Computer-aided evaluation of health policy's compliance with evidence-informed policymaking perspectives – implications for improved health systems in Nigeria

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Abstract

Non-utilization of pieces of reliable evidence especially those from research, has resulted in most Nigeria health policies being a very weak tool. This consequently constrains effective policy implementation, resulting to health inequities. This study adopted a computer-aided tool known as PROPHET to evaluate some Nigerian health policies with a view to determine their evidence content and implications on health system. PROPHET denotes Policy Research-evidence Organizer for Public Health-policy Evaluation Tool, a computing paradigm for determining potential evidence content in policy documents. It is a structural and domain-defined protocol built for the promotion of evidence-informed policymaking (EIP) by evaluating appropriate and equitable resource schedule. Details of its development process was earlier published elsewhere. This study profiled and evaluated thirty-three (33) policy documents extracted from the Nigeria electronic policy information platform (pipnigeria.net) in the year 2018. Following the step-by-step procedure described in the PROPHET, these document were assessed and results recorded accordingly. It rated designated key policy features on domain-by-domain basis across all its six domains, aggregated scores and calculated final cumulative policy weighted grade-point (PWGp). The results indicated that only eleven (11) policies representing 34% passed the fifty percent minimum threshold, while twenty-two (22) others representing 66% failed short. This outcome is considerably very poor, and it amplifies the import of policymakers prioritizing evidence use in context, for improved health outcomes.

Keywords: PROPHET, software paradigm, domain, EIP, rating, weighted grade-point.

1. Introduction

The rapidly evolving technology innovations are fast making inroads in the health sector and expediting processes to resolving hardline complex problems including policy issues (Clemens *et al.*, 2021). It is creating virile frameworks that enhances and supports the mitigation of hindrances in adopting cost-effective solutions. Computing through information technology dynamics provides value-oriented configurations such as management information system (MIS), which facilitates key actions in health policy solutions (Sheila, 2021; Mohd *et al.*, 2024). These actions aims to satisfy three conditions thus: guarantee profitable returns, reduction in cost of services and availing adequate utilization of resources.

Innovations in computing are provisioning mechanism that enhances optimal performance and security support across most sectors of an economy including the health systems (Clemens *et al.*, 2021; Sowa *et al*., 2024). This ensures swift realization of institutional goals, service satisfaction and engender profit maximization.

Today, several rich electronic repositories offers access to a variety of public health research evidence useful for strengthening policymaking process (Sherri, 2016; Abid-Ali *et al.*, 2023). But, lack of adequate capacity for technology adoption poses a hindrance to harnessing best available evidence that addresses context-specific health concerns. Advocacy becomes rift for increased government and organizational roles in catalyzing the enhancement of technical capacity for policymakers. Organizational leadership involving programmes to improve research use capacity among decision makers, establish collaborative partnerships between researchers and funders remain a key factor in promoting evidence-informed policy initiatives (El-Jardali *et al.*, 2014; Uneke *et al.*, 2017). Given the spate of emerging computing technology innovations across the health sector, policymakers are better positioned to access, audit and synthesize relevant information for evidence-informed policymaking (EIP) (Sommerville, 2011; Clemens *et al.*, 2021). The art and act of exploring and utilizing relevant evidence in this instance, for policy development purposes is referred to as evidence-informed policymaking (EIP). Efforts towards addressing health inequities of developing countries are being routed through the adoption of novel evidence-to-policy process. The PROPHET was designed as a computing paradigm that guides and promote EIP process. Computers facilitate the analysis of vast amounts of data (big data) to identify health trends and evaluate the effectiveness of public health interventions, which provides the evidence base for new policies (Anderson *et al.*, 2021; Sowa *et al*., 2024). It aids policymakers in optimizing resource and task allocation, reducing duplications, and streamline administrative tasks, making the overall healthcare system more efficient.

Viable health systems are actively driven by robust policy tools, which are products of reliable evidence. Globally, health policies are critical instruments serving as the life wire of an entire health system. The extent to which a policy can succeed is a measure of the quality of evidence utilized in the policymaking process (Uneke *et al.*, 2018). Unfortunately, either by stroke of negligence or outright deviation from policymaking ideals, weak and evidence-striped health policies are circulated with consequential abysmal low performance in Nigeria. The role of research evidence in policymaking is unarguably very critical. Robust health systems build policy thrust on quality evidence mostly from research, enabling the modeling of policies in compliance with systems' thinking that keenly considers the whole as one. It involves scientific methodologies for generating critical evidence upon which a policy can be based and

creation of avenues that link researchers with policymakers for active collaboration (Uneke *et al.*, 2017; Damba *et al.*, 2022). An **e**vidence-based public health is the process of integrating science-based interventions with community preferences to improve the health of a population (HPIO, 2017). Evidence informed policymaking process require relying on soundly packaged evidence which contributes to balanced policies and legitimate governance (Head, 2016). And in Ettelt *et al.* (2013), evidence-based policy process has rationalist assumptions that health policies should be based on evidence from research. In accelerating evidence use in policymaking, the government and other agencies developing health service programmes need examine its impact on research CIPHER (2014).

