: Secured data processing, storage, and transmission.
- Stakeholder Collaboration: Involve key parties in policy development.
- Risk Assessment: Identify and address potential data-sharing risks.

Search Strategy: A systematic search strategy was pivotal in navigating through the extensive domain of mental health research, employing both conventional and novel methodologies to encompass the vast field. This approach was particularly tailored to scrutinize access to longitudinal mental health data, and the quality of longitudinal mental health data where observations are made on individuals at multiple intervals over a span of time. The search spanned English-language articles published from 1970 to 2022, leveraging the International Digital Health and AI Research Collaborative (I-DAIRS) global research map (GRM) [13] to navigate the vast landscape of African scientific publications in mental health. This approach, enriched by AI and Natural Language Processing (NLP), enabled an efficient trawl through public databases for pertinent publications, adhering to predefined inclusion criteria.

Selection Criteria: Articles were selected based on their original research in Africa, containing keywords related to mental health disorders and being longitudinal studies with at least one follow-up. This meticulous filtering resulted in a pool of articles that offer valuable insights into the longitudinal tracking of mental health conditions across the continent.

Dataset Filtering: From the original pool of extracted articles, the review removed entries with missing titles, duplicate titles, and papers not about African research, resulting in a refined list. Further filtration was conducted based on titles and field of study specifics to identify relevant mental health topics.

Study Selection: The remaining articles were categorized into different types of studies: control trials, cross-sectional, reviews, meta-analyses, and case reports. Particularly, the focus was on longitudinal studies, which were then sub-categorized based on mental health conditions of interest: depression, anxiety, and psychosis. This systematic approach ensured the inclusion of pertinent studies for further in-depth analysis. A link to the code used for selection criteria can be found HERE .

Search Outcomes: The initial search yielded 18,019 articles, subsequently narrowed to 284 eligible studies after applying exclusion criteria related to duplicates, geographic relevance, and study design.

Quality Assessments, Data Extraction, and Data Request: From the 284 articles deemed eligible, 226 satisfied our quality criteria. Data extraction focused on crucial study parameters was conducted by two independent reviewers. Further information on mental health screening instruments, availability of data statements in the article, study cohort, study site, age group of participants, mean age of participants, and sample size was added to the database at this stage. Out of the 226 articles that met the quality check criteria, 100 had availability of data statements in the articles. A targeted effort to request data from these studies involved drafting letters to corresponding authors, yielding a notable response.

Access to Longitudinal Mental Health Datasets: A significant stride was the systematized process to access longitudinal datasets from African researchers, as delineated in the referenced diagram. This included both virtual access to repositories and formal requests, showcasing the diverse channels of data acquisition crucial for our analysis.

Statistical Analysis: Beyond the scoping review, exploratory quantitative analysis was performed on the articles and datasets received. Out of the total datasets, 10 were accessed via online repositories, and seven were obtained through formal requests. This analysis utilized R software, facilitating a nuanced exploration of distribution across countries, regions, and specific mental health conditions. Additionally, a meta-analysis was conducted on the accessed longitudinal datasets, providing a comprehensive overview of depression, anxiety, and psychosis within the African context. This multi-layered analytical approach underscores the diverse methodologies employed to deepen our understanding of longitudinal mental health research in Africa.

2.1 Study Design

The landscape analysis study employed a systematic and comprehensive approach to evaluate the current state of longitudinal mental health research in Africa. The study design incorporated multiple methodologies including to gather and analyze data from various sources, including scientific literature, datasets, and stakeholder engagements. The methodologies incorporated in the study design included systematic literature review, use of AI and ML techniques for search, stakeholder engagement and data analysis.

The use of prompters was notably effective in extracting insights into the methodologies of data access and sharing within the African continent, facilitating the advancement of longitudinal mental health research. Their utility extended to categorizing the objectives of data sharing, the stakeholders involved, and the employed methods. Additionally, they were key in pinpointing barriers to data sharing, including privacy concerns, data security issues, and infrastructural inadequacies, highlighting the complex landscape of data management in mental health research. The study involved engagement with stakeholders to gain insights into data access and sharing practices, as well as to identify challenges and opportunities in longitudinal mental health research. This participatory approach helped contextualize the findings and provided valuable perspectives from various stakeholders, including researchers, policymakers, and community representatives.

By synthesizing evidence from literature, datasets, stakeholder engagements, and prompters, the study aimed to provide a comprehensive understanding of current practices and inform future research directions in the field.

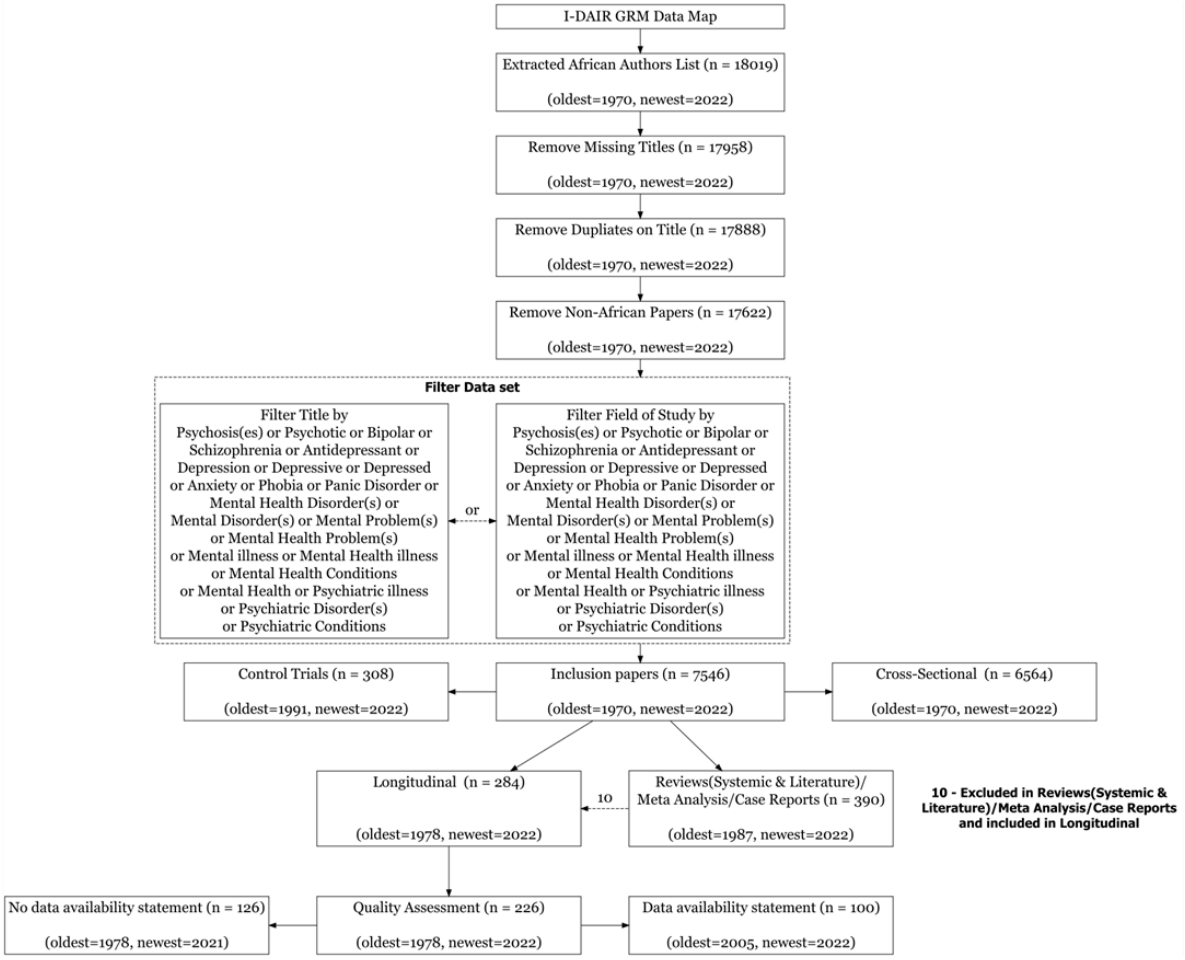


Figure 1: The Landscape Flowchart

3 Results

Table 1 summarizes the overview of the type of study of the eligible articles grouped by region, country, mental health condition, availability of data, as well as access to the data. Regarding the type of study, there is a relatively balanced distribution between prospective (104) and retrospective (122) studies. Most of the studies investigated depression (58.4%), followed by psychosis (42.0%) and anxiety (29.2%).

Variable	Category	Overall N = 226	Type of Study		Availability of data statement	
			Prospective n = 104	Retrospective n = 122	No n = 126	Yes n = 100
Source year published	**Range**	**1978 - 2022**	**1993 - 2022**	**1978 - 2022**	**1978 - 2021**	**2005 - 2022**
Study region	Eastern Africa	37 (16.4%)	27 (26.0%)	10 (8.2%)	8 (6.3%)	29 (29.0%)
	Northern Africa	54 (23.9%)	9 (8.7%)	45 (36.9%)	45 (35.7%)	9 (9.0%)
	Southern Africa	94 (41.6%)	60 (57.7%)	34 (27.9%)	43 (34.1%)	51 (51.0%)
	Western Africa	41 (18.1%)	8 (7.7%)	33 (27.0%)	30 (23.8%)	11 (11.0%)
Study country	Botswana	1 (0.4%)	0 (0.0%)	1 (0.8%)	0 (0.0%)	1 (1.0%)
	Burkina Faso	1 (0.4%)	0 (0.0%)	1 (0.8%)	1 (0.8%)	0 (0.0%)
	Egypt	17 (7.5%)	2 (1.9%)	15 (12.3%)	9 (7.1%)	8 (8.0%)
	Ethiopia	19 (8.4%)	11 (10.6%)	8 (6.6%)	2 (1.6%)	17 (17.0%)
	Ghana	2 (0.9%)	2 (1.9%)	0 (0.0%)	0 (0.0%)	2 (2.0%)

