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Research Article

Assessing Health Security in West Africa: A critical analysis through the lens of the Global Health Security Index and Joint External Evaluations of the IHR 2005

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Abstract

Background: The 2014–2016 Ebola epidemic exposed profound health security vulnerabilities across West Africa, yet nearly a decade later, the region's preparedness capacities remain inadequately characterized. This study provides a comprehensive assessment of health security across the fifteen members states of the Economic Community of West African States (ECOWAS) using the complementary frameworks of the Global Health Security (GHS) Index and the World Health Organization's Joint External Evaluation (JEE) process.

Methods: We analyzed 2021 GHS Index data for all ECOWAS member states, synthesized findings from first and second round JEE reports (2016–2025), and examined compliance indicators including National Action Plan for Health Security (NAPHS) development, costing, domestic financing, and functional capacities such as Emergency Operations Centres (EOCs) and Field Epidemiology Training Programs (FETPs). Comparative alignment analysis was conducted for selected countries to assess convergence and divergence between the two frameworks.

Findings: The ECOWAS region recorded the lowest average GHS Index score globally (26.5/100), well below the global average (38.9) and the African average (29.0). Prevention (22.3) and health systems (24.5) were the weakest domains. While all 15 countries completed at least one JEE and six have conducted second rounds, demonstrating an average improvement of +0.8 points on the 1–5 scale, only 20% of countries have costed and funded NAPHS, and just 13% have established domestic health security budget lines. Alignment between GHS Index and JEE was high in four countries (Ghana, Liberia, Sierra Leone, Niger) but moderate in Nigeria and Guinea, revealing complementary blind spots: the GHS Index underestimates laboratory capacity and political commitment, while the JEE may miss systemic structural weaknesses. Encouragingly, between 2015 and 2025, countries with completed JEEs increased from 2 to 12, functional EOCs from 3 to 9, and FETP coverage from 4 to 11. However, heavy reliance on external financing persists, with only five countries having domestic health security budget lines.

Interpretation: West Africa has built the planning architecture of health security—JEEs, NAPHS, EOCs, FETPs—but lacks the financed, functional, and resilient systems required for effective epidemic preparedness. The GHS Index and JEE serve genuinely complementary roles and should be used iteratively: the former for global benchmarking and advocacy, the latter for contextual, actionable roadmaps. Without a fundamental shift from donor-dependent projects to domestically sustained systems, and from national silos to regional mutual accountability, the region remains highly vulnerable to the next major epidemic.

Recommendations: ECOWAS national governments should establish domestic health security financing mechanisms, complete costed NAPHS, functionalize EOCs, and integrate One Health surveillance systems. Regional bodies should operationalize the Regional Centre for Surveillance and Disease Control (RCSDC), create a rapid response fund, and mandate cross-border data sharing. International partners must shift from project-based to systems-based financing, support second JEE rounds for all countries, and invest in digital surveillance and laboratory networks.

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1. Introduction

The 2014–2016 Ebola epidemic in West Africa marked a turning point in global health security [1]. What began as a localized outbreak in rural Guinea rapidly escalated into one of the most devastating public health crises of the 21st century, resulting in more than 11,000 deaths across Guinea, Liberia, and Sierra Leone [1]. Beyond the tragic loss of life, the epidemic exposed profound weaknesses in national, regional, and global preparedness systems [1, 2]. Fragile health infrastructures, limited surveillance capacity, inadequate laboratory networks, and delayed international mobilization allowed the outbreak to expand unchecked for months [2]. The crisis demonstrated that infectious disease threats, whether naturally occurring, accidental, or deliberate, can overwhelm health systems and destabilize societies when preparedness capacities are insufficient [3].

In response, the global community intensified efforts to strengthen health security, leading to the development and institutionalization of new tools for assessing national readiness [4]. Two frameworks have since become central to evaluating countries' capacities to prevent, detect, and respond to public health emergencies: the Global Health Security (GHS) Index, which provides a standardized, comparative assessment across six core domains [5]; and the Joint External Evaluation (JEE), a voluntary, multisectoral process that measures compliance with the International Health Regulations (IHR 2005) [6]. Together, these instruments offer complementary perspectives, one enabling global benchmarking and accountability, the other fostering national ownership and targeted capacity-building [7].