The objectives of this study therefore, was to evaluate the evidence potentials of the selected thirty-three (33) health policy documents, with a view to determine their implications for evidence-informed policymaking in improving healthcare service delivery in Nigeria. The study seeks to validate proven incorporation of the essential elements of policymaking that guarantees potency with attendant lively effects on the health system.

2. Materials and Methods

This is a descriptive study that utilized purposive/random sampling method to select thirty-three (33) health policy document profiled for structured evaluation, so as to determine their evidence content potentials. The health policy documents were sourced and accessed in the year 2018 from an established network of electronic repository known as policy information platform Nigeria (www.pip.ng.org). It was built purposely to host all the approved and operationalized Nigerian health policies in an organized easy and quick to access electronic domain. Selection of the policy documents included in this study spread across various aspects of health. They include gender inclusivity, malaria, primary healthcare, drug controls and management, reproductive health/family planning, HIV/AIDS, child health/immunization, food and nutrition, infectious/communicable diseases, blood transfusion, biosafety, etc.

The method of the policy evaluation and assessment was based on the structured procedure defined in the PROPHET software paradigm. Basically, the entire procedure is distinctly phased into two active operations namely: rating of policy features and computation of the cumulative policy weighted grade-point (PWGp). The tool was used to rate each and all critical policy features designated across the six (6) domain of the system. After the rating the features, the scores were automatically aggregated in the various domains, and used to cumulatively compute the overall policy weighted grade-point (PWGp) in percentage ranking. This study adopted and applied this convention to measure the extent of evidence

use/compliance with evidence-to-policy perspectives, in other to determine the implementation prospects of a given policy documents.

3. Results

After conducting the evaluation/assessment process of the thirty-three (33) health policy documents, table 1 below presents the summary of results that were recorded to have passed the evaluation test. In the results presented, only eleven (11) policy documents out of a total of thirty-three policies scored up to the minimum benchmark of fifty (50) percent grade-point and above. That is referring to all those presented in table 1, whereas the rest other twenty-two policy document whose record of graded scores were presented in table 2 failed short of the designated minimum threshold.

Table 1: Summary of results of policy documents that passed PROPHET software assessment

SN	Policy Code	Policy Title	ORIGIN	SCORE	PWGp
1	DEN-PF/2010	A GENDER POLICY FOR THE NIGERIA POLICE FORCE	NPF	60	55.56
2	MS-PHC/NON	MINIMUM STANDARDS FOR PRIMARY HEALTH CARE IN NIGERIA	NPHCDA	62	57.41
3	NDC-MP/2015	NATIONAL DRUG CONTROL MASTER PLAN	NDLEA	71	65.74
4	NG-PAE/2007	NATIONAL GUIDELINES FOR PAEDIATRIC HIV AND AIDS TREATMENT AND CARE	FMoH	54	50
5	NG-PMT/2010	NATIONAL GUIDELINES FOR PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV	FMoH	56	51.85
6	NP-HIV/2003	NATIONAL POLICY ON HIV/AIDS	FMoH	55	50.93
7	NPM-DT/2011	NATIONAL POLICY ON MALARIA DIAGNOSIS AND TREATMENT	FMoH	56	51.85
8	NP-HDAY/2007	NATIONAL POLICY ON THE HEALTH & DEVELOPMENT OF ADOLESCENTS & YOUNG PEOPLE IN NIGERIA	FMoH	57	52.78
9	NSH-P/2006	NATIONAL SCHOOL HEALTH POLICY	FMoE	56	51.85
10	NS-GHC/2005	NATIONAL STRATEGIES AND GUIDELINES FOR HOME AND COMMUNITY MANAGEMENT OF MALARIA	FMoH	63	58.33
11	NN-BF/2005	NIGERIA NATIONAL BIOSAFETY FRAMEWORKS	FMoEnv.	64	59.26

Table 2: Summary of results of policy documents that failed PROPHET software assessment