	Kenya	7 (3.1%)	7 (6.7%)	0 (0.0%)	2 (1.6%)	5 (5.0%)
	Mali	1 (0.4%)	0 (0.0%)	1 (0.8%)	1 (0.8%)	0 (0.0%)
	Morocco	3 (1.3%)	0 (0.0%)	3 (2.5%)	2 (1.6%)	1 (1.0%)
	Nigeria	37 (16.4%)	6 (5.8%)	31 (25.4%)	28 (22.2%)	9 (9.0%)
	South Africa	90 (39.8%)	57 (54.8%)	33 (27.0%)	40 (31.7%)	50 (50.0%)
	Sudan	1 (0.4%)	0 (0.0%)	1 (0.8%)	1 (0.8%)	0 (0.0%)
	Tanzania	1 (0.4%)	1 (1.0%)	0 (0.0%)	1 (0.8%)	0 (0.0%)
	Tunisia	34 (15.0%)	7 (6.7%)	27 (22.1%)	34 (27.0%)	0 (0.0%)
	Uganda	9 (4.0%)	8 (7.7%)	1 (0.8%)	2 (1.6%)	7 (7.0%)
	Zambia	1 (0.4%)	1 (1.0%)	0 (0.0%)	1 (0.8%)	0 (0.0%)
	Zimbabwe	2 (0.9%)	2 (1.9%)	0 (0.0%)	2 (1.6%)	0 (0.0%)
Type of Study	Prospective	104 (46.0%)	—	—	37 (29.4%)	67 (67.0%)
	Retrospective	122 (54.0%)	—	—	89 (70.6%)	33 (33.0%)
Depression	Yes	132 (58.4%)	78 (75.0%)	54 (44.3%)	60 (47.6%)	72 (72.0%)
Anxiety	Yes	66 (29.2%)	37 (35.6%)	29 (23.8%)	31 (24.6%)	35 (35.0%)
Psychosis	Yes	95 (42.0%)	19 (18.3%)	76 (62.3%)	75 (59.5%)	20 (20.0%)
Availability of data statement	No	126 (55.8%)	37 (35.6%)	89 (73.0%)	—	—
	Yes	100 (44.2%)	67 (64.4%)	33 (27.0%)	—	—
How to access the data	Corresponding author	71 (31.4%)	40 (38.5%)	31 (25.4%)	0 (0.0%)	71 (71.0%)
	Data repository	24 (10.6%)	24 (23.1%)	0 (0.0%)	0 (0.0%)	24 (24.0%)
	Link in Article	5 (2.2%)	3 (2.9%)	2 (1.6%)	0 (0.0%)	5 (5.0%)
	No availability of data statement	126 (55.8%)	37 (35.6%)	89 (73.0%)	126 (100.0%)	0 (0.0%)

Table 1: Overview of landscape studies

The study regions are divided into Eastern, Northern, Southern, and Western Africa, with Southern Africa having the highest representation in the studies. In terms of countries, South Africa has the most considerable number of studies (39.8%), followed by Nigeria (16.4%) and Tunisia (15.0%). In terms of details of studies by region, Northern Africa exhibited the highest proportion of retrospective studies, accounting for 45 (36.9%) articles, with Tunisia contributing to more than half of the articles in Northern Africa, 27 precisely. This was followed by Southern and Western Africa regions, each contributing 34 (27.9%) and 33 (27%) articles respectively. Out of the 104 prospective studies, depression had the highest proportion with 78 (75.0%) articles, with the majority originating from Southern Africa, totalling 60 (54.8%), with South Africa contributing 57.

The data availability statements were provided for 100 out of the 226 articles, with prospective studies having the highest proportion of data availability, totalling 67 (64.4%). Among these, 40 (38.5%) required access to the data via email correspondence with the corresponding author, 24 (23.1%) required access from data repositories, and 3 (2.9%) provided access links within the articles. On the other hand, retrospective studies accounted for 33 (27%) of the articles with data availability, with almost all of these, 31 in total, required access to data through email correspondence with the corresponding author, while 2 provided access links within the articles. The availability of a data statement shows a clear trend towards increased transparency, with no data statements present in studies published from 1978 to 2004, and all studies from 2005 to 2022 including them. This indicates a move towards better data-sharing practices over time.

3.1 Overview of eligible depression, anxiety, and psychosis articles

Table 2 provides an overview of the distribution of eligible articles on depression, anxiety, and psychosis from various regions in Africa. It categorizes articles by study region, country, type of study, the presence of mental health conditions studied, the availability of data statements and data access methods.

Variable	Category	Depression	Anxiety	Psychosis
		n = 132	**n = 66**	**n = 95**
Source year published	**Range**	**1983 - 2022**	**1987 - 2022**	**1978 - 2021**
Study region	Eastern Africa	27 (20.5%)	9 (13.6%)	13 (13.7%)
	Northern Africa	23 (17.4%)	15 (22.7%)	30 (31.6%)
	Southern Africa	60 (45.5%)	28 (42.4%)	34 (35.8%)

	Western Africa	22 (16.7%)	14 (21.2%)	18 (18.9%)
Study country	Botswana	1 (0.8%)	1 (1.5%)	1 (1.1%)
	Burkina Faso	0 (0.0%)	0 (0.0%)	1 (1.1%)
	Egypt	12 (9.1%)	10 (15.2%)	5 (5.3%)
	Ethiopia	12 (9.1%)	5 (7.6%)	8 (8.4%)
	Ghana	2 (1.5%)	1 (1.5%)	0 (0.0%)
	Kenya	7 (5.3%)	3 (4.5%)	1 (1.1%)
	Mali	1 (0.8%)	0 (0.0%)	0 (0.0%)
	Morocco	2 (1.5%)	1 (1.5%)	2 (2.1%)
	Nigeria	19 (14.4%)	13 (19.7%)	17 (17.9%)
	South Africa	57 (43.2%)	25 (37.9%)	31 (32.6%)
	Sudan	1 (0.8%)	0 (0.0%)	1 (1.1%)
	Tanzania	0 (0.0%)	0 (0.0%)	1 (1.1%)
	Tunisia	9 (6.8%)	4 (6.1%)	23 (24.2%)
	Uganda	7 (5.3%)	1 (1.5%)	2 (2.1%)
	Zambia	0 (0.0%)	0 (0.0%)	1 (1.1%)
	Zimbabwe	2 (1.5%)	2 (3.0%)	1 (1.1%)
Type of Study	Prospective	78 (59.1%)	37 (56.1%)	19 (20.0%)
	Retrospective	54 (40.9%)	29 (43.9%)	76 (80.0%)
Depression	Yes	—	55 (83.3%)	29 (30.5%)
Anxiety	Yes	55 (41.7%)	—	10 (10.5%)
Psychosis	Yes	29 (22.0%)	10 (15.2%)	—
Availability of data statement	No	60 (45.5%)	31 (47.0%)	75 (78.9%)
	Yes	72 (54.5%)	35 (53.0%)	20 (21.1%)
How to access the data	Corresponding author	47 (35.6%)	25 (37.9%)	18 (18.9%)
	Data repository	21 (15.9%)	7 (10.6%)	0 (0.0%)
	Link in Article	4 (3.0%)	3 (4.5%)	2 (2.1%)
	No availability of data statement	60 (45.5%)	31 (47.0%)	75 (78.9%)

Table 2: Overview of depression, anxiety, and psychosis articles

The distribution of articles across other African regions showed relatively similar proportions. Western, Northern, and Eastern Africa had 22 (16.7%), 23 (17.4%), and 27 (20.5%) articles respectively focusing on depression. For psychosis and anxiety, Northern Africa had the second-highest proportion of study articles, with 30 (31.6%) and 15 (22.7%) respectively. This was followed by Western Africa with 18 (18.9%) and 14 (21.2%) articles, and Eastern Africa with 13 (13.7%) and 9 (13.6%) articles respectively for psychosis and anxiety. Therefore, Southern Africa, particularly South Africa, shows a significant focus on mental health research with the highest number of articles across all three conditions, indicative of a potential research concentration or heightened awareness of mental health issues in this region. Northern Africa, notably Egypt and Tunisia, also contributes a considerable body of research, especially in the study of psychosis.

Most studies are prospective rather than retrospective, with the former constituting 59.1%, 56.1%, and 20.0% for depression, anxiety, and psychosis studies respectively. This suggests a greater emphasis on collecting data over time to observe the progression and potential predictors of mental health outcomes.

The prevalence of studies on depression (132 articles) compared to anxiety (66 articles) and psychosis (95 articles) could indicate the prioritization of research resources or the perceived burden of these conditions within the African context. Notably, studies on depression and anxiety are more recent, reflecting an increasing trend in exploring these conditions.

Nearly half of the studies for each condition do not have a data statement, which raises concerns about transparency and replicability in mental health research in Africa. For studies with available data, most can be

accessed by contacting the corresponding author, which, while it promotes researcher interaction, might not be the most efficient means of data sharing compared to repositories or links within articles.

3.2 Outcome of the letters sent to request for access to datasets

Table 3 presents the outcomes of data request letters sent and their corresponding status. Out of the 100 requests sent, 6 (6%) emails bounced, 59 (59%) received no response, and 35 (35%) elicited a response. Among the 35 responses received, the majority, 25 (71.4%) originated from Southern Africa, followed by Eastern Africa, 7 (20%), with Northern Africa and Western Africa contributing 5.7% and 2.9% respectively. Notably, data access was granted for nearly half, 17 (49%) of the articles in which responses were received.

Of these 17 datasets received, the majority 10(58.8%) were from the Southern Africa region, exclusively from South Africa, while 6 (35.3%) were from Eastern Africa encompassing Kenya 1 (5.9%), Ethiopia 3 (17.6%) and Uganda 2 (11.8%), and 1 (5.9%) from Egypt in Northern Africa. Access to these datasets varied in origin, with 10 (58.8%) sourced from repositories, all from South Africa, and 2 (11.8%) obtained directly from the corresponding authors, one each from Kenya and Ethiopia, and 5 (29.4%) of the datasets were accessed through links provided in the study articles.

Most of the received datasets 15 (88.2%) focused on depression, with a smaller proportion covering anxiety 4 (23.5%) and psychosis 2 (11.8%), acknowledging that one dataset could encompass multiple mental health outcomes. Regarding the type of study of the received datasets, most of the articles 15 (88.2%) were prospective studies, with only a minor portion (11.8%) being retrospective.

