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An Assessment of the Level of Implementation and Impact of the National Health Insurance Scheme (NHIS) on the Health Care System in Yobe State, North-Eastern Nigeria

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Abstract
Background*: Over the decades, Health Insurance Schemes have gained popularityas an acceptable solution to health care financing. The objective of this study was to assess the level of implementation and impact of the National Health Insurance Scheme on the health care system in Yobe State, North-Eastern Nigeria.*
Methods*: This was a descriptive cross-sectional study conducted from October 2008 to March 2009, in which stratified random sampling was used to select respondents among enrolees of NHIS, health care providers and health administrators(staff of NHIS, Health Maintenance Organizations (HMOs) and Yobe State Ministry of Health). Structured, specializedself-administered questionnaireswere used to obtain information on level of funding, quality and adequacy of health manpower, facilities/equipment for health care delivery, level of supervision and monitoring, enrolees' acceptability of the scheme and how beneficial it has been to the people since its introduction.Data was analysed using SPSS version 22.*
Results*: Out of 100 questionnaires distributed, 96 were completed and returned, giving an overall response rate of 96%. Majority of the enrolees were males (n=49, 77%) of age group 30-39 years (n=43, 68%), received health care services at public facilities (n=51, 80%), and with a family size of 5 or more (n=50, 78%). About 60% (n=38) of the enrolees had benefitted from the scheme for one year or more, commonly received malaria treatment (n=42, 66%) and felt they had benefitted (n=60, 94%) maximally (n=50, 78%) from the scheme. About 78% (n=50) felt the scheme has had a "very good" impact on their health status, evidenced by improvement in their health status (n=60, 94%) and the health care system (n=40, 62%) compared to the pre-NHIS period. Majority (80%, 12/15) of the health care providers and administrators were located in urban areas, had been working/associated with the scheme for 12 months or more (63%, 20/32), and felt that the funding level of the scheme was adequate. Majority (75%, 24/32) felt that the introduction of NHIS has increased demand/access to health care services, improved the health care system (63%, 20/32), and positively affected the health care indices (75%, 24/32).*
Conclusion*: The introduction of NHIS has improved enrolees' demand/access to qualitative health care services. Majority of enrolees were satisfied with the services received and felt that they had benefitted maximally from the NHIS, evidenced by improvement in their health status and the overall health care system in Yobe state.*
Keywords*: Healthcare, Financing, Insurance, Scheme, Health system, Yobe State, Nigeria*

I. Introduction

In many developing countries, sustainable health care financing that galvanizes the achievement of universal health care coverage has remained elusive [1]. Among other options, various models of social health insurance (SHI) schemes have been implemented and evaluated with regards to their potential to reduce inequities, social exclusion, low service uptake and consequent poor health outcomes, caused by high dependency on out-of-pocket payments (OOP) for care,particularly in low and middle-income countries [2] [3]. Albeit with substantial variability, significant success with SHI implementation have been recorded in many countries of Sub-Saharan Africa including Ghana, Kenya, Tanzania, and Nigeria [4].

Since its introduction in Nigeria in 2005, the National Health Insurance Scheme (NHIS) has witnessed asubstantial increase in coverage from less than 150,000 lives in 2005 to about 5 million (3% of the population) in 2014, the vast majority of beneficiaries being Federal Government employees and their dependents [5] [6] [7] in the Formal Sector Social Health Insurance Program (FSSHIP).To further improve coverage, the Informal Sector Social Health Insurance Program (ISSHIP) (Community-based SHIP and Voluntary contributors SHIP) and Vulnerable Group Social Health Insurance Program (VGSHIP) were introduced. The number of players (HMOs, health care providers) in the scheme has also expanded over the years. Despite these efforts, out-of-pocket-payments (OOP) remain an important source of funding for healthcare, accounting for more than 90% of private expenditures on health [8], placing a disproportionately huge financial burden on low income earners

who often end up paying more due to delay in seeking prompt care [3]. Endemic diseases such as malaria, typhoid, respiratory and diarrheal diseases are among the greatest contributors of the economic burden on both households and governments in Nigeria, accounting for over 90% of consultations under the NHIS [9].

There has been a significant lag in the level of implementation and success of SHI at the Federal, States and Local Government levels in Nigeria. While Yobe state was among the first to implement FSSHIP in 2005, other states like Osun started relatively later. The level of awareness and/or success in Yobe State leaves much to be desired, as generality of the populace were reportedly unaware of such programme, and amongst those that were aware, majority of them were sceptical about its practicability and sustainability, while some others believed they are being short-changed of their hard-earned monthly stipends. Some others were duly registered but do not avail themselves of the services being rendered by the providers.