SN	Policy Code	Policy Title	ORIGIN	SCORE	PWGp
1	MAL-FIL/2013	GUIDELINES FOR MALARIA-LYMPHATIC FILARIASIS CO-IMPLEMENTATION IN NIGERIA	FMoH	46	42.59
2	IPH-G/2013	INTEGRATING PRIMARY HEALTH CARE GOVERNANCE IN NIGERIA	NPHCDA	39	36.11
3	MAL-T/2005	NATIONAL ANTIMALARIAL TREATMENT POLICY	FMoH	47	43.52
4	NCH-P/2006	NATIONAL CHILD HEALTH POLICY	FMoH	53	49.07
5	ND-P/2005	NATIONAL DRUG POLICY	FMoH	34	31.48
6	NFP-RHSP/2009	NATIONAL FAMILY PLANNING/REPRODUCTIVE HEALTH - SERVICE PROTOCOLS	FMoH	35	32.41

7	NGP-SF/2008-2013	NATIONAL GENDER POLICY STRATEGIC FRAMEWORK (IMPLEMENTATION PLAN)	FMoH	49	45.37
8	MAL-T/2011	NATIONAL GUIDELINES FOR DIAGNOSIS AND TREATMENT OF MALARIA	FMoH	39	36.11
9	HIV-TR/2010	NATIONAL GUIDELINES FOR HIV AND AIDS TREATMENT AND CARE IN ADOLESCENTS AND ADULTS	FMoH	38	35.19
10	NH-PP/	NATIONAL HEALTH PROMOTION POLICY	FMoH	46	42.59
11	NIP/2009	NATIONAL IMMUNIZATION POLICY	NPHCDA	45	41.67
12	NNG-NCD/2014	NATIONAL NUTRITIONAL GUIDELINE ON NON-COMMUNICABLE DISEASE PREVENTION, CONTROL AND MANAGEMENT	FMoH	42	38.89
13	NPA-FN/2002	NATIONAL PLAN OF ACTION ON FOOD AND NUTRUITION IN NIGERIA	NPC	50	46.3
14	NP-FNN/2001	NATIONAL POLICY ON FOOD AND NUTRUITION IN NIGERIA	NPC	38	35.19
15	NP-IYC/2005	NATIONAL POLICY ON INFANT AND YOUNG CHILD FEEDING IN NIGERIA	FMoH	52	48.15
16	NP-PPH/2005	NATIONAL POLICY ON PUBLIC PRIVATE PARTNERSHIP FOR HEALTH IN NIGERIA	FMoH	45	41.67
17	NRH-PS/2001	NATIONAL REPRODUCTIVE HEALTH POLICY AND STRATEGY	FMoH	53	49.07
18	NRH-SF/2002	NATIONAL REPRODUCTIVE HEALTH STRATEGIC FRAMEWORK AND PLAN	FMoH	49	45.37
19	POLIO/2012	NIGERIA POLIO ERADICATION EMERGENCY PLAN	NPHCDA	39	36.11
20	TASK/2014	TASK-SHIFTING AND TASK-SHARING POLICY FOR ESSENTIAL HEALTH CARE SERVICES IN NIGERIA	FMoH	43	39.81
21	NBP/2006	NATIONAL BLOOD POLICY	NBTS	38	35.19
22	NG-TB/2008	NATIONAL GUIDELINES FOR TB INFECTION CONTROL	FMoH	41	37.96

From the two respective tables 1 and 2, some brief descriptions for each policy domain were done in reflection of their respective performance. First, those policies targeted at addressing gender related concerns scored low grade-points, suggesting continuous unstable effort and inability to scale sustainable balance in that regard. With respect to the policy on minimum care for primary health care, it scored a fairly average grade-point, although with a strain of weakness on the aspect of governance. The earlier edition of national drug policy was graded with very low point, but a later edition in its series that was reviewed recorded better and impressive high grade-point suggesting adequate improvement in the policymaking process. Several policy efforts towards addressing malaria scourge have not really yielded the anticipated outcome, although policy on testing before treatment was recorded with high grade-point. Yet, this didn't translate to significant reduction in malaria cases probably due to other factors considered very relevant in the evaluation parameter. In the area of reproductive health service and family planning policies, the scores were rated very low signifying that the process through which they were prepared was very poor. This study recorded a fairly impressive performance of the policies on HIV/AIDs as regards pediatrics treatment and care, as well as policy on the prevention of mother to child transmission

of the disease. However, the guideline for HIV/AIDs treatment and care in adolescents and adults was seen to have performed poorly with low score.

Other ones like the child health and immunization policies evaluated in this study, scored very low suggesting a lack of essential elements that gives substance to a piece of policy. Similarly, graded score of policies on food and nutrition was very poor, and the national nutritional guideline on non-communicable disease prevention, control and management was equally graded with a low score. The trends continued with the infectious and communicable disease control scoring very low, alongside with that of blood transfusion regulatory policy framework. The national biosafety framework on the other hand, had a fairly high scored much above average, which is reflected in the good report being generated in the government agency that is driving the implementation.