Variable	Category	Status data request n = 100			Data received from Responded request N = 35	
		Email Bounced n = 6	No Response n = 59	Responded n = 35	No n = 18 (51%)	Yes n = 17 (49%)
Source year published	**Range**	**2007 - 2021**	**2005 - 2022**	**2007 - 2022**	**2007 - 2022**	**2008 - 2022**
Study region	Eastern Africa	2 (33.3%)	20 (33.9%)	7 (20.0%)	1 (5.6%)	6 (35.3%)
	Northern Africa	1 (16.7%)	6 (10.2%)	2 (5.7%)	1 (5.6%)	1 (5.9%)
	Southern Africa	2 (33.3%)	24 (40.7%)	25 (71.4%)	15 (83.3%)	10 (58.8%)
	Western Africa	1 (16.7%)	9 (15.3%)	1 (2.9%)	1 (5.6%)	0 (0.0%)
Study country	Botswana	0 (0.0%)	0 (0.0%)	1 (2.9%)	1 (5.6%)	0 (0.0%)
	Burkina Faso	—	—	—	—	—
	Egypt	1 (16.7%)	5 (8.5%)	2 (5.7%)	1 (5.6%)	1 (5.9%)
	Ethiopia	1 (16.7%)	13 (22.0%)	3 (8.6%)	0 (0.0%)	3 (17.6%)
	Ghana	0 (0.0%)	2 (3.4%)	0 (0.0%)	—	—
	Kenya	0 (0.0%)	3 (5.1%)	2 (5.7%)	1 (5.6%)	1 (5.9%)
	Mali	—	—	—	—	—
	Morocco	0 (0.0%)	1 (1.7%)	0 (0.0%)	—	—
	Nigeria	1 (16.7%)	7 (11.9%)	1 (2.9%)	1 (5.6%)	0 (0.0%)
	South Africa	2 (33.3%)	24 (40.7%)	24 (68.6%)	14 (77.8%)	10 (58.8%)
	Sudan	—	—	—	—	—
	Tanzania	—	—	—	—	—
	Tunisia	—	—	—	—	—
	Uganda	1 (16.7%)	4 (6.8%)	2 (5.7%)	0 (0.0%)	2 (11.8%)
	Zambia	—	—	—	—	—
	Zimbabwe	—	—	—	—	—
Type of study	Prospective	5 (83.3%)	31 (52.5%)	31 (88.6%)	16 (88.9%)	15 (88.2%)
	Retrospective	1 (16.7%)	28 (47.5%)	4 (11.4%)	2 (11.1%)	2 (11.8%)

Depression	Yes	5 (83.3%)	36 (61.0%)	31 (88.6%)	16 (88.9%)	15 (88.2%)
Anxiety	Yes	3 (50.0%)	21 (35.6%)	11 (31.4%)	7 (38.9%)	4 (23.5%)
Psychosis	Yes	1 (16.7%)	15 (25.4%)	4 (11.4%)	2 (11.1%)	2 (11.8%)
How to access the data	Corresponding author	6 (100.0%)	57 (96.6%)	8 (22.9%)	6 (33.3%)	2 (11.8%)
	Data repository	0 (0.0%)	2 (3.4%)	22 (62.9%)	12 (66.7%)	10 (58.8%)
	Link in Article	0 (0.0%)	0 (0.0%)	5 (14.3%)	0 (0.0%)	5 (29.4%)

Table 3: Outcome of request to access datasets

3.3 Distribution of longitudinal studies on depression, anxiety, and psychosis by Country

Longitudinal studies were captured in two themes, clinical/retrospective and population/prospective. A significant number of both types of studies spread across the continent, with some countries showing a greater focus on one type over the other.

- South Africa stands out with a substantial total of 90 studies, predominantly population/prospective, indicating a strong emphasis on this type of longitudinal research.
- In Nigeria, there are 37 studies, the majority being clinical/retrospective, which suggests an interest in looking at existing data sets and conditions over time.
- Tunisia and Egypt show a concentration of clinical/retrospective studies, with 27 and 15 studies, out of a total of 34 and 17 respectively. This could reflect a research focus on analyzing historical data to understand the patterns and outcomes of health conditions.
- Ethiopia has a balanced mix, with 8 clinical/retrospective and 11 population/prospective studies, indicating a diversified research approach.

The prevalence of clinical/retrospective studies might be due to their methodological advantages, such as the availability of data that can be analyzed to observe historical trends and outcomes. Conversely, the population/prospective studies are crucial for understanding the development of health conditions over time and for making future projections. These disparities in the number of studies between countries could be influenced by factors such as available funding, research infrastructure, and priorities in public health.

For instance, countries with more studies might have better-funded health research programs or a higher burden of certain diseases that necessitate in-depth investigation.

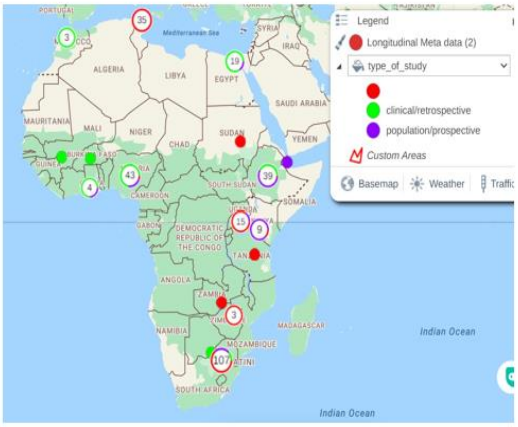


Figure 2: Studies on Anxiety in Africa

The presence of more population/prospective studies in South Africa could also be indicative of the country's forward-thinking approach to public health research and its capacity to invest in long-term studies that track health outcomes over time. In conclusion, the prominence of clinical/retrospective studies in countries like Nigeria and Kenya might suggest a current stage of development in research capacities, focusing on leveraging existing data before moving to more resource-intensive prospective studies.

3.3.1 Longitudinal Studies on Anxiety

There exists a varied landscape of research into anxiety across Africa, with some regions demonstrating substantial engagement with the subject, while others appear to be in the nascent stages of exploration. Notably, Nigeria emerges as a central hub of research activity, contributing approximately 19.7% of the studies marked on the map, with 13 studies to its name. This prominence may reflect a strong research interest or a potentially high burden of anxiety disorders in the region.

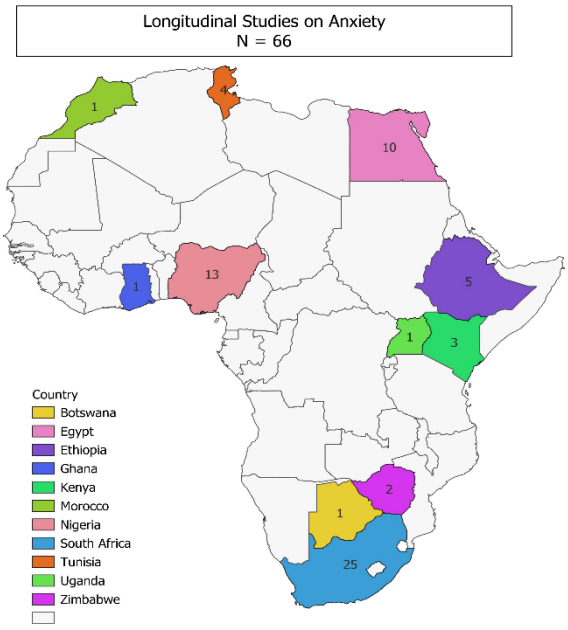


Figure 3: Studies on Anxiety in Africa

Egypt, located in the northeastern part of Africa, accounts for roughly 15% of the studies, with 10 studies highlighted. The concentration of research here could be indicative of Egypt's relatively well-developed research infrastructure and response to the mental health needs of its population. On the southeastern front, South Africa stands out, representing about 37.9% of the studies identified, with a remarkable 25 studies on anxiety. This significant figure could signal a concentrated effort to address what may be a pressing public health issue in the country, or it may showcase a regionally specific research interest or funding availability. Uganda and Kenya, East African neighbors, show a smaller but still noteworthy research presence, with 1 (approximately 1.5%) and 3 (around 4.5%) studies, respectively. Finally, Tunisia, situated in the northwest of Africa, accounts for a smaller share, with 4 longitudinal studies, which translates to roughly 6.1% of the marked research efforts.

This visual overview of the distribution of longitudinal anxiety studies across the African continent. The disparity percentages of studies across the countries highlight not only the uneven allocation of mental health research resources but also the potential differences in the perceived or actual burden of anxiety disorders within these distinct regions.

3.3.1.1 Top 10 Most Utilized Tools for Anxiety

Table 4 illustrates the top 10 commonly utilized anxiety assessment tools out of a cumulative total of 73 tools employed across 66 anxiety studies within different countries. Of these, 43 (58.9%) tools belonged to the 10 most frequently used categories, and the comprehensive table with all tools is shown in Annexure 1. South Africa and Nigeria had the highest number of utilizations of the anxiety assessment tools, having 25 and 20 tools used out of their 24 and 13 studies on Anxiety respectively. Of the 20 tools in Nigeria, the majority were the STAI, having a frequency of 4 (20%), followed by the DASS-21 with a frequency of 3(15%). In South Africa on the other hand, almost half of the tools used were not among the top 10 tools 12 (48%), but the GHQ-28 and RCMAS had the highest frequency of usage, each with 3(12%), and the remaining having a frequency of either 1 (4%) or 2 (8%). Studies on anxiety conducted in Ethiopia and Kenya made use of 3 tools, with the DASS-21 being the most frequent tool in Ethiopia 2 (66.7%), and the RCMAS and GHQ-12 having a similar frequency of usage in Kenya, each with a frequency of 1 (33.3%), among the top 10 common tools for anxiety assessment. Egypt on the other hand, which had 10 studies on anxiety as shown in Table 3, made use of 12 tools, with HADS and MINI-Kid having the highest representation among the top 10 tools, 2 (16.7%), indicating that some studies utilized more than one tool for depression assessment. The HADS was also utilized in Tunisia, with a frequency of 2 (50%), out of the 4 tools used among the studies conducted on anxiety in the country. Lastly, all the assessment tools used in the studies conducted in Botswana, Morocco, Uganda, and Zimbabwe were not among the top 10 commonly used tools, their specific tools can be retrieved from Annexure 1. Further, a geographical display of the usage of the tools is also shown in Annexure 1.1.