This paper uses both frameworks to examine the state of health security across the fifteen members states of the Economic Community of West African States (ECOWAS) [8]. By analyzing GHS Index scores and synthesizing findings from recent JEEs, the paper identifies regional trends, persistent gaps, and areas of progress [5, 6]. The goal is to provide a nuanced understanding of West Africa's preparedness landscape and to highlight policy priorities essential for strengthening resilience against future epidemics and public health emergencies.

The Ebola outbreak revealed that many West African countries lacked the foundational capacities required under the IHR (2005) [9]. Surveillance systems were fragmented, laboratory networks were limited, emergency operations centers were either absent or non-functional, and risk communication mechanisms were weak [10]. These gaps allowed the virus to spread across borders and overwhelm health systems already strained by chronic underinvestment [2]. The crisis catalyzed global recognition that health security is not merely a national responsibility but a shared international imperative [11].

In the aftermath of Ebola, global health actors sought more systematic ways to evaluate preparedness [4]. Two major tools emerged:

- The Global Health Security (GHS) Index, first published in 2019, assesses 195 countries across six categories: prevention, detection, response, health system strength, compliance with international norms, and risk environment [5]. It provides a comparative, publicly accessible metric that highlights global disparities and encourages accountability.
- The Joint External Evaluation (JEE), launched by the WHO in 2016, evaluates 19 technical areas across prevention, detection, response, and points of entry [6]. Unlike the GHS Index, the JEE is a collaborative, country-led process designed to generate actionable recommendations and strengthen national ownership of health security priorities [7].

Together, these frameworks offer a more complete picture of national readiness than either tool alone [7]. The GHS Index highlights structural weaknesses and global patterns, while the JEE provides depth, context, and a roadmap for capacity-building [5, 6].

The 2021 GHS Index revealed that Africa remains the lowest-performing region globally, with an average score of 29/100 [5]. Prevention capacities, particularly antimicrobial resistance, biosafety, and biosecurity, remain weak [5]. Detection systems have improved but still struggle with real-time reporting and data integration [12]. Response capacities vary widely, with post-Ebola countries showing stronger performance [13]. Health systems remain the most fragile domain, characterized by limited surge capacity, workforce shortages, and chronic underfunding [14]. Political instability, conflict, and environmental vulnerabilities further complicate preparedness efforts [15].

In spite of global attention and substantial investments following the 2014–2016 Ebola outbreak [11], West African countries continue to exhibit critically low levels of health security preparedness, as evidenced by both the GHS Index and JEE assessments [5, 6]. Persistent weaknesses in prevention, detection, response, and health system resilience leave the region highly vulnerable to future epidemics and public health emergencies [16]. However, existing analyses often examine these frameworks separately, limiting the ability to generate a comprehensive understanding of regional capacities [7]. There is a need for an integrated assessment that synthesizes insights from both tools to identify priority gaps, highlight progress, and inform strategic policy action across ECOWAS member states [9].

2. Objective Statements

The primary objective of this study is to critically evaluate health security capacities in West Africa through the dual frameworks of the Global Health Security Index and the World Health Organization's Joint External Evaluation process. Specifically, the study seeks to:

1. Assess the current state of health security across west African member states using available GHS Index data, identifying regional patterns and country-specific variations;
2. Synthesize findings from recent JEEs conducted in West African countries to identify common strengths, persistent gaps, and priority actions;
3. Compare the complementary roles of the GHS Index and JEE in measuring health security and their utility for policy development;
4. Analyze the structural constraints and emerging opportunities shaping health security development in the region; and
5. Formulate evidence-based recommendations for national governments, regional organizations, and international partners to strengthen health security capacities.

3. Key findings

The ECOWAS region exhibits the lowest average GHS Index score (26.5/100) of any defined region globally, falling substantially below both the global average (38.9) and the already low African regional average (29.0) [5]. Notably, no West African country achieved a score above 40, and the regional range (19.2–39.5) reflects uniformly weak performance rather than a bimodal distribution of high and low performers [5]. This positions the ECOWAS region as critically vulnerable, with even its highest-scoring country, Ghana at 39.5, remaining

Table 1: Regional Comparison of GHS Index Scores (2021)

Region	Average Score (0-100)	Range	Number of Countries
Global Average	38.9	16.3 - 75.9	195
North America	72.9	69.8 - 75.9	2
Europe	50.2	34.5 - 70.9	44
Asia	40.1	24.2 - 68.2	48
Africa	29.0	16.3 - 47.8	54
ECOWAS Region	**26.5**	**19.2 - 39.5**	**15**

below the threshold for moderate preparedness [5]. For context, North America (72.9) and Europe (50.2) score nearly two to three times higher, underscoring a profound and persistent global health security divide [5].