4. Discussion of findings

The outcome of the assessment of the thirty-three (33) policy documents that was done using the PROPHET showed its critical role in advancing evidence-informed policymaking (EIP) and implementation to achieve a robust health systems. About two-third of the policy documents assessed were shown to have low policy weighted grade-points (PWGp), which implies that they were formulated without adequate use of research evidence and lacks essential components. No doubt, these fundamental flaws are responsible for the implementation bottlenecks leading to several policy summersaults in the government health circles. If as much as two-third of these evaluated/assessed national policies were graded with such unpleasant outcomes, then most others may probably be nothing bettered. Most of these policies lacks currency with the reality of changing societal needs, hence deserving routine review in compliance with substantial evidence support. They were results reflecting vaguely framed policy tools, which suggests compromises around non-adherence with the rigors underpinning policy formulation process (HPIO, 2017; Igboji et al., 2024).

The general outlook of the study results poses serious concern resonating with recent report of sub-optimal use of research evidence in health policymaking in Nigeria (Uneke *et al*., 2023; Sowa et al., 2024). This negative development may probably not be a deliberate orchestration, rather linked to policymakers' capacity constraints for evidence use, which in turn stalls the health systems advancement. Over the years, lack of evidence uptake in policymaking was reportedly caused by the absence of platforms for researcher-policymaker linkages across cognate institutions (Uzochukwu *et al.*, 2016; Damba *et al.*, 2022). Such gaps suggestively predisposes policymakers with the tendency of deploying routinely collected data for decision making rather than sought research evidence from verifiable

external sources like academic institutions (Uneke *et al*., 2023). This is the bitter reality that has remained a dangerous practice that goes unnoticed in principle, but is operationally dealing a whopping blow on the health systems of developing countries.

4.1 Policy implication of the study findings

The findings in this study are significantly implicated with alarming consequences of dwindling fortunes of the Nigerian healthcare systems. Some of the identified implications are presented thus:

1. Fundamental flaws in policy development process causes dysfunctional system and imposes unforeseen failures in delivering anticipated implementation outcomes.
2. Any policy encumbered with unclassified and out of context information wouldn't be instrumental to devising a workable policy solution for targeted problems.
3. Engagement of non-professionals or less skillful and less-capacitated individuals in policymaking process amounts to straining the exercise with disingenuous outcome against the health systems.

4.2 Study recommendations

From the insight generated in this study, a number of key issues articulated led to drawing up some recommendations that serve in support of a radical restructuring of policymaking process in Nigeria. It is believed that adopting and observing to uphold these points would greatly impact positively on the Nigerian health systems and others alike for improved healthcare outcomes. These includes:

1. The government at the national should galvanize and streamline approaches for strict adherence and compliance with the ideals of evidence-informed policymaking (EIP), in other to elicit a healthy policy performance index.
2. The government should ensure the institutionalization of intersectoral partnership practice across MDAs for shared values including provisioning avenues for policy co-creation and joint ownership. This will not only reduce policy duplication, but also strengthen policies in terms of operational efficiency and outspread impacts on the entire health governance ecosystem.
3. Government should develop guidelines that mandates the use of research tested evidence for policymaking across MDAs. This would include ensuring the establishment of robust information technology driven innovation platform that serves as rapid response mechanism for quick and easy evidence uptake within and around the policymaking value chain.
4. The government at both national and subnational levels should strategies and explore diversely in adopting measures for strengthening and enhancing capacities of critical policymakers.

5. Government to initiate a synergized knowledge exchange community of practice arena where tech professional, experts in research and key policymakers/stakeholders would interactively collaborate and share policy-relevant ideas seamlessly even in real-time.

5. Conclusion

The study successfully completed the evaluation/assessment of the thirty-three profiled policy documents with very insightful outcomes. The general performance outlook of the policies were observed to be considerably poor, given that most of them failed short of the graded fifty percent threshold recommended in the PROPHET software paradigm for implementation consideration. It clearly signifies that those policies were vaguely framed with grossly inadequate or outright non-inclusion of evidence. This outcome has amplified the overriding importance of policymakers prioritizing evidence use over and above other considerations, while equally adhering and complying with critical steps in the policy development lifecycle. Foremost merits of this study, was distinctively exposing the inactivity and ineffectiveness of most policy documents, which were hastily packaged to achieve immediate ends and in turn encourage health systems inequity.

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