Anxiety Tools	Overall	Botswana	Egypt	Ethiopia	Kenya	Morocco	Nigeria	South Africa	Tunisia	Uganda	Zimbabwe
	N = 73	N = 1	N = 12	N = 3	N = 3	N = 1	N = 20	N = 25	N = 4	N = 1	N = 3
Depression Anxiety Stress	6	0	0	2	0	0	3	1	0	0	0

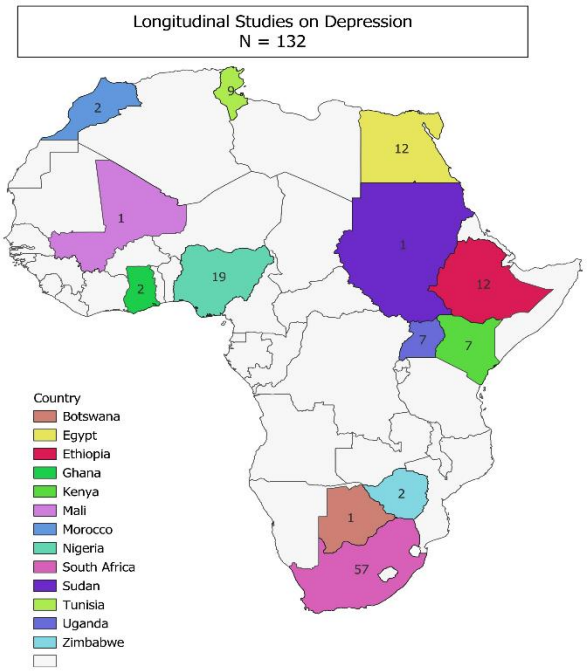
Scale (DASS-21)	8.2%	0.0%	0.0%	66.7%	0.0%	0.0%	15.0%	4.0%	0.0%	0.0%	0.0%
General Health Questionnaire-28 (GHQ-28)	6 8.2%	0 0.0%	0 0.0%	1 33.3%	0 0.0%	0 0.0%	2 10.0%	3 12.0%	0 0.0%	0 0.0%	0 0.0%
Hospital Anxiety and Depression Scale (HADS)	6 8.2%	0 0.0%	2 16.7%	0 0.0%	0 0.0%	0 0.0%	2 10.0%	0 0.0%	2 50.0%	0 0.0%	0 0.0%
Spielberger's State-Trait Anxiety Inventory (STAI)	6 8.2%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	4 20.0%	1 4.0%	1 25.0%	0 0.0%	0 0.0%
MINI International Neuropsychiatric Interview for Children and Adolescents (MINI-Kid)	4 5.5%	0 0.0%	2 16.7%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	2 8.0%	0 0.0%	0 0.0%	0 0.0%
Revised Children's Manifest Anxiety Scale (RCMAS)	4 5.5%	0 0.0%	0 0.0%	0 0.0%	1 33.3%	0 0.0%	0 0.0%	3 12.0%	0 0.0%	0 0.0%	0 0.0%
General Health Questionnaire-12 (GHQ-12)	3 4.1%	0 0.0%	1 8.3%	0 0.0%	1 33.3%	0 0.0%	0 0.0%	1 4.0%	0 0.0%	0 0.0%	0 0.0%
Structured Clinical Interview for DSM-IV (SCID IV)	3 4.1%	0 0.0%	1 8.3%	0 0.0%	0 0.0%	0 0.0%	1 5.0%	1 4.0%	0 0.0%	0 0.0%	0 0.0%
Symptom Checklist-90-R (SCL-90-R)	3 4.1%	0 0.0%	1 8.3%	0 0.0%	0 0.0%	0 0.0%	2 10.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Beck Anxiety Inventory (BAI)	2 2.7%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 5.0%	1 4.0%	0 0.0%	0 0.0%	0 0.0%
Others	30 41.1%	1 100.0%	5 41.7%	0 0.0%	1 33.3%	1 100.0%	5 25.0%	12 48.0%	1 25.0%	1 100.0%	3 100.0%

Table 4: Top 10 used tools for Anxiety across Africa

3.3.2 Longitudinal Studies on Depression

The distribution of depression studies across Africa exhibits a stark contrast between countries, likely influenced by various factors including disparities in funding, infrastructure, and local research capacities.

At the southernmost tip, South Africa leads the count with 57 longitudinal studies on depression, representing approximately 43.2% of the total studies highlighted on the map. This significant concentration of research activity could be attributed to South Africa's relatively strong research infrastructure and international collaborations that provide more substantial funding and resources.



Tunisia is marked with 9 studies, making up approximately 6.8% of the studies depicted. The representation of depression studies in these countries could suggest growing regional research interests or emerging recognition of depression as a critical public health issue that warrants investigation. Moving to the Eastern region, Uganda and Kenya each have 7 studies, totaling to approximately 10.6% of the studies. These numbers may reflect an engagement with mental health research commensurate with the countries' developing research capacities. In the northeastern part of the continent, Egypt has 12 studies, accounting for roughly 9.1% of the total. Egypt's established academic and clinical research sectors likely contribute to its ability to conduct such studies. Nigeria, in Western Africa, shows 19 studies, or about 14.4% of the total. This could be indicative of specific funding streams or research priorities within the nation or region, possibly linked to collaborations with international research bodies.

Figure 4: Studies on Depression in Africa

Ghana presents 2 studies, which make up around 1.5% of the studies, similarly, Morocco, located in the northwest, also shows only 2 studies, constituting approximately 1.5%. These lower figures may point to less prioritization of depression as a mental health condition or to financial, infrastructural, or human resource limitations.

The map illustrates the geographic distribution of longitudinal mental health studies on depression across various African nations, each marked with a numbered pin indicating the number of studies. In summary, South Africa's dominance in this research area may reflect its more robust economic and research development, while the minimal research activity in other regions, such as West Africa, underscores the challenges faced in mobilizing resources for mental health research. These disparities necessitate attention to ensure a more equitable distribution of research efforts, which is essential to address the mental health needs across the continent comprehensively.

3.3.2.1 Top 10 most utilized tools for depression

Table 5 provides an overview of the depression assessment tools used in longitudinal mental health research across various African countries. The total number of cumulative tools used in 132 depression studies is 139, with the number of totals utilized in the studies per country ranging from 1 to 69, as indicated in the headers of each country column. The Center for Epidemiological Studies-Depression (CES-D) scale was used cumulatively 15 times 10.8% of the overall total, with the highest usage in South Africa. The Edinburgh Postnatal Depression Scale (EPDS) appears 12 times (8.6%), predominantly in Ethiopia and South Africa. The Patient Health Questionnaire (PHQ-9) is utilized 11 times (7.9%), with notable representation in Ethiopia and South Africa. The Beck Depression Inventory(BDI/BDI-II) and the Mini International Neuropsychiatric Interview MINI) are each employed cumulatively 8 and 7 times in the studies, 5.8% and 5% respectively of the total), with the DSM-IV being used exclusively in Morocco and the MINI showing a higher usage in South Africa. The General Health Questionnaire-28 (GHQ-28) and the Hospital Anxiety and Depression Scale (HADS) are both used 6 times (4.3%), with HADS having a significant presence in Uganda. The Composite International Diagnostic Interview CIDI) and the Depression Anxiety Stress Scales (DASS-21) are used 5 times (3.6%). The Diagnostic and Statistical Manual of Mental Disorders-4th Edition (DSM-IV) appears 5 times 3.6%), with Egypt showing a 100% usage rate among its studies. An additional category labelled 'Others' encompasses the remaining tools used cumulatively 59 times (42.4%), suggesting a variety of other tools are also employed in the research across these nations. The table

reveals a diversity of approaches to depression assessment, with certain tools favored in specific countries. This distribution reflects the varied methodological preferences and research needs within the African context for studying depression. The detailed distribution of tools used for depression and the geographical display of the tool usage are provided in Annexure 2 and 2.1 respectively.

Depression Tools	Overall	Botswana	Egypt	Ethiopia	Ghana	Kenya	Mali	Morocco	Nigeria	South Africa	Sudan	Tunisia	Uganda	Zimbabwe
	N = 139	N= 1	N= 13	N= 10	N= 2	N= 7	N= 1	N= 1	N= 20	N= 69	N= 1	N= 3	N= 7	N= 4
Center for Epi. Studies-Depression ***(CES-D)***	15	0	0	0	0	0	0	0	0	13	0	0	2	0
	10.8 %	0%	0%	0%	0%	0%	0%	0%	0%	18.80 %	0%	0%	28.6 %	0%
Edinburgh Postnatal Depression Scale ***(EPDS)***	12	0	0	0	0	2	0	0	0	10	0	0	0	0
	8.6%	0%	0%	0%	0%	28.6 %	0%	0%	0%	14.5%	0%	0%	0%	0%
Patient Health Questionnaire ***(PHQ-9)***	11	0	0	2	2	2	0	0	1	3	0	0	1	0
	7.9%	0%	0%	20.0 %	100.0 %	28.6 %	0%	0%	5.0%	4.3%	0%	0%	14.3 %	0%
Beck Depression Inventory ***(BDI/BDI-II)***	8	0	2	0	0	1	0	0	0	5	0	0	0	0
	5.8%	0%	15. 4%	0%	0%	14.3 %	0%	0%	0%	7.2%	0%	0%	0%	0%
Mini International Neuropsychiatric Interview ***(MINI)***	7	0	0	0	0	0	0	0	0	6	0	0	1	0
	5.0%	0%	0%	0%	0%	0%	0%	0%	0%	8.7%	0%	0%	14.3 %	0%
General Health Questionnaire -28 ***(GHQ-28)***	6	0	0	1	0	0	0	0	2	3	0	0	0	0
	4.3%	0%	0%	10.0 %	0%	0%	0%	0%	10.0 %	4.3%	0%	0%	0%	0%
Hospital Anxiety and Depression Scale ***(HADS)***	6	0	2	0	0	0	0	0	2	0	0	2	0	0
	4.3%	0%	15. 4%	0%	0%	0%	0%	0%	10.0 %	0%	0%	66.7 %	0%	0%
Composite International Diagnostic Interview ***(CIDI)***	5	0	0	1	0	0	0	0	1	2	0	0	0	1
	3.6%	0%	0%	10.0 %	0%	0%	0%	0%	5.0%	2.9%	0%	0%	0%	25.0 %
Depression Anxiety Stress Scale ***(DASS-21)***	5	0	0	2	0	0	0	0	2	1	0	0	0	0
	3.6%	0%	0%	20.0 %	0%	0%	0%	0%	10.0 %	1.4%	0%	0%	0%	0%
Diagnostic and Statistical Manual of Mental Disorders -4th ***(DSM-IV)***	5	0	0	1	0	0	0	1	1	2	0	0	0	0
	3.6%	0%	0%	10.0 %	0%	0%	0%	100.0 %	5.0%	2.9%	0%	0%	0%	0%
Others	59	1	9	3	0	2	1	0	11	24	1	1	3	3
	42.4	100%	69.	30.0	0%	28.6	100	0%	55.0	34.8%	100	33.3	42.9	75.0

	%		2%	%		%	%		%		%	%	%	%

Table 5: Top 10 used tools for Depression across Africa

3.3.3 Longitudinal Studies on Psychosis

The landscape of psychosis research in Africa still falls behind that of depression and anxiety, with regards to the number of longitudinal research conducted. South Africa emerges as the leading country in psychosis longitudinal research, with 31 studies accounting for approximately 32.6% of the total studies depicted across the African continent. Tunisia follows with 23 studies, contributing nearly 24% to the research output, reflecting a substantial engagement in this field. Ethiopia holds about 8.4% with 8 studies, a commendable effort yet significantly less than South Africa and Tunisia. East African region has a total of 4 longitudinal studies on psychosis.