Following three years of implementation in Yobe state, the objective of this study was to critically assess and describe how the implementation and utilization of NHIS in Yobe state has impacted on the health care system using the pre-and-post implementation health care status/indices as a yardstick for evaluation.

II. Methods

Study location and context

Yobe state was created in 1991 from the former Borno state, and has 17 local government areas and a population of about 2.45 million based on 2006 National census. It is located in the North-Eastern part of the country and has a land mass of about 47,154km. The Northern part, which shares border with the neighbouring Niger Republic is sandy (desert) while the southern part is rocky. Health Indicators for Yobe state in particular are not readily available due to poor statistical data, however National and Zonal (North- East) averages are available, some of which are crude birth rate of 430/1000, crude death rate of 150/1000, Neonatal mortality rate of 61/1000 live births, Infant mortality rate of 125/1000 live births and Under 5 mortality rate of 201/1000 live births [10]; Maternal Mortality Ratio of 800/100,000 live births (National) and 1549/100,000 live births (North-East Zone); Total fertility rate of 5.2%, annual growth rate of 2.99%, and life expectancy of 48.8 years (FMOH, 2002) [11].The total number of health facilities (public and private) increased from about 341 in 2005 to about 528 in 2010 [12] [13]. The Doctor/population ratio as at December 2004 was 1:50,000. In the last 6 years, the state has witnessed further deterioration in its health indices due to significant destruction and disruption of health care services by the 'Boko Haram' insurgency.

As at the time of the study, the NHIS activities in Yobe state was being supervised by the NHIS zonal office in Maiduguri, Borno state. There were 9 NHIS-registered health care providers and 4 HMOs, covering a population of about 360 Federal civil servants under the FSSHIP.

Study design

This was a descriptive cross-sectional study conducted among enrolees of FSSHIP (predominantly federal government employees), health care providers and administrators (staff of NHIS, Health Maintenance Organizations (HMOs) and Yobe State Ministry of Health) in Yobe state, from October 2008 to March 2009. We determined using formula for calculating sample size based on proportions,

$$n = Z^2{}_1 - \alpha/_2 \; P(1-p)/d^2$$

That a total sample size of 68 enrolees and 32 health care providers and administrators (including 10% adjustment for non-response) were required for this study. Enrolees were included if they were duly registered with the NHIS and had a valid enrolment card, were receiving care from an accredited provider in Yobe state and able to read and write in English. Health care providers and HMOs who had been registered with the scheme for a minimum of 3 months and currently operating in Yobe state were included. We used a stratified random sampling proportionate to size to select respondents from among staff of NHIS (10), health care providers (9), HMOs (10) and Yobe state Ministry of Health (3). We selected from a sampling frame of all enrolees provided by the NHIS zonal office, a random sample of 68 respondents who were contacted by the researcher and questionnaire was distributed to them. We retrieved completed questionnaires and checked them for completeness and accuracy.

Data collection and analysis

This study utilized pre-tested, structured, specialized questionnaires to obtain information on respondents' perceived level of funding, quality and adequacy of health manpower, facilities/equipment for health care delivery, level of supervision and monitoring, enrolees' acceptability of the scheme and how beneficial it has been to the people since its introduction.Information on self-reported health status and perception of changes in the health care system and service delivery since implementation of the scheme was also collected and recorded. Questionnaire were designed with both open-ended and close-ended questions. Questionnaire for enrolees consisted of 19 questions while questionnaire for health care providers and health administrators consisted of 16 questions.

Data collected was entered into an excel template, cleaned, imported into and analysed using SPSS version 22. We performed descriptive statistics and present data in frequencies and percentages.

Ethical approval

This study was approved by University of Maiduguri Institutional Ethics approval committee in August 2008. The Yobe State Ministry of Health (MOH/R/200813) also approved the study protocol. Written informed consent was also obtained from all participants.

III. Results

Out of the 100 questionnaires distributed, 96 were completed and returned giving an overall response rate of 96%. 64 out of 68 questionnaires were completed and returned by enrolees, while all 32 questionnaires distributed to health care providers and administrators were completed and returned. Majority of enrolees were males (77%, 49/64), of age group 30-39 years (68%, 43/64) and with a family size of 5 or more (78%, 50/64). Majority earned monthly income of N20,000 and above (68%, 43/64), and attained bachelor degree and above (70%, 45/64). Slightly more than half (58%, 37/64) of the respondents lived in urban locations (TABLE 1).