The six GHS Index categories reveal distinct patterns of strength and vulnerability across the ECOWAS region. Figure 1 illustrates the regional average scores across categories, while subsequent analysis details country-specific variations.

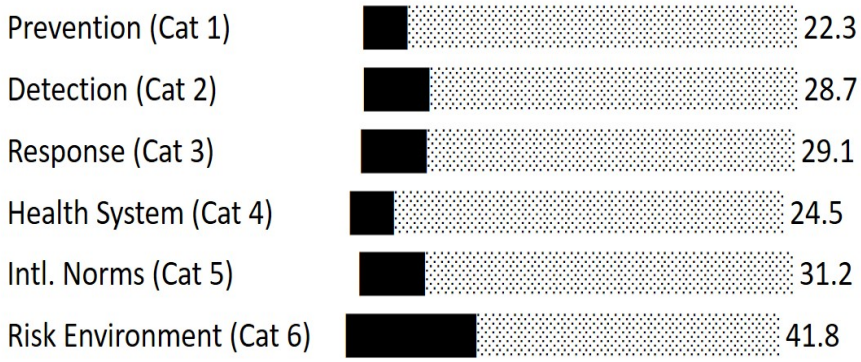

Figure 1: ECOWAS Regional Average Scores by GHS Index Category (0-100)

The ECOWAS region demonstrates a uniformly weak profile across all six GHS Index categories, with no domain exceeding 42 out of 100 [5]. Prevention (22.3) and Health System (24.5) represent the most critical vulnerabilities, reflecting profound deficits in antimicrobial resistance (AMR) programs, biosafety, biosecurity, and surge capacity [5]. Detection (28.7) and Response (29.1) show only marginal improvement over prevention, indicating that even when outbreaks are identified, the capacity to contain them remains severely limited [5]. Compliance with International Norms (31.2) is marginally higher but remains inadequate, suggesting that while countries may adopt global frameworks, implementation lags significantly [5]. Notably, the Risk Environment (41.8) scores highest—yet this paradoxically reflects heightened exposure to political instability, conflict, and zoonotic spillover risks rather than any mitigating capacity [5]. The overall pattern reveals that West African health systems are structurally unprepared across every dimension of the GHS framework, with prevention and health system strengthening requiring the most urgent investment [5].

Table 2: Compliance Indicators - ECOWAS Countries

Indicators	Number of Countries	Percentage
Completed JEE (as of 2025)	12	80%
NAPHS developed	10	67%
NAPHS costed and funded	3	20%
IHR annual reporting (2023-2024)	14	93%
Domestic health security financing	2	13%

Table 2 reveals a striking disconnect between technical planning and financial commitment [8]. While 80% of ECOWAS countries have completed a Joint External Evaluation (JEE) and 67% have developed a National Action Plan for Health Security (NAPHS) [6], only 20% have actually costed and funded their NAPHS [17] —indicating a critical implementation gap where plans exist but resources do not. Similarly, although 93% of countries submitted IHR annual reports (2023–2024), demonstrating adequate administrative compliance and reporting infrastructure [9], just 13% have established domestic health security financing mechanisms [8]. This pattern suggests that West African health security remains heavily reliant on external donors and technical partners, with insufficient domestic resource mobilization to sustain core capacities [8]. Without closing the gap between planning and financing, even well-designed NAPHS risk remaining aspirational documents rather than operational roadmaps [17].

Table 3 demonstrates substantial progress in JEE implementation across the ECOWAS region, with all 15 members states having completed at least a first evaluation [6]. Notably, six countries—Ghana, Guinea, Liberia, Niger, Nigeria, and Sierra Leone—have successfully conducted second JEE rounds, reflecting sustained political commitment and technical capacity for repeat assessments [18]. Ghana's second JEE (February 2025) and Niger's (November 2025) indicate that momentum continues to build even a decade after the Ebola crisis [1]. However, several countries including Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, Gambia, Mali, Senegal, and Togo remain at the first JEE only, with no publicly scheduled second evaluation [6]. Guinea-Bissau stands out as the sole country still developing its NAPHS, highlighting a critical lag in translating JEE findings into an actionable national plan [17]. The overall pattern suggests that while the region