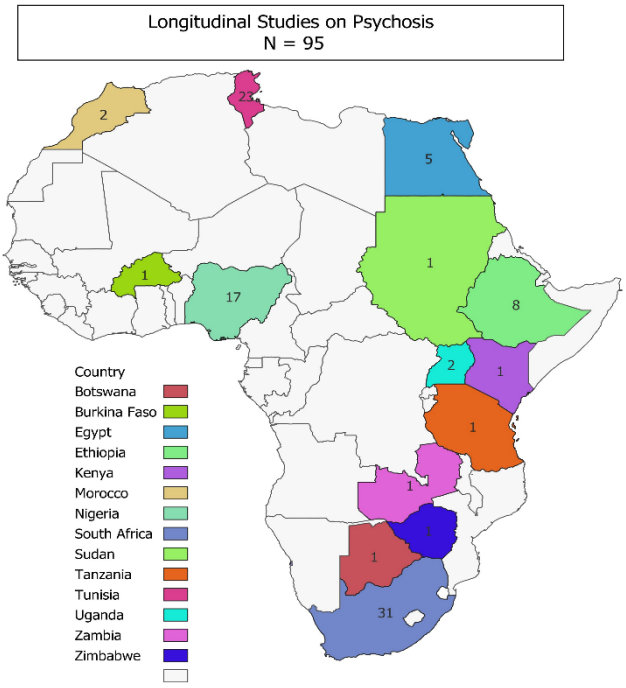


Figure 5: Studies on Psychosis in Africa

Further contributions to longitudinal research in psychosis are seen from Egypt and Nigeria, with Egypt conducting 5 studies, which is about 5.3% of the total noted in the figure below. Nigeria has undertaken 17 studies, representing approximately 17.9% of the psychosis research efforts showcased. These figures, while lower in comparison to South Africa and Tunisia, indicate a growing recognition of the importance of studying psychosis within these countries.

Despite these efforts, the numerical distribution suggests that Africa as a whole is still trailing behind in research related to psychosis. Several factors contribute to this lag. Cultural beliefs across different African societies can sometimes attribute mental health issues to supernatural causes, which can lead to underreporting and a reduced focus on scientific research on psychosis. This cultural context often presents challenges in recognizing and diagnosing psychosis in its medical framework.

Stigmatization of mental health disorders, including psychosis, remains a significant barrier. The stigma attached to these conditions can deter individuals from seeking formal medical help, thus impeding the accumulation of data that is essential for longitudinal studies. The presence of stigma can also influence funding priorities and the willingness of institutions to invest in mental health research.

Furthermore, the acceptance and prevalence of traditional healers in African societies impact the approach to mental health. Many individuals with symptoms of psychosis may first seek help from traditional healers rather than formal health services. This reliance on traditional practices, while culturally ingrained, can lead to a gap in the utilization of formal healthcare services, thereby affecting the development of a research base for psychosis.

3.3.3.1 Top 10 tools used for psychosis in Africa

The table details the assessment tools utilized in the study of psychosis across various African nations within the context of longitudinal research. Within the aggregate of 95 studies, a spectrum of 60 distinct tools for the evaluation of psychosis has been documented, highlighting the diverse methodological approaches adopted in this field.

Among these, the Positive and Negative Syndrome Scale (PANSS) emerges as the predominant instrument, evidenced by its application in 10 (16.7%) instances. Its prominence is particularly notable in the South African

subset of studies, where 8 (42.1%) of the 19 tools employed across 31 studies were the PANSS, underscoring its use in the regional psychosis research landscape.

In Nigeria, the research corpus encompasses 17 total studies, with 9 used tools being part of the top 10 tools used. Within this set, the Brief Psychiatric Rating Scale (BPRS) demonstrates a recurrence rate of 2 (22.2%), while the PANSS, the Diagnostic and Statistical Manual of Mental Disorders-4th Edition (DSM-IV), the 10th International Classification of Mental and Behavioral Disorders (ICD-10), and the Mini International Neuropsychiatric Interview (MINI) each manifest a usage frequency of 1 (11.1%). The Ethiopian research context, consisting of 4 tools across 12 studies, reveals an equal utilization frequency of 4 (33.3%) for both the Composite International Diagnostic Interview (CIDI) and the Schedule for Clinical Assessment in Neuropsychiatry (SCAN), indicating a shared preference for these assessment tools. Zimbabwe and Tunisia report usage of the BPRS in 1 (50%) and 3 (75%) instances respectively, within their smaller cohorts of studies, whereas Ugandan research, although limited to 3 studies deploying 2 tools, integrates the PANSS and MINI, each at a frequency of 1 (33.3%). A singular approach to psychosis assessment is observed in Burkina Faso, Morocco, Sudan, and Zambia, where a single tool—clinical diagnosis for Burkina Faso and Sudan, and DSM-IV for Morocco and Zambia—is reported in their respective single study on psychosis. In contrast, Egypt, within its 5 psychosis studies, applies 1 (25%) tool, the Structured Clinical Interview for DSM-IV (SCID-IV), and 3 other studies used other tools. A detailed table of tools used for psychosis and how the tools are distributed across African countries is in Annexure 3 and 3.1 respectively.

This distribution not only reflects each tool's perceived utility and screening fit but also hints at the underlying research infrastructures, available expertise, and possible methodological preferences that shape the landscape of psychosis research in Africa. The data suggests a need for the harmonization of screening and assessment strategies to enable a more cohesive understanding of psychosis across diverse African settings.

Psychosis tools	Overall	Botswana	Burkina	Egypt	Ethiopia	Morocco	Nigeria	South Africa	Sudan	Tanzania	Tunisia	Uganda	Zambia	Zimbabwe
	N = 60	N = 1	N = 1	N = 4	N = 12	N = 1	N = 9	N = 19	N = 1	N = 2	N = 4	N = 3	N = 1	N = 2
Positive and Negative Syndrome *Scale* ***(PANSS)***	10	0	0	0	0	0	1	8	0	0	0	1	0	0
	16.7%	0%	0%	0%	0%	0%	11.1%	42.1 %	0%	0%	0%	33.3%	0%	0%
Brief Psychiatric *Rating Scale* ***(BPRS)***	6	0	0	0	0	0	2	0	0	0	3	0	0	1
	10.0%	0%	0%	0%	0%	0%	22.2%	0%	0%	0%	75.0%	0%	0%	50.0%
Composite International Diagnostic Interview (CIDI)	6	0	0	0	4	0	0	1	0	0	0	0	0	1
	10.0%	0%	0%	0%	33.3%	0%	0%	5.3%	0%	0%	0%	0%	0%	50.0%
Diagnostic and Statistical Manual of Mental Disorders-4th *Edition* ***(DSM-IV)***	5	0	0	0	1	1	1	1	0	0	0	0	1	0
	8.3%	0%	0%	0%	8.3%	100.0%	11.1%	5.3%	0%	0%	0%	0%	100.0 %	0%

Structured Clinical Interview for *DSM-IV* ***(SCID IV)***	5	0	0	1	0	0	0	4	0	0	0	0	0	0
	8.3%	0%	0%	25.0 %	0%	0%	0%	21.1 %	0%	0%	0%	0%	0%	0%
Schedule for Clinical Assessment in Neuropsychiatry (SCAN)	4	0	0	0	4	0	0	0	0	0	0	0	0	0
	6.7%	0%	0%	0%	33.3%	0%	0%	0%	0%	0%	0%	0%	0%	0%
10th international Classification of mental and behavioral disorders (ICD-10)	3	0	0	0	0	0	1	1	0	1	0	0	0	0
	5.0%	0%	0%	0%	0%	0%	11.1%	5.3%	0%	50.0%	0%	0%	0%	0%
Mini International Neuropsychiatric *Interview* ***(MINI)***	3	0	0	0	0	0	1	1	0	0	0	1	0	0
	5.0%	0%	0%	0%	0%	0%	11.1%	5.3%	0%	0%	0%	33.3%	0%	0%
Brief Psychiatric Rating Scale *Expanded* ***(BPRS-E)***	2	0	0	0	1	0	0	1	0	0	0	0	0	0
	3.3%	0%	0%	0%	8.3%	0%	0%	5.3%	0%	0%	0%	0%	0%	0%
Clinical Diagnosis	2	0	1	0	0	0	0	0	1	0	0	0	0	0
	3.3%	0%	100 %	0%	0%	0%	0%	0%	100.0 %	0%	0%	0%	0%	0%
Others	14	1	0	3	2	0	3	3	0	1	1	1	0	0
	23.3%	100%	0%	75.0 %	16.7%	0%	33.3%	33.3 %	0%	50.0%	25.0%	33.3%	0%	0%

Table 6: Top 10 tools used for Psychosis across Africa

3.4 Disease Burden

The epidemiological profile of mental health conditions across different age demographics can shape research priorities regionally and globally. Trends observed from age-related prevalence data suggest that conditions such as anxiety and depression may require more focused research efforts, particularly in younger populations where these conditions peak [8]. This emphasis could lead to the development of early intervention and prevention strategies that are tailored to the unique needs of these age groups.

From the attached graph, [12], substance use disorders, peaking in young adulthood, signal the need for research into factors contributing to early onset and maintenance of these conditions, as well as effective treatment modalities. Attention-Deficit/Hyperactivity Disorder (ADHD), predominantly observed in the youngest cohort, underscores the necessity for child-centered research that addresses early detection and management.

Conversely, conditions with a relatively stable prevalence across age groups, like bipolar disorder, demand a consistent research approach that spans the lifespan, ensuring that management strategies evolve to meet patients' changing needs. Even less prevalent conditions, such as eating disorders, which show a sharp prevalence in adolescence, should not be overlooked due to their profound impact on individuals and health systems.