Table 1. Sociodemographic characteristics of enrolees (n=64)

Variable	Frequency	Percentage
Age (years)		
20-29	6	9
30-39	43	68
40-49	13	20
50 and above	2	3
Gender		
Male	49	77
Female	15	23
Family size		
Single	6	9
1-4	8	13
5-9	30	47
10 and above	20	31
Monthly income (Naira)		
Below 9000	8	12
10000 – 19000	13	20
20000 and above	43	68
Residential location		
Urban	37	58
Rural	27	42
Education level		
Less than bachelor degree	19	30
Bachelor degree and above	45	70

We characterized enrolees according to their level of utilization, benefit and satisfaction with health care services provided under the NHIS. TABLE 2 shows that majority of respondents had been enrolled in the scheme for at least one year (59%, 38/64), received care at public facilities (80%, 51/64) commonly for malaria treatment (66%, 42/64), and were satisfied with the services (62%, 40/64). A clear majority (94%) of respondents believed that the NHIS has been beneficial to them, and that they had benefitted maximally from the scheme (78%, 50/64) (TABLE 2).

Table 2. Enrolees level of utilization, benefit and satisfaction with health care services under NHIS (n=64)

Variable	Frequency	Percentage
Duration since enrolment		
Less than one year	26	41
One year and above	38	59
Place of care		
Private health facility	13	20
Public health facility	51	80
Common services received		
Malaria treatment	42	66
Typhoid treatment	10	16
Hypertension	3	4
Treatment requiring surgery	1	2
Others	8	12
Enrolees' opinion sought prior to enrolment		
Yes	37	58

No	27	42
Enrolees' opinion on how beneficial NHIS has been to them		
Beneficial	60	94
Not beneficial	4	6
Extent to which enrolees benefited		
Maximally	50	78
Minimally	3	4
Extremely	10	16
Don't know	1	2
Level of satisfaction with services		
Satisfied	40	62
Dissatisfied	24	38
Enrolees opinion on adequacy of facilities/equipment		
Adequate	33	52
Inadequate	31	48

We examined enrolees' perception of changes in their health status and the overall health care system since the inception of NHIS as compared to the pre-implementation period. Results in TABLE 3 showed that more than three quarter (78%, 50/64) of the enrolees felt that the NHIS has had a very good impact on their health status, and had clearly improved their access to health care (94%, 60/64). Majority (62%, 40/64) perceived that the health care system in Yobe state had improved since inception of NHIS and that it was the best option to provide health care services in Yobe state. About 23% (15/65) of respondents felt that primary health care was a viable alternative to NHIS (TABLE 3).

Table 3. Enrolees' perceived changes in their health status and health care system in Yobe state since inception of NHIS (n=64)

Variable	Frequency	Percentage
Impact on enrolees' health status		
Fair	4	6
Good	10	16
Very good	50	78
Don't know	0	0
Improvement in enrolees' health status and access to health care		
Yes	60	94
No	4	6
Don't know	0	0
Enrolees' opinion on improvement in health care system		
Improved	40	62
Not improved	24	38
Don't know	0	0
NHIS is best option to provide health care		
Yes	40	62
No	24	38
Alternatives to NHIS		
Traditional healers	2	3
Primary Health Care	15	23
Mobile Health Care Services	8	13
Privatization of health care services	4	6
Free health care services	35	55

Majority (80%, 12/15) of organizations where health care providers and administrators in this sample belonged were located in urban areas. Majority (62%, 20/32) of the respondents had work experience with NHIS of 12 months or more and perceived that NHIS funding as well as manpower was adequate. Three quarters of the respondents believed that NHIS has increased demand/access to health care by all age groups, for which their organizations have only been able to cope through increased capacity building of existing manpower (81%, 26/32) (TABLE 4).

Table 4. Characteristics and perception of the NHIS among health care providers and administrators (n=32)

Variable	Frequency	Percentage
Location of respondent's organization (n=15)		
Rural	3	20
Urban	12	80
Duration of work experience with NHIS		
0-11 months	12	38
12 months and above	20	62
Perception on funding of NHIS		
Inadequate	4	13

Adequate	20	63
Don't know	8	24
Perception on adequacy of manpower		
Adequate	20	63
Inadequate	10	31
Don't know	2	6
Perception on adequacy of equipment/facilities		
Adequate	13	41
Inadequate	18	56
Don't know	1	3
NHIS has increased demand/access to health care		
Yes	24	75
No	8	25
How respondent's organization has been coping with increased demand for health care		
Recruiting more health manpower	4	13
Building capacity of existing manpower	26	81
Provision of essential drugs	2	6
Average number of patients attended to weekly under NHIS		
1-19	5	16
20-29	6	19
30-39	8	25
40-49	2	6
50 and above	11	34

Compared to pre-NHIS implementation period, majority (62%, 20/32) of the health care providers and administrators in this sample believed that the current health care system was good, and that the NHIS has positively impacted (75%, 24/32) the health care indices in Yobe state (TABLE 5).