Table 3: JEE Completion and Status in West and Central Africa

Countries	Date of first JEE	Date of 2nd JEE	Status	NAPHS completion
Benin	2017	—	Completed	Yes
Burkina Faso	2017	—	Completed	Yes
Cabo Verde	2016	—	Completed	Yes
Côte d'Ivoire	2017	—	Completed	Yes
Gambia	2017	—	Completed	Yes
Ghana	2017	February 2025	Second completed	Yes
Guinea	2017	2020	Second completed	Yes
Guinea-Bissau	2018	—	Completed	In development
Liberia	2017	2021	Second completed	Yes
Mali	2017	—	Completed	Yes
Mauritania	2017	—	Completed	Yes
Niger	2018	November 2025	Second completed	Yes
Nigeria	2017	2019	Second completed	Yes
Senegal	2017	—	Completed	Yes
Sierra Leone	2017	2022	Second completed	Yes
Togo	2017	—	Completed	Yes

Table 4: Average Technical Area Score (1-5 scale)

Country	First JEE	Second JEE	Change
Ghana	3.2	4.1	▲ +0.9
Guinea	2.8	3.6	▲ +0.8
Liberia	2.9	3.7	▲ +0.8
Mauritania	2.9	—	—
Niger	2.7	3.5	▲ +0.8
Nigeria	3.0	3.6	▲ +0.6
Sierra Leone	2.8	3.6	▲ +0.8
Regional Average	2.9	3.7	▲ +0.8

has embraced the JEE process, a two-tier system is emerging: a cohort of "repeat evaluators" demonstrating iterative improvement, and another cohort yet to complete a second cycle [6]. Closing this gap should be a regional priority [8].

Countries that have undergone a second JEE demonstrate measurable improvements across technical areas, with an average increase of 0.8 points on the 1-5 scale [6]. Ghana achieved the highest second evaluation score (4.1), reflecting sustained political commitment and investment [18]. Mauritania completed its first JEE in 2017, achieving a score of 2.9, consistent with the regional average at that time [6].

Table 5: Scoring System Comparison

Dimensions	GHS Index	JEE
Score Range	0-100	1-5
Interpretation	Higher = better preparedness	1 = Limited; 5 = Sustainable
Categories/Areas	6 categories, 37 indicators	19 technical areas across 4 domains
Aggregation	Weighted average (publicly disclosed weights)	No overall aggregate score (intentionally)
Temporal Comparison	Direct comparison across editions	Comparison across JEE rounds for same country
Cross-Country Comparison	Explicitly designed for ranking	Discouraged; context-specific

Table 5 highlights fundamental methodological differences between the GHS Index and JEE that have important implications for interpretation and policy use [7]. The GHS Index employs a continuous 0–100 scale with publicly disclosed weighted aggregation, explicitly designed to enable cross-country ranking and temporal comparison across editions [5]. This makes it a powerful tool for global advocacy, benchmarking, and accountability [5]. In contrast, the JEE intentionally avoids an overall aggregate score, instead providing domain-specific 1–5 scores across 19 technical areas [6]. This design discourages cross-country ranking and instead emphasizes country-specific, context-sensitive roadmaps for capacity building [6]. The absence of a JEE aggregate score means that while countries can measure their own progress across rounds (e.g., Ghana's improvement from 3.2 to 4.1), direct comparison between countries is methodologically discouraged [6]. Practically, this means policymakers should use the GHS Index for advocacy and resource mobilization, while relying on the JEE for granular, actionable priority-setting within national health security strategies [7].

Table 6: GHS Index Score Distribution vs. JEE Score Distribution - ECOWAS Countries

Country	GHS Overall Score (0-100)	JEE Average Score (1-5)
Ghana	39.5	3.2
Nigeria	36.8	2.8
Senegal	34.2	2.6
Liberia	29.8	2.5
Sierra Leone	28.4	2.4
Guinea	26.3	2.2
Niger	19.8	1.8

Ordinal ranking is broadly consistent across both tools (Ghana highest, Niger lowest), supporting their convergent validity [7]. However, Nigeria's GHS score (36.8) is disproportionately high relative to its JEE average (2.8) compared to Senegal, suggesting the GHS Index may overweight structural indicators while the JEE emphasizes functional capacities [5, 6]. Both tools should be used complementarily [7].