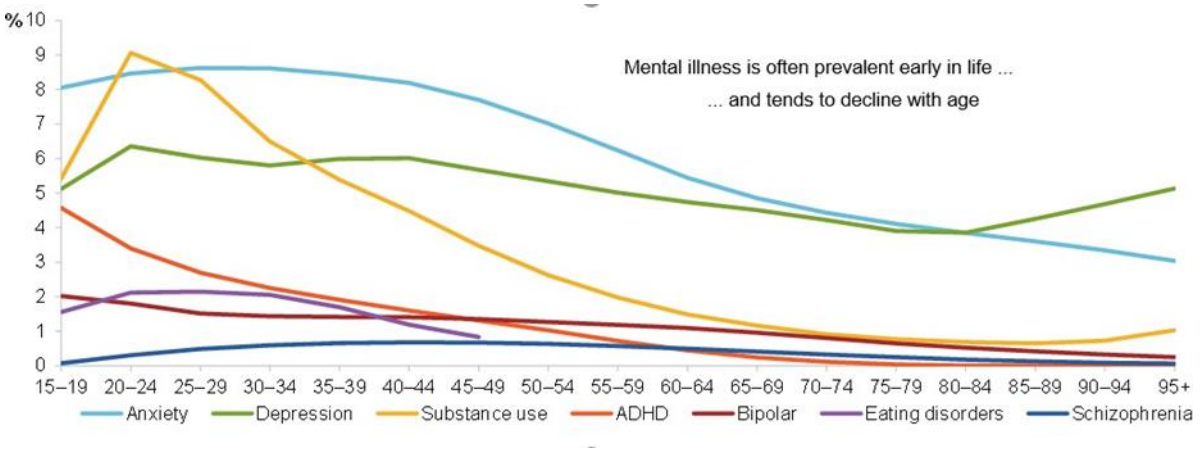


Figure 6: Disease Burden, World Health Organization (2023)

Schizophrenia's stable prevalence in adulthood highlights the need for sustained research into long-term management, considering the chronic nature of the condition and the associated psycho-social burdens.

Therefore, while the absolute prevalence of a condition is an important determinant of research focus, the current research landscape must also consider the broader impact on health, quality of life, and the healthcare system. A responsive and adaptable research agenda, informed by epidemiological trends and population needs, is essential to address the dynamic and multifaceted nature of mental health challenges [14].

4 Discussion

In this section, the paper will explore the potential reasons for the observed geographic and condition-specific disparities in access to longitudinal mental health data. This includes examining the role of funding, infrastructure, local research capacities, and disease burden. The implications of the preferred prospective study design will also be considered, including its benefits for understanding causality and its potential limitations due to resource intensiveness. Lastly, the lack of data statements in many articles may warrant a call for more robust data-sharing practices to foster collaborative research and improve the reliability of findings in African mental health research.

4.1 Geographic and Condition-Specific Disparities

The uneven geographic distribution of longitudinal mental health studies across Africa could be largely attributed to the disparities in funding. Typically, regions with stronger economic support systems and international funding partnerships, such as South Africa, have a higher number of publications. Funding not only supports the conduct of research but also influences its scope, with more funded regions being able to tackle a broader spectrum of conditions, from depression to psychosis. The discussion here should evaluate how funding patterns have historically shaped research priorities and the extent to which current funding strategies align with the mental health burden across different African regions. In alignment with the discussion of funding as it relates to the geographic distribution of longitudinal mental health studies in Africa, [15] in "Resources for mental health: scarcity, inequity, and inefficiency" elucidate the issue of insufficient funding. This study corroborates the notion that areas with stronger economic foundations, often supported by international collaborations, exhibit more extensive research outputs. It also touches upon the consequential limitations placed on the scope of research in less funded regions, echoing the discussion's premise that funding not only enables research activities but also dictates the breadth and depth of conditions explored.

The availability of research infrastructure, including hospitals, data collection systems, and research institutions, is fundamental to conducting longitudinal studies. Regions with well-established research infrastructure are more likely to produce a consistent output of studies. Meaningful involvement of stakeholders at all levels—ranging from patients to policymakers—is critical for designing and implementing studies that address specific healthcare decisions. This principle is directly applicable to the field of longitudinal mental health research, where the infrastructural capacity must be leveraged to meet the needs of decision-makers, reflecting both best practices in methodology and the necessity for research to be relevant, feasible, and timely.

Furthermore, policies geared towards the development and enhancement of research infrastructure are pivotal. They play a determining role in the ability to undertake complex, longitudinal studies that can yield insights into the prevention, diagnosis, treatment, and monitoring of mental health conditions. As the research conducted by [16] indicates, that improvements in research infrastructure are essential for the validity and efficiency of longitudinal studies. This aligns with our findings that indicate that infrastructure must be capable of supporting large-scale data synthesis and comparison of various mental health interventions.

Local expertise and research capacities, including the availability of trained mental health researchers and clinicians, are crucial for conducting and sustaining longitudinal studies. This part of the discussion should focus on the relationship between local research capacities and the quality and quantity of mental health research output. An examination of educational programs, continuous professional development, and opportunities for researchers within the African context will be pertinent here. These findings corroborate those of [17] that discussed the apprenticeship model, which aligns with the broader blueprint for building local research capacities, underscoring the necessity of context-specific training methods. From the research findings, it is imperative to consider the cultural nuances and resource constraints inherent in LMIC settings, ensuring that mental health interventions are not only imported but are also adapted, accepted, and embedded within the community.

4.2 Disparities by Design of Study

Access to Longitudinal Mental Health Datasets was met with several limitations, one of which was the prospective study design's inherent challenges. Prospective studies are preferred in longitudinal mental health research due to their ability to track the progression of conditions over time, which is invaluable in establishing causative relationships. Such studies, while advantageous for their ability to capture the evolution of mental health conditions over time, are often accompanied by considerable time, financial, and resource requirements. These factors collectively contribute to the less frequent undertaking of prospective studies in resource-limited settings.

The time investment required for prospective studies can span many years or even decades, which not only extends the duration before findings can be reported but also demands sustained funding and stability in research environments—conditions that are not always guaranteed in regions with economic constraints.

Financially, the costs associated with longitudinal research, which may include participant follow-ups, data management, and personnel, are significantly higher than those for retrospective studies. This financial barrier can restrict the depth and breadth of research, especially in settings where health research competes for funding with other pressing health and social issues. In terms of resources, the intensity of data collection, the need for robust data storage solutions, and the management of large research teams require a well-established research infrastructure. However, in areas where such infrastructure is underdeveloped, these requirements can become a major hindrance.

The findings on financial and time implications align with those of research conducted by [18] on the intersection of financial conditions and health outcomes providing a robust backdrop against which the financial and time constraints of conducting longitudinal studies. According to the findings, the requirement for extensive financial investment over prolonged periods makes longitudinal research particularly vulnerable to fluctuations in funding. This vulnerability can influence the scope, scale, and quality of research, often constraining the breadth of study designs or the inclusion of diverse populations. The research also highlighted that securing consistent funding is compounded by the need for extensive time commitments, both from researchers and participants.

Longitudinal studies require ongoing data collection, participant engagement, and follow-up, which incur continuous financial costs. This aspect is particularly highlighted in low- and middle-income countries where resource constraints are pronounced, aligning with the emphasis on the importance of financial conditions highlighted in the findings of this study.

Furthermore, the original discussion points regarding dataset availability are also critical. The incomplete sharing of datasets and the absence of comprehensive data dictionaries hindered the utility of the data for further research. The slow response from corresponding authors also exacerbated this problem, leading to delays in the reusability of research data [19].

Finally, the ethical and legal complexities of handling sensitive mental health data posed additional challenges. The rigorous processes of ethical approval, securing data use agreements, and ensuring compliance with data protection laws added layers of complexity and potential delays to an already time-intensive research design.

4.3 Data-Sharing Practices

4.3.1 Data Statements

The absence of data statements in many research articles raises critical concerns regarding the openness and reproducibility of research. Advocating for more robust data-sharing practices is crucial and should include a thorough examination of the benefits that data statements offer in terms of research replicability, fostering trust in research findings, and bolstering collaborative efforts. Moreover, data access statements serve as powerful tools to enhance transparency, providing explicit insights into the availability of datasets and clear instructions for accessing them, whether it be through repositories or direct communication with the corresponding author. This not only promotes the visibility of datasets and repositories but also facilitates collaborative endeavors on data reuse, which in turn maximizes the research data's value. However, the implementation of such practices must also consider the challenges they pose, such as privacy concerns, intellectual property issues, and the capacity to effectively manage data repositories. Addressing these barriers is essential to ensure that data sharing contributes positively to the scientific community and adheres to ethical standards.

4.3.2 FAIRness in Access to Longitudinal Mental Health Research and Data

Access to longitudinal mental health research and data is fundamental for advancing the understanding, treatment, and prevention of mental health disorders. However, ensuring equitable access to such data presents significant challenges. The FAIR principles - Findability, Accessibility, Interoperability, and Reusability - offer a comprehensive framework to address these challenges and promote transparency, collaboration, and innovation in mental health research. Findability entails clear metadata descriptions and standardized indexing to facilitate efficient data discovery. Accessibility involves open access policies and user-friendly interfaces, while Interoperability requires adherence to standardized data formats and protocols for seamless data exchange. Lastly, Reusability ensures comprehensive data documentation and quality assurance mechanisms to support data reuse for future investigations and analyses. By embracing FAIR data practices, stakeholders can foster a culture of openness and collaboration, accelerating scientific discovery and improving mental health outcomes.

The FAIR principles provide a robust framework for promoting equitable access to longitudinal mental health research and data. Prioritizing findability, accessibility, interoperability, and reusability enhances transparency, collaboration, and innovation in mental health science and care. By implementing FAIR data practices, stakeholders can ensure that research findings have a meaningful impact on addressing societal challenges and improving mental health outcomes for individuals and communities [20].

5 Conclusion

In the realm of research, the ethos of data sharing stands as a cornerstone for fostering transparency, enabling collaboration, and ensuring the reproducibility of scientific findings, resonating strongly with the FAIR principles that champion the reusability of research data [21]. Within the context of longitudinal mental health studies, particularly in resource-limited regions such as Africa, the practice of sharing data becomes a conduit for

maximizing the utility of scarce research outputs. By sharing data, researchers can delve into the depths of existing datasets to unearth insights that can propel advancements in mental health outcomes.

Moreover, data sharing is instrumental in honing the effectiveness of mental health treatments and interventions. It permits a collective analytical approach, wherein researchers and clinicians can discern the most efficacious therapeutic and preventive strategies for mental health ailments. This collaborative paradigm aligns with insights gleaned from research into the perceptions of individuals with mental health conditions regarding data sharing for scientific inquiry. Such studies illuminate the predominantly favorable stance toward data sharing, underscoring its potential to amplify scientific acumen and catalyze the innovation of enhanced treatment modalities [22] [23].

Acknowledging the critical role of data sharing in the enrichment of longitudinal mental health research and clinical practice invites a broader recognition among researchers and policymakers of its transformative impact. Yet, it is imperative to navigate the complexities of data usage carefully, safeguarding against potential misuse [24]. By instituting rigorous, transparent, and ethical protocols for data sharing, the scientific community can bolster trust and cooperation amongst its members. Such concerted efforts in refining data-sharing practices can significantly amplify the collective capacity to address the myriad challenges posed by mental health conditions, thus reshaping the landscape of mental health research and enhancing the well-being of populations across the globe.

Data availability statement

The data generated and/or analyzed during the current study are available from the corresponding author upon reasonable request. Restrictions apply to the availability of individual data, and so not publicly available.