Table 5. Health care providers and administrators' perceived changes in their health status and health care system in Yobe state since inception of NHIS (n=32)

Variable	Frequency	Percentage
Opinion on current health care system		
Fair	5	16
Good	20	62
Very good	5	16
Don't know	2	6
Opinion on how NHIS has impacted health care indices		
Positively	24	75
Negatively	0	0
Don't know	8	25

We sought respondents' opinion regarding the major problems affecting the NHIS and suggestions on how it could be improved. Enrolees, health care providers and administrators believed that inadequate facilities and equipment was one of the major problems affecting the NHIS in Yobe state. Additionally, respondents believed that poor supervision and monitoring, restriction of ailments eligible for treatment under the scheme, mismanagement of funds and systematic exclusion of some government workers and inadequate manpower were the other major challenges facing the successful implementation of NHIS in Yobe state. They suggested solutions such as provision of adequate equipment and facilities, proper monitoring and supervision, regular funding, adequate health manpower, registration of all categories of civil servants, free medical care, improvement in quality of health care services, and where possible, free health care services (TABLE 6).

Table 6. Respondents' opinion on the challenges with NHIS and how it can be improved

Variables	Enrolees (n=64)		Health care providers and administrators (n=32)	
	Frequency	Percentage	Frequency	Percentage
Problems affecting NHIS				
Lack of sustainable funding	5	8	1	3
Inadequate facilities and equipment	13	20	5	16
Poor quality health care services	3	5	0	0
Lack of adequate manpower	6	9	3	9
Poor logistics services	3	5	1	3
Poor public awareness	2	3	1	3
Poor supervision and monitoring	5	8	5	16
Poor referral system	1	2		
Restricted number of family beneficiaries	3	5	2	6
Not all government workers are registered	10	16	2	6

Restricted ailments for treatment	6	9	5	16
Lack of stakeholders in NHIS eg NGOs	1	2	0	0
Mismanagement of funds	2	3	5	16
Deduction of salaries when not treated	2	3	0	0
Neglect of primary health care	0	0	2	6
Don't know	2	3	0	0
Suggested ways to improve NHIS				
Provision of adequate equipment and facilities	10	16	4	13
Proper monitoring and supervision	6	9	5	16
No restriction to ailments	2	3	0	0
Regular consultation with care	3	5	0	0
Regular funding	5	8	5	16
Provision of quality health services	8	13	0	0
No limitation to family size	1	2	3	9
Free medical care	7	11	5	16
Adequate health manpower	8	13	2	6
Create awareness about the scheme	2	3	1	3
Register all categories of civil servants	6	9	4	13
Provision of logistics services	2	3	1	3
Effective and efficient funds management	2	3	0	0
Good referral system	2	3	1	3
Involvement of health stakeholders	0	0	1	3

IV. Discussion

Summary of main findings

1. The introduction of NHIS has improved demand/access to health care services.
2. Compared to pre-NHIS period, the implementation of NHIS has improved the health status of beneficiaries and also had a positive impact on the health care system and health indices of Yobe state.
3. Funding of health care under the NHIS was adequate.
4. Major challenges to successful implementation of NHIS were inadequate facilities and equipment, poor supervision and monitoring, restriction of ailments eligible for treatment under the scheme, mismanagement of funds and systematic exclusion of some family members and government workers and inadequate manpower.

Comparison with existing literature

Like statistics on health indicators, data on NHIS coverage and success indicators in Yobe state are not readily available and often incomplete. Studies on impact of NHIS in Nigeria are hardly available in literature, suggesting a certain bias in reporting on health insurance schemes, possibly driven by national government, donor or research priorities, data availability and difficulty in publishing negative impact results. Similar to the findings among health care providers and administrators in the current study (75%), a study conducted among dentists in Lagos, Nigeria revealed that respondents believed NHIS would expand access to dental health services [14]. We report a significantly higher proportion of enrolees in the current study who believed that they had benefitted from the introduction of NHIS compared to a meagre 0.3% reported in a similar study conducted among civil servants in Osun state, Nigeria [15]. Similar to the findings of a previous study among government employees in Abakaliki, South-east Nigeria [16], enrolees in the current study believed that the introduction of NHIS has improved their access to qualitative health care services, compared to those relying on out-of-pocket payments.