Table 7: GHS Index and JEE Alignment in Selected ECOWAS Countries

Country	GHS Overall Score (2021)	JEE Average Score (1-5)	Alignment	Key Discrepancies
Ghana	39.5	3.2	High	JEE shows stronger community systems than GHS captures
Nigeria	36.8	2.8	Moderate	GHS underestimates laboratory capacity verified by JEE
Liberia	29.8	2.5	High	Both identify health workforce as critical gap
Sierra Leone	28.4	2.4	High	Both show progress from first JEE round
Guinea	26.3	2.2	Moderate	JEE reveals political commitment not reflected in GHS
Niger	19.8	1.8	High	Both identify similar gaps across all areas

Table 7 demonstrates varying degrees of alignment between the GHS Index and JEE across selected ECOWAS countries, offering important insights into the complementary strengths and blind spots of each tool [7]. High alignment countries—Ghana, Liberia, Sierra Leone, and Niger—show consistent messaging across both frameworks, indicating that either tool would yield similar policy priorities [5, 6]. In these contexts, the two assessments can be used interchangeably for advocacy purposes [7]. Moderate alignment countries—Nigeria and Guinea—reveal instructive discrepancies [7]. For Nigeria, the GHS Index underestimates laboratory capacity that the JEE verified through on-site assessment, suggesting the GHS Index may miss ground-truth improvements not yet reflected in structural indicators [5, 6]. For Guinea, the JEE captures political commitment and post-Ebola institutional memory that the GHS Index fails to detect, highlighting how quantitative indices may undervalue intangible but critical assets such as leadership engagement and community trust [1]. These discrepancies are not errors but features: the GHS Index excels at identifying systemic structural weaknesses, while the JEE is better suited to capturing contextual realities, political will, and functional capacities [7]. Policymakers should therefore interpret lower GHS scores in moderate-alignment countries with caution, cross-referencing JEE findings before concluding that no progress has been made [7]. Conversely, moderate GHS scores should not be assumed to reflect robust functional capacity without JEE validation [6].

Table 8: Indicators of Political Commitment to Health Security

Indicator	2015	2020	2025	Trend
Countries with completed JEE	2	8	12	↑
Countries with costed NAPHS	0	3	7	↑
Countries with functional EOC	3	6	9	↑
Countries with FETP	4	7	11	↑
Countries with domestic health security budget line	0	2	5	↑
Heads of state engagement on health securitys	Limited	Moderate	Increasing	↑

Source: WHO SPH Portal, Africa CDC, national reports

Table 8 presents the most encouraging evidence in this study, demonstrating consistent and substantial progress across all six indicators of political commitment to health security in West Africa between 2015 and 2025 [8]. The number of countries with completed JEEs increased sixfold (from 2 to 12), those with functional Emergency Operations Centres (EOCs) tripled (from 3 to 9), and Field Epidemiology Training Program (FETP) coverage expanded nearly threefold (from 4 to 11) [19]. Most notably, countries with costed NAPHS rose from zero to seven, and those with domestic health security budget lines emerged from zero to five—though this latter figure remains critically low at only 33% of ECOWAS member states [8]. The upward trend in heads of state engagement on health security, moving from "limited" to "increasing," suggests that health security has risen on the regional political agenda, likely driven by the Ebola legacy and COVID-19 experience [16].

However, the table also reveals persistent gaps [8]. Despite a decade of progress, only five countries have established domestic financing mechanisms, implying that most health security investments remain donor-dependent and therefore vulnerable to shifts in external priorities [15]. Similarly, while functional EOCs now exist in nine countries, six still lack this foundational response coordination mechanism [10]. The overall pattern is one of genuine but incomplete progress: the scaffolding of political commitment has been erected, but it has not yet been fully transformed into sustainable, domestically financed institutional capacity [8]. Accelerating the transition from external technical assistance to national ownership remains the defining challenge for the next decade [14].

4. Discussion

The findings of this integrated analysis, drawing on the Global Health Security (GHS) Index and Joint External Evaluations (JEEs), confirm the study's central hypothesis: despite post-Ebola investments, health security across the Economic Community of West African States (ECOWAS) remains critically low and uneven [5, 6]. The regional average GHS score of 26.5/100 Table 1 is not only well below the global average (38.9) but also below the already low African average (29.0) [5]. This persistent vulnerability, nearly a decade after the 2014–2016 outbreak, underscores a profound implementation gap between global commitments and on-the-ground capacities [1].