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Together, we are advancing towards improved mental health care and accessibility. Thank you for your support and belief in our mission.

Authors' contributions

All authors discussed the results and contributed to the final manuscript.

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Competing interest

We declare we have no competing interests.

Ethics standard

Internal and External ethical approvals were given for conducting of the project.

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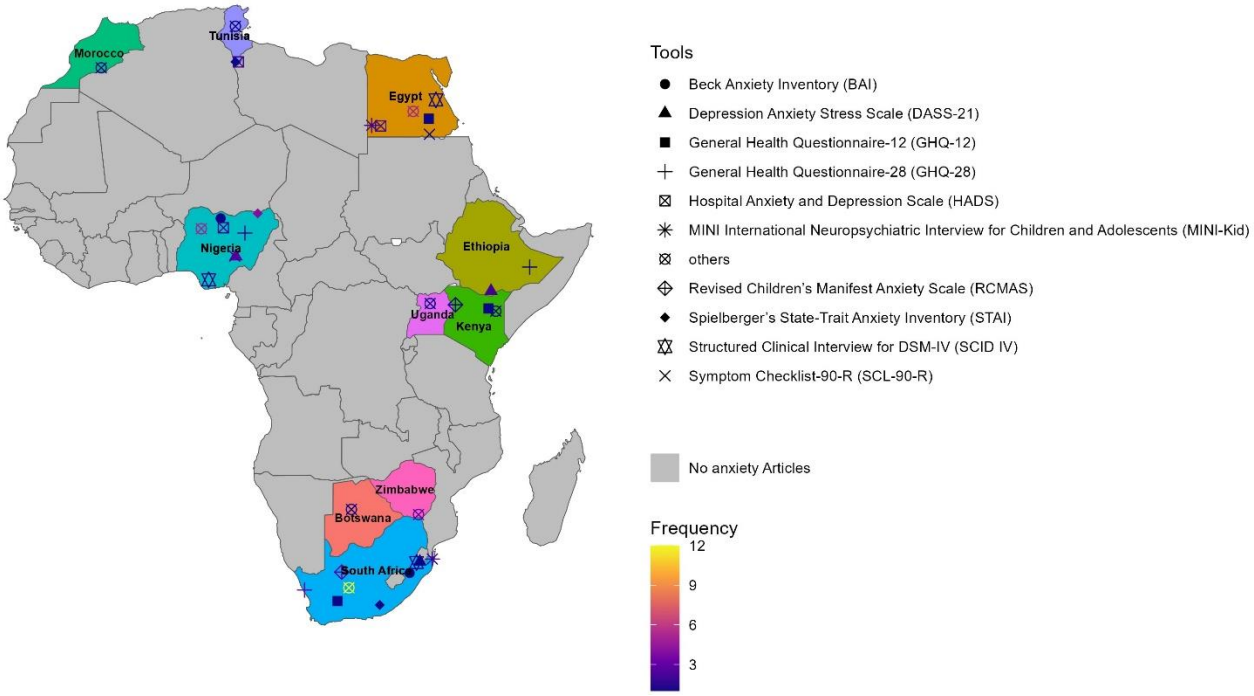
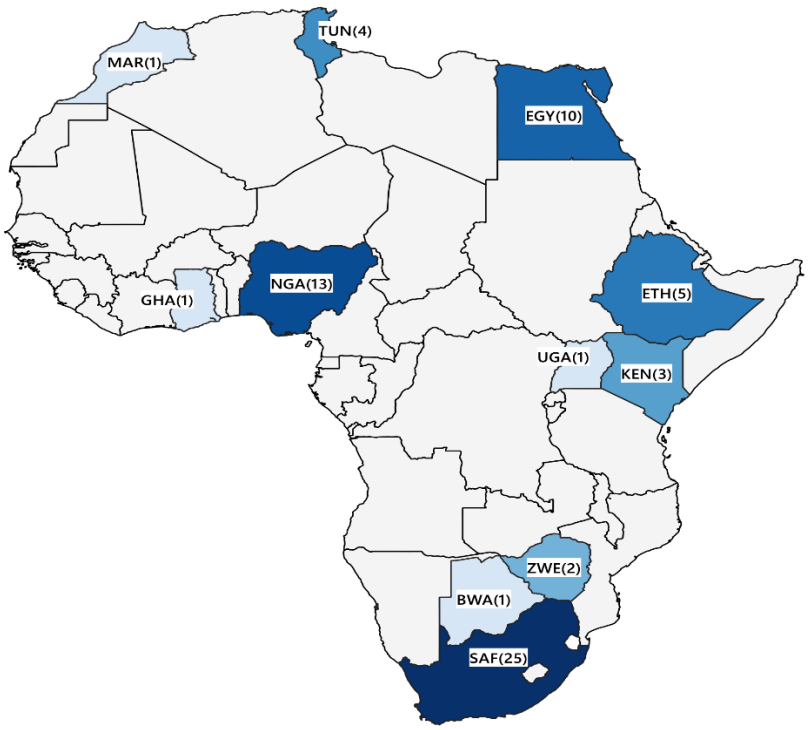
Annexure 1: Comprehensive List of Tools Used for Anxiety

Anxiety tools	Frequency	Study Country
90 question Inventory developed by Shaheen and Rakhawy	1	Egypt
Beck Anxiety Inventory (BAI)	1	Nigeria
Beck Anxiety Inventory (BAI)	1	South Africa
Beck Youth Inventories (BYI-II)	1	South Africa
Brief Psychiatric Rating Scale (BPRS)	1	Zimbabwe
Child and Adolescent Symptom Inventory-5 (CASI-5)	1	Uganda
Clinical Anxiety Rating Scale (CARS)	1	Nigeria
Composite International Diagnostic Interview (CIDI)	1	Zimbabwe
Depression Anxiety Stress Scale (DASS-21)	2	Ethiopia
Depression Anxiety Stress Scale (DASS-21)	3	Nigeria
Depression Anxiety Stress Scale (DASS-21)	1	South Africa
DSM-IV-TR criteria Axis I - III	1	South Africa
four-dimensional symptom questionnaire (4DSQ)	1	South Africa
General Health Questionnaire-12 (GHQ-12)	1	Egypt
General Health Questionnaire-12 (GHQ-12)	1	Kenya
General Health Questionnaire-12 (GHQ-12)	1	South Africa
General Health Questionnaire-28 (GHQ-28)	1	Ethiopia
General Health Questionnaire-28 (GHQ-28)	2	Nigeria
General Health Questionnaire-28 (GHQ-28)	3	South Africa
Generalized Anxiety Disorder (GAD-2)	1	South Africa
Generalized Anxiety Disorder (GAD-7)	1	Nigeria
Generalized Anxiety Disorder (GAD-7)	1	South Africa
Hamilton Anxiety Rating Scale (HAM-A)	1	Egypt
Hamilton Anxiety Rating Scale (HAM-A)	1	Morocco
Hopkins Symptom Check List-25 (HSCL-25)	1	South Africa
Hospital Anxiety and Depression Scale (HADS)	2	Egypt
Hospital Anxiety and Depression Scale (HADS)	2	Nigeria
Hospital Anxiety and Depression Scale (HADS)	2	Tunisia
International Classification of Diseases (ICD-9)	1	Nigeria
International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)	1	Botswana
Middlesex Hospital Questionnaire (MHQ)	1	Egypt
Mini International Neuropsychiatric Interview (MINI)	2	South Africa
MINI International Neuropsychiatric Interview for Children and Adolescents (MINI-Kid)	2	Egypt
MINI International Neuropsychiatric Interview for Children and Adolescents (MINI-Kid)	2	South Africa
Multidimensional Anxiety Scale for Children (MASC)	1	South Africa
mYPAS (modified Yale Anxiety Scale)	1	Nigeria
Revised Children's Manifest Anxiety Scale	1	South Africa
Revised Children's Manifest Anxiety Scale (RCMAS)	1	Kenya
Revised Children's Manifest Anxiety Scale (RCMAS)	3	South Africa
Revised Clinical Interview Schedule (RCIS)	1	Zimbabwe
Spielberger's State-Trait Anxiety Inventory (STAI)	4	Nigeria
Spielberger's State-Trait Anxiety Inventory (STAI)	1	South Africa
Spielberger's State-Trait Anxiety Inventory (STAI)	1	Tunisia
Structured Clinical Interview for DSM-5 (SCID-5)	1	South Africa
Structured Clinical Interview for DSM-IV (SCID IV)	1	Egypt
Structured Clinical Interview for DSM-IV (SCID IV)	1	Nigeria
Structured Clinical Interview for DSM-IV (SCID IV)	1	South Africa
Symptom Checklist-90-R (SCL-90-R)	1	Egypt
Symptom Checklist-90-R (SCL-90-R)	2	Nigeria
Taylor Manifest Anxiety Scale	1	Egypt
Temperament Evaluation of Memphis, Pisa, Paris, and San Diego Autoquestionnaire (TEMPS-A)	1	Tunisia
YPAS (Yale Anxiety Scale)	1	Nigeria