The issue of sustainable health financing remains on the top burner as a major impediment towards achieving universal health care coverage. A flurry of literature evidence suggests that health care financing options that reduce or eliminate out-of-pocket expenditures at the time of seeking health care have better potentials of reducing exclusions, inequities and delays in seeking prompt health care [2], [15], [16]. It is instructive to note that pre-payment through the FSSHIP does not totally exclude, but rather minimizes out-of-pocket expenses on health care. This is because certain health care services (e.g transplants and cosmetic surgeries, family planning commodities, IVF, post-mortem examination etc) are not covered under the scheme and users would have to pay for such services when required. However, the negative effects of these payments on access to health care were significantly lower among the insured than uninsured [17].

Beyond the adequacy of funding through risk pooling from employers and employees' earning-related monthly deductions and contributions to NHIS as reported by majority of health care providers and administrators in the current study, the issue of mismanagement of funds has become a very pertinent impediment against successful achievement of the NHIS objectives. Health care providers have reported delays in payment of their capitation or fee-for-service rendered by the HMOs. This, in addition to weak regulatory framework [18] and poor monitoring and supervision identified by participants in this study may stand to reverse the gains made with NHIS if urgent steps to curb this trend are not taken.

Majority of enrolees in the current study reported being satisfied with the services received under the NHIS. This finding, although similar to findings of one Kenyan study,[19] contrasts with the findings of a similar study conducted in Zaria, Nigeria where only about 42% of enrolees reported being satisfied with the services they received [20]. Client satisfaction remains a fundamental determinant of service utilization [21] [22] and perceived benefits of the care received. It is therefore not surprising that majority of enrolees in the current study reported very good impact of the NHIS on their health status. Relatedly, satisfaction breeds confidence and trust in the health care system, which majority of respondents in our study perceived to have improved with the introduction of NHIS.

Although majority of the health care providers and administrators in our sample believed that the introduction of NHIS has positively impacted the health care indices of Yobe state, it is difficult to reliably verify these claims in the absence of comprehensive statistical reference data. Although there was slight improvement in the health indicators as reported in 2008 Nigeria Demographic and Health Survey (NDHS) [12], it was difficult to determine the extent to which introduction of NHIS had contributed to these gains, especially as only a handful of federal government employees were currently participating in the FSSHIP in Yobe state as at the time of this study. Indeed, further deterioration in health care services owing to significant destruction of the health infrastructure by the Boko Haram insurgency [23] would have further worsened the situation in Yobe state.

Strengths of the study

To the best of our knowledge, the current study is to date, one of the earliest studies to have comprehensively assessed the level of implementation and impact of the NHIS in Yobe state, using a combination of perspectives from enrolees, health care providers and administrators. The systematic nature of the inquiry, using both closed and open-ended questionnaires provided an opportunity to explore deeper meanings and ideas from respondents, particularly on their perception of major challenges facing the NHIS and suggestions of how to improve the NHIS.

Limitations of the study

This study has several important limitations. First, the relatively small sample size and descriptive design of the study may limit its generalizability to other contexts within and outside the study location.Second, the findings of this study are limited to the level of implementation and impact of FSSHIP, and may not be extrapolated to other programmes under the NHIS. The relatively limited access to statistical data on health indicators in Yobe state precluded a reliable comparative analysis of the impact of NHIS on the health care indices of Yobe state in the pre-and-post NHIS implementation era. Enrolees' self-report of improved access to health care services and perceived improvement in health status may be subject to social desirability bias and should be interpreted with caution.

V. Conclusion

The introduction of NHIS has improved enrolees' demand/access to qualitative health care services. Majority of enrolees were satisfied with the services received and felt that they had benefitted maximally from the NHIS, evidenced by improvement in their health status and the overall health care system in Yobe state. The funding was adequate and was being paid monthly, the level of supervision and monitoring was found to be grossly inadequate, poor facilities coupled with the presence of some unqualified staff in the premises of the providers, limitation and consequent denial of Medicare to certain members of the enrolled families, lack of public awareness of the scheme, excessive concentration of the providers in urban areas and undue emphasis on curative rather than preventive medicine amongst others were identified.

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Author's contributions

SAA conceptualized the study design, collected and analysed data, and wrote the first draft of the manuscript. MOO contributed to data analysis, literature review and review of the manuscript. Both authors contributed to and approved the final manuscript.

Competing interests

The authors declare no competing interests.

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