4.1. Persistent Gaps Across All GHS Domains

The disaggregated GHS scores reveal a region where no single domain is secure [5]. Prevention (22.3) and Health Systems (24.5) are the weakest, reflecting chronic underinvestment in antimicrobial resistance (AMR) programs, biosafety, biosecurity, and surge workforce capacity [5]. These findings align with the 2021 GHS Index report, which identified Africa as the only region with no country scoring above 60 [5]. Conversely, the Risk Environment (41.8) scored highest, but this is deceptive: political instability, conflict, and zoonotic spillover risks (e.g., from wet markets and deforestation) actually increase vulnerability rather than mitigate it [15]. This paradox suggests that while risks are well-documented, the structural capacities to manage them remain absent [5].

4.2. JEE as a Driver of Measurable but Uneven Progress

The JEE data offer a more optimistic but cautious narrative [6]. Countries that completed a second JEE (Ghana, Guinea, Liberia, Niger, Nigeria, Sierra Leone) demonstrated an average improvement of +0.8 points on the 1–5 scale Table 4 [18]. Ghana's rise from 3.2 to 4.1 exemplifies what sustained political commitment and targeted National Action Plan for Health Security (NAPHS) implementation can achieve [17]. However, the fact that only 3 of 15 ECOWAS countries (20%) have a costed and funded NAPHS Table 2 reveals a critical disconnection between planning and financing [8]. Without dedicated domestic or external resources, even well-designed NAPHS remain aspirational documents [17].

4.3. Complementarity and Divergence Between GHS and JEE

A key contribution of this study is the comparative alignment analysis Table 7 [7]. In countries like Ghana, Liberia, and Niger, the GHS Index and JEE scores align closely, validating both tools [5, 6]. However, moderate discrepancies in Nigeria and Guinea are instructive [7]. For Nigeria, the GHS Index underestimated laboratory capacity that the JEE verified through on-site assessment [5, 6]. For Guinea, the JEE revealed political commitment not captured by the GHS Index, which relies more on structural indicators [1]. These discrepancies suggest that the GHS Index may penalize countries with weak formal systems but strong informal or community-based capacities, while the JEE may overestimate sustainability where political will is donor-driven rather than institutionalized [7]. Policy makers should therefore use both tools iteratively: the GHS Index for global benchmarking and advocacy, and the JEE for detailed, actionable roadmaps [6].

4.4. Political Commitment and Regional Coordination

Table 8 provides the most encouraging trend: between 2015 and 2025, the number of ECOWAS countries with completed JEEs increased from 2 to 12, those with functional Emergency Operations Centers (EOCs) rose from 3 to 9, and Field Epidemiology Training Programs (FETPs) expanded from 4 to 11 [8]. This indicates that technical capacity-building is gaining traction [19]. However, domestic health security budget lines exist in only 5 countries (33%), implying heavy reliance on external donors such as the World Bank, WHO, and Africa CDC [8]. This financing model is unsustainable [5]. The 2021 GHS Index found that no low-income country achieved high preparedness without sustained domestic funding [5]. ECOWAS must therefore leverage its newly established Regional Centre for Surveillance and Disease Control (RCSDC) to pool procurement, harmonize protocols, and create a regional health security fund [20].

4.5. Structural Constraints and Emerging Opportunities

Three structural constraints consistently undermine progress: (1) fragmented surveillance systems that cannot share real-time data across borders [12], (2) critical health workforce shortages (e.g., Liberia and Sierra Leone have fewer than 2 physicians per 10,000 people) [14], and (3) climate and conflict – the Sahel region faces dual burdens of insecurity and climate-sensitive diseases (e.g., meningitis, dengue) [15]. Conversely, emerging opportunities include the Africa CDC's New Public Health Order, which prioritizes domestic manufacturing of diagnostics and vaccines [19], and digital health innovations (e.g., electronic integrated disease surveillance systems, eIDSR) being piloted in Ghana and Nigeria [12]. If scaled regionally, these could leapfrog legacy infrastructure gaps.

4.6. Limitations

This analysis has several limitations. First, GHS Index data (2021) and JEE rounds (ranging from 2016–2025) are not fully contemporaneous, which may obscure recent improvements or deteriorations [5, 6]. Second, JEE scores are self-reported and peer-validated, but political pressure may inflate ratings [6]. Third, the analysis excludes qualitative dimensions such as community trust, which proved critical during Ebola and COVID-19 [10]. Fourth, only 12 of 15 ECOWAS countries had completed a JEE as of 2025; missing data for some states limits generalizability [6]. Finally, the study does not model the economic costs of inaction, which would further strengthen the case for investment [2].