Annexure 1.1: Anxiety Tools usage across countries



Longitudinal Studies on Anxiety
N = 66

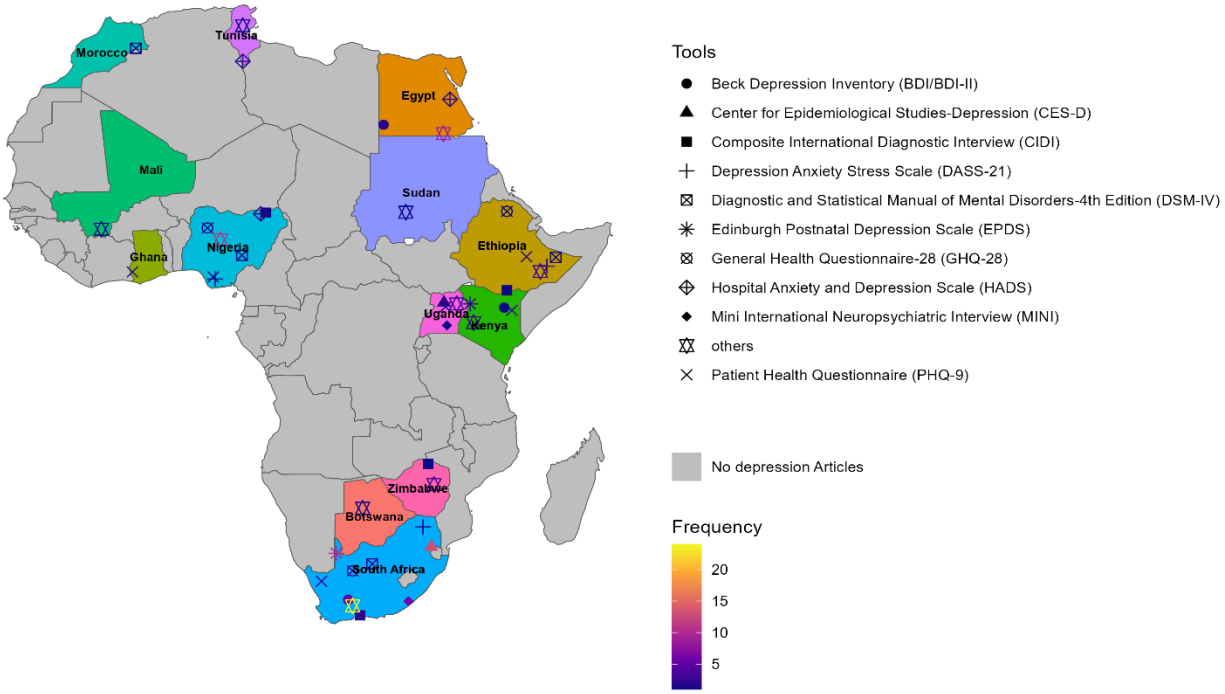


Annexure 2: Comprehensive List of Tools Used for Depression

Depression Tools	Frequency	Study Country
90 question Inventory developed by Shaheen and Rakhawy	1	Egypt
Beck Depression Inventory (BDI/BDI-II)	2	Egypt
Beck Depression Inventory (BDI/BDI-II)	5	South Africa
Beck Youth Inventories (BYI-II)	1	South Africa
Becks Depression Inventory (BDI/BDI-II)	1	Kenya
Brief Psychiatric Rating Scale (BPRS)	1	Nigeria
Brief Psychiatric Rating Scale (BPRS)	1	Zimbabwe
Brief Psychiatric Rating Scale Expanded (BPRS-E)	1	Ethiopia
Brief Psychiatric Rating Scale Expanded (BPRS-E)	1	South Africa
Calgary Depression Scale for Schizophrenia (CDSS)	4	South Africa
Center for Epidemiological Studies-Depression (CES-D)	13	South Africa
Center for Epidemiological Studies-Depression (CES-D)	2	Uganda
Child and Adolescent Symptom Inventory-5 (CASI-5)	1	Uganda
Child Depression Inventory – Short Form (CDI-SF)	1	Kenya
Child Depression Inventory – Short Form (CDI-SF)	1	South Africa
Child Depression Inventory (CDI)	3	South Africa
Choice Health Experience Questionnaire (CHEQ)	1	Mali
Clinical Diagnosis	1	Sudan
Composite International Diagnostic Interview (CIDI)	1	Ethiopia
Composite International Diagnostic Interview (CIDI)	1	Nigeria
Composite International Diagnostic Interview (CIDI)	2	South Africa
Composite International Diagnostic Interview (CIDI)	1	Zimbabwe
Depression Anxiety Stress Scale (DASS-21)	2	Ethiopia
Depression Anxiety Stress Scale (DASS-21)	2	Nigeria
Depression Anxiety Stress Scale (DASS-21)	1	South Africa
Diagnostic and Statistical Manual of Mental Disorders-4th Edition (DSM-IV)	1	Ethiopia
Diagnostic and Statistical Manual of Mental Disorders-4th Edition (DSM-IV)	1	Morocco
Diagnostic and Statistical Manual of Mental Disorders-4th Edition (DSM-IV)	1	Nigeria
Diagnostic and Statistical Manual of Mental Disorders-4th Edition (DSM-IV)	2	South Africa
Edinburgh Postnatal Depression Scale (EPDS)	2	Kenya
Edinburgh Postnatal Depression Scale (EPDS)	10	South Africa
four-dimensional symptom questionnaire (4DSQ)	1	South Africa
General Health Questionnaire-12 (GHQ-12)	1	Egypt
General Health Questionnaire-12 (GHQ-12)	1	Kenya
General Health Questionnaire-12 (GHQ-12)	1	Nigeria
General Health Questionnaire-12 (GHQ-12)	1	South Africa
General Health Questionnaire-28 (GHQ-28)	1	Ethiopia
General Health Questionnaire-28 (GHQ-28)	2	Nigeria
General Health Questionnaire-28 (GHQ-28)	3	South Africa
Geriatric Depression Scale (GDS)	2	Nigeria
Hamilton Depression Rating Scale (HAM-D)	1	Egypt
Hamilton Depression Rating Scale (HAM-D)	1	Nigeria
Hamilton Depression Rating Scale (HAM-D)	2	South Africa
HIV/AIDS depression scale excluding items reflecting somatic symptoms	1	Ethiopia
Hopkins Symptom Check List-25 (HSCL-25)	1	South Africa
Hopkins Symptom Check List-25 (HSCL-25)	2	Uganda
Hospital Anxiety and Depression Scale (HADS)	2	Egypt
Hospital Anxiety and Depression Scale (HADS)	2	Nigeria
Hospital Anxiety and Depression Scale (HADS)	2	Tunisia
International Classification of Diseases (ICD-9)	1	Nigeria
International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)	1	Botswana

Middlesex Hospital Questionnaire (MHQ)	1	Egypt
Mini International Neuropsychiatric Interview (MINI)	6	South Africa
Mini International Neuropsychiatric Interview (MINI)	1	Uganda
MINI International Neuropsychiatric Interview for Children and Adolescents (MINI-Kid)	2	Egypt
MINI International Neuropsychiatric Interview for Children and Adolescents (MINI-Kid)	2	South Africa
Montgomery Asberg Depression Rating Scale (MADRS)	1	Egypt
Montgomery Asberg Depression Rating Scale (MADRS)	1	Zimbabwe
Patient Health Questionnaire (PHQ-2)	2	South Africa
Patient Health Questionnaire (PHQ-9)	2	Ethiopia
Patient Health Questionnaire (PHQ-9)	2	Ghana
Patient Health Questionnaire (PHQ-9)	2	Kenya
Patient Health Questionnaire (PHQ-9)	1	Nigeria
Patient Health Questionnaire (PHQ-9)	3	South Africa
Patient Health Questionnaire (PHQ-9)	1	Uganda
Revised Clinical Interview Schedule (RCIS)	1	Zimbabwe
Schedule for Clinical Assessment in Neuropsychiatry (SCAN)	1	Ethiopia
Self Rating Depression Scale (SDS)	2	Nigeria
Structured Clinical Interview for DSM-5 (SCID-5)	1	South Africa
Structured Clinical Interview for DSM-IV (SCID IV)	1	Egypt
Structured Clinical Interview for DSM-IV (SCID IV)	1	Nigeria
Structured Clinical Interview for DSM-IV (SCID IV)	3	South Africa
Structured Diagnostic Interview for Axis I Disorders (SCID-I)	1	South Africa
Symptom Checklist-90-R (SCL-90-R)	1	Egypt
Symptom Checklist-90-R (SCL-90-R)	2	Nigeria
Temperament Evaluation of Memphis, Pisa, Paris, and San Diego Autoquestionnaire (TEMPS-A)	1	Tunisia

Annexure 2.1: Depression Tools usage across countries



Longitudinal Studies on Depression
N = 132

Annexure 3: Comprehensive List of Tools Used for Psychosis

Psychosis tools	Frequency	Study Country
International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)	1	Botswana
Clinical Diagnosis	1	Burkina Faso
MINI International Neuropsychiatric Interview for Children and Adolescents (MINI-Kid)	2	Egypt
Patient version of Structured Clinical Interview for DSM-III-R (SCID-P)	1	Egypt
Structured Clinical Interview for DSM-IV (SCID IV)	1	Egypt
Composite International Diagnostic Interview (CIDI)	4	Ethiopia
Schedule for Clinical Assessment in Neuropsychiatry (SCAN)	4	Ethiopia
Brief Psychiatric Rating Scale Expanded (BPRS-E)	1	Ethiopia
Diagnostic and Statistical Manual of Mental Disorders-4th Edition (DSM-IV)	1	Ethiopia
Scale for Assessment of Negative Symptoms (SANS)	1	Ethiopia
Scale for the Assessment of Positive Symptoms (SAPS)	1	Ethiopia
Diagnostic and Statistical Manual of Mental Disorders-4th Edition (DSM-IV)	1	Morocco
Brief Psychiatric Rating Scale (BPRS)	2	Nigeria
10th international classification of mental and behavioural disorders (ICD-10)	1	Nigeria
Brief Psychiatric Rating Scale for Children (BPRS-C)	1	Nigeria
Diagnostic and Statistical Manual of Mental Disorders-4th Edition (DSM-IV)	1	Nigeria
Kiddie-Schedule for Affective Disorders and Schizophrenia Present and Lifetime Version (K-SADS-PL)	1	Nigeria
Mini International Neuropsychiatric Interview (MINI)	1	Nigeria
Positive and Negative Syndrome Scale (PANSS)	1	Nigeria
Schizophrenia Cognition Rating Scale (SCoRS)	1	Nigeria
Positive and Negative Syndrome Scale (PANSS)	8	South Africa
Structured Clinical Interview for DSM-IV (SCID IV)	4	South Africa
10th international classification of mental and behavioural disorders (ICD-10)	1	South Africa
Brief Psychiatric Rating Scale Expanded (BPRS-E)	1	South Africa
Composite International Diagnostic Interview (CIDI)	1	South Africa
Diagnostic and Statistical Manual of Mental Disorders-4th Edition (DSM-IV)	1	South Africa
Five axis DSM IV clinical diagnosis	1	South Africa
Mini International Neuropsychiatric Interview (MINI)	1	South Africa
Structured clinical interview (Diagnostic Interview for Genetic Studies [DIGS])	1	South Africa
Clinical Diagnosis	1	Sudan
10th international classification of mental and behavioural disorders (ICD-10)	1	Tanzania
SADS (Schedule for Affective Disorders and Schizophrenia)	1	Tanzania
Brief Psychiatric Rating Scale (BPRS)	3	Tunisia
Scale for the Assessment of Positive Symptoms (SAPS)	1	Tunisia
Diagnostic and Statistical Manual of Mental disorders 5th edition (DSM-5)	1	Uganda
Mini International Neuropsychiatric Interview (MINI)	1	Uganda
Positive and Negative Syndrome Scale (PANSS)	1	Uganda
Diagnostic and Statistical Manual of Mental Disorders-4th Edition (DSM-IV)	1	Zambia
Brief Psychiatric Rating Scale (BPRS)	1	Zimbabwe
Composite International Diagnostic Interview (CIDI)	1	Zimbabwe

Annexure 3.1: Psychosis tools usage across countries