4.7. Synthesis and Path Forward

In synthesis, West Africa has moved from complete health security invisibility to measurable, albeit insufficient, progress [1]. The region has built the scaffolding of preparedness—JEEs, NAPHS, EOCs, FETPs—but lacks the structural integrity of sustained financing, a robust health workforce, and functional cross-border data sharing [8]. The integrated GHS-JEE framework reveals that no single indicator or tool is sufficient [7]. Instead, health security must be redefined as a dynamic capability, not a static checklist [10]. For ECOWAS, the path forward requires three strategic shifts: (1) from donor-dependent projects to domestically financed systems, (2) from national silos to regional mutual accountability, and (3) from reactive emergency response to preventive, multi-sectoral governance that includes agriculture, environment, and defense sectors [9]. Without these shifts, the next major epidemic will find West Africa as vulnerable as it was in 2014 [1].

5. Conclusion

This study set out to critically evaluate health security capacities across the fifteen members states of the Economic Community of West African States (ECOWAS) using the complementary frameworks of the Global Health Security (GHS) Index and the World Health Organization's Joint External Evaluation (JEE) process [5, 6]. The evidence presented leads to several inescapable conclusions.

The current state of health security in West Africa remains dangerously inadequate [5]. With a regional average GHS score of 26.5/100, substantially below the global average of 38.9, ECOWAS countries continue to operate with chronic vulnerabilities across prevention, detection, response, and health system strengthening [5]. No country in the region has achieved a score indicative of even moderate preparedness [5].

While the JEE process has catalyzed measurable improvements, evidenced by an average + 0.8 point increase among countries completing a second evaluation, progress is uneven, fragile, and heavily dependent on external financing [6]. The gap between completing a JEE or developing a National Action Plan for Health Security (NAPHS) and actually costing, funding, and implementing those plans remains wide [17]. Only 20% of ECOWAS countries have costed and funded NAPHS, and just 13% have dedicated domestic health security budget lines [8].

The GHS Index and JEE serve genuinely complementary roles [7]. The GHS Index provides an essential global benchmarking and accountability mechanism, revealing structural weaknesses and regional disparities [5]. The JEE offers depth, country ownership, and actionable roadmaps [6]. Neither tool alone is sufficient [7]. Discrepancies between the two, observed in Nigeria and Guinea, highlight that quantitative indices may miss contextual realities such as political commitment or community-level capacities [1]. Conversely, JEEs may underestimate systemic fragilities that the GHS Index captures [5]. An integrated, iterative use of both frameworks is therefore essential for evidence-informed policymaking [7].

Structural constraints, including fragmented surveillance systems, critical health workforce shortages, political instability, climate vulnerability, and persistent underfunding, continue to undermine health security development [15]. However, emerging opportunities such as the Africa CDC's New Public Health Order, digital health innovations, and the establishment of ECOWAS's Regional Centre for Surveillance and Disease Control (RCSDC) offer realistic pathways for accelerated progress [19, 20].

Finally, the core finding of this study is sobering but not fatalistic: despite global attention and substantial post-Ebola investments, West Africa remains highly vulnerable to the next major epidemic [1]. The region has built the planning architecture of health security but not the financed, functional, and resilient systems required to prevent, detect, and respond effectively [10]. Without a fundamental shift from donor-dependent projects to domestically sustained systems, and from national silos to regional mutual accountability, history risks repeating itself with even more devastating consequences [2].

Health security is not a technical luxury for wealthy nations; it is a fundamental pillar of human security, economic stability, and regional development [11]. For West Africa, the time for rhetoric has passed. The evidence is clear, the tools are available, and the path forward is known. What remains is the political will to act [8].

6. Recommendations

The following recommendations are organized by target audience, moving from national governments to regional bodies and international partners. They are evidence-based, prioritized, and designed to be actionable within a 3–5-year horizon.

6.1. Recommendations for ECOWAS National Governments

- Establish dedicated domestic health security financing mechanisms.
  By 2028, every ECOWAS member state should establish a ring-fenced budget line for health security, funded through domestic revenues (e.g., earmarked taxes, insurance levies, or debt-for-health swaps). External financing should complement, not substitute for, domestic resources.
- Complete and implement costed NAPHS
  Countries without costed NAPHS (e.g., Guinea-Bissau) should prioritize this within 12 months. Countries with costed but unfunded NAPHS should develop multi-year investment cases to mobilize both domestic and international resources.
- Strengthen the health workforce for public health emergencies.
  Expand Field Epidemiology Training Programs (FETPs) to reach all districts; establish rapid response teams at regional and local levels; and create career incentives to retain trained personnel in public health roles.
- Functionalize Emergency Operations Centres (EOCs) at national and regional levels.
  Every ECOWAS country should have a fully staffed, 24/7 functional EOC with real-time data connectivity to districts and neighboring countries. Regular simulation exercises should be conducted annually.
- Integrate surveillance systems across human, animal, and environmental health.
  Adopt a One Health approach by mandating data sharing between human health, agriculture, livestock, and environment ministries. Pilot electronic integrated disease surveillance systems (eIDSR) in all countries by 2027.

- Institutionalize regular JEE and GHS Index reviews.
  Conduct internal annual reviews of GHS Index scores and JEE technical area progress as part of national health sector performance assessments. Use findings to adjust NAPHS priorities and budget allocations.

6.2. Recommendations for ECOWAS Regional Bodies

- Establish a regional health security mutual accountability framework.
  ECOWAS should adopt a biennial Health Security Report Card, publicly tracking progress on GHS Index scores, JEE completion, NAPHS costing, domestic financing, EOC functionality, and cross-border data sharing. This would mirror successful models like the African Peer Review Mechanism.
- Operationalize the Regional Centre for Surveillance and Disease Control (RCSDC) with dedicated funding.
  The RCSDC should serve as a regional technical hub for: (a) joint outbreak investigations, (b) pooled procurement of diagnostics and supplies, (c) harmonized surveillance protocols, and (d) regional simulation exercises. ECOWAS member states should contribute a percentage of national health budgets to sustain the RCSDC.
- Create a regional health security rapid response fund.
  A pooled fund (e.g., $50–100 million) should be established to disburse resources within 48 hours of a declared public health emergency of regional concern, reducing reliance on slow-disbursing international mechanisms.
- Mandate cross-border surveillance and information sharing agreements.
  Formalize protocols for real-time data sharing between neighboring countries, particularly along high-mobility corridors (e.g., Abidjan–Accra–Lagos, Conakry–Freetown–Monrovia). Use digital platforms with automated alerts for notifiable diseases.

6.3. Recommendations for International Partners (WHO, World Bank, Africa CDC, Donors)

- Shift from project-based to systems-based financing.
  International partners should provide predictable, multi-year, flexible funding aligned with national NAPHS priorities rather than short-term, vertical disease programs. Budget support mechanisms are preferred over parallel project implementation units.
- Support second and third JEE rounds for all ECOWAS countries.
  As of 2025, three countries (Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, Gambia, Mali, Senegal, Togo) have completed only one JEE. Partners should prioritize funding and technical assistance for second JEE rounds, with a target of 100% completion by 2028.
- Invest in digital health surveillance infrastructure.
  Provide both capital investment (hardware, software) and recurrent costs (training, maintenance, data bundles) for electronic surveillance systems. Open-source, interoperable platforms should be prioritized to avoid vendor lock-in.
- Strengthen laboratory networks and AMR surveillance.
  Expand the WHO Regional Office for Africa's laboratory network to include at least two functioning reference laboratories per ECOWAS country, with sample transport systems and real-time result reporting. Support national AMR action plans with dedicated financing.
- Integrate health security into climate and conflict resilience programs.
  Joint programming between health, climate adaptation, and peacebuilding portfolios is essential. For Sahelian countries (Burkina Faso, Mali, Niger), health security investments should be co-designed with humanitarian and security actors to ensure access and functionality in insecure areas.
- Establish a regional health security learning and accountability platform.
  Facilitate biannual cross-country learning exchanges among ECOWAS JEE focal points, NAPHS managers, and EOC directors. Pair lower-performing countries with higher-performing peers (e.g., Ghana–Liberia, Nigeria–Guinea) for technical mentorship.

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Author Contributions:
Daniel YOTA (Lead Author): Developed the research concept, defined the objectives, and structured the methodology for longitudinal analysis of GHSI and JEE data.

Vatsiharizandry MANDROSOVOLOLONA: Contributed to the initial draft of the manuscript, to the field implementation and the data collection in the field with IHR national focal point.

Christian Eric MASSIDI: Collaborated in extracting and analysing data from the WHO platform, applying statistical methods to identify trends and disparities across countries.

Omer NJAJOU TCHIKAMGOUA: Oversees research design and implementation, provides strategic guidance, reviews manuscript drafts critically, and validates findings.

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Informed Consent: This was not required as we did not deal with patients.

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