



Drug Availability and Health Facility Usage in a Bamako Initiative and a Non-Bamako Initiative Local Government Areas of Akwa Ibom State, South -South Nigeria.

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KEYWORDS

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ABSTRACT

Background

The availability of drugs on a continuous basis is paramount to the success of any health care system. The Bamako Initiative (BI) had provision of essential drugs as one of its key thrusts in order to improve the utilization of health facilities. This study compared the perceived availability of essential drugs and patronage of health facilities in a BI and non-BI Local government areas (LGA) of Akwa Ibom State in south-south Nigeria.

Methodology

This was a cross sectional comparative descriptive study that used an interviewer administered semi-structured questionnaire as an instrument for data collection. Data collected was analyzed using SPSS software version 11.

Results

A total of 154 respondents in each LGA were interviewed. Up to 135 (88.8%) opined that drugs were always available in the BI LGA as against 103 (66.9%) in the non-BI LGA ($p < 0.001$). Similarly, 133 (86.3%) said drugs were usually available in the required formulation for BI LGA compared to 115 (74.7%) in the non-BI LGA ($p < 0.05$).

More respondents in the BI facilities, 45 (45%) reported using the facilities often compared to 39 (35.8%) in the non-BI facilities ($p = 0.03$). A total of 116 (75.3%) respondents in the BI LGA felt drugs were not costly compared to 50 (32.7%) in the non-BI LGA ($p < 0.001$). Up to 11 (7.2%) respondents in the non-BI LGA were not satisfied with the drug services in the health centers, compared to 1 (0.6%) in the BI LGA ($p = 0.01$).

Conclusion

Availability of essential drugs therefore seemed to contribute to patients' usage of health facilities

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Introduction

The World Health Organization (WHO) introduced the idea of essential drugs lists (EDL) in 1977 in order to assist national health authorities concentrate on drugs that satisfy the health needs of the majority of the people of each nation.¹ Individual countries including Nigeria subsequently constituted the essential drug lists based on their epidemiological peculiarities.² WHO stated that essential medicines were intended to be available within the context of health systems in adequate amounts at all times, in the appropriate dosage

forms, with assured quality and information, and at a price that the individual and community can afford.³ The EDL is specific for each level of health care (primary, secondary and tertiary) and to each country and community based on the epidemiological pattern of diseases.

The intervention known as the Bamako Initiative (B.I.) was introduced in 1987 in order to use drugs as the entry route towards revamping primary health care (PHC) delivery in the African continent.⁴ The plan was to ensure consistency in quality essential drugs availability in the communities with a

minimal mark-up on the cost price of drugs so as to make the drugs affordable as much as possible.

The Bamako Initiative programme commenced officially in Nigeria in March, 1990⁵ and started in Akwa Ibom State in 1993 in Mkpato Enin LGA. A major approach to public health in Nigeria is to develop a local government based health care service focused on the delivery of primary health care.⁶ The out of stock syndrome of essential drugs has long been suspected as the reason people shy away from the orthodox medical services, especially at the primary level.⁷ This probably informed the adoption, by the Bamako Initiative programme, of adequate provision of essential drugs as the entry route to revamping PHC. With the availability of drugs in the health facilities, it was hoped that utilization of the facilities would improve as a result of renewed confidence of the people on the health care delivery system. In some African countries where user charges through the Bamako Initiative programme is practiced, the main objective is the improvement in primary health care services, particularly drugs availability.⁸ According to WHO, improving access to essential drugs requires consideration for four crucial factors: rational use, affordable prices, financial viability and effectiveness of the distribution.¹

Access to affordable drugs remains key to an effective health system. Examples abound in several countries. In an evaluation of availability, accessibility and prescribing pattern of medicines in PHC centres in Iran, it was found that availability and affordability of essential drugs in Iran was good as 90% of the monitored drugs were available in the health centres and 95% of prescribed drugs were dispensed.⁹ Researchers in Malaysia found that the majority of the population in Malaysia had access to affordable essential medicines though there were some underserved areas. It was also found that

100% of medicines prescribed were dispensed.¹⁰ Accessibility to essential drugs is therefore measured in terms of availability and affordability. The BI programme has been adopted by several countries. In Benin Republic, B.I. experiment started in 1988 and an economic evaluation three years later concluded that it had a promising future.¹¹

In Senegal, user fees generation in accordance with B.I. proved to be an extremely effective means of cost recovery and in conjunction with management changes, helped to improve standard and scope of primary care.¹² In the three pilot districts where the B.I. strategy had been tested in Senegal, all the 102 health posts were self financed for their recurrent costs three years later.¹³ In initial assessment of the B.I. programme in Burkina Faso, there was a clear improvement in the availability of drugs in the eight operational districts.¹⁴ Studies in Guinea and Benin Republic confirm the improved effectiveness of PHC services over a six year period of B.I. implementation. Indeed, one of the indicators used in the analysis, the immunization coverage increased from 19% to 58% in Benin and from less than 5% to 63% in Guinea.¹⁵ McPake et al¹⁶ in their study concluded that the B.I. activities provided a service which with everything taken into account (including resources expended on the search for alternatives) was cheaper than was hitherto available.

A study by Uzochukwu *et al*⁷ reported that B.I. programme improved drug availability and physical appearance of the health centres thereby leading to high level of consumer satisfaction. Most of the respondents in Oji River LGA of Enugu State, where the study was carried out rated the PHC services to be at least good, following the implementation of B.I. programme.

Not all countries have however rated BI as

successful. Ten years after introduction of B.I., two researches carried out in Mali and Uganda, and later in Burkina Faso, concluded that: the programme did very little to improve access to health care for the most deprived due to emphasis on financial sustainability and also, the exemption mechanism for alleviating the burden of payment for the poorest was not often used.¹⁸

Several years after the initiative was introduced in Akwa Ibom State, this study compared the perceived availability of essential drugs and patronage of health facilities in a BI and non-BI LGAs with the intention of making appropriate recommendations to the stakeholders.

MATERIALS AND METHODS

The study was conducted in two local government areas (LGAs) of Akwa Ibom State, south-south Nigeria- Mkpato Enin, a Bamako Initiative (B.I.) implementing LGA and Nsit Ubium a non-Bamako Initiative (non-BI) LGA.

Mkpato Enin was the only LGA in Akwa Ibom State to benefit from a well structured and comprehensive Bamako Initiative package. The LGA benefited from the seed stock of drugs donated by the National Primary Health Care Development Agency (NPHCDA) that was coordinating the programme. The LGA was later adopted by Department for International Development, United Kingdom (DFID) as one of the nine LGAs in Nigeria it was assisting in the implementation of the B.I. programme. Infrastructure at the LGA headquarters and in the districts were developed for the storage, distribution and dispensing of drugs. Located in Akwa Ibom south senatorial district in the tropical rain forest, Mkpato Enin has a projected population of 178,036 from the 2006 population census.¹⁹

Nsit Ubium on the other hand is in Akwa

Ibom North East senatorial district also in the tropical rain forest. Also created in 1987, it has a projected population of 128,231 also from 2006 population census.¹⁹

Nsit Ubium was chosen by simple balloting from eight LGAs found eligible after being matched with Mkpato Enin for age and level of development.

STUDY DESIGN: This was a cross sectional comparative descriptive study involving interviews using a questionnaire.

STUDY POPULATION: The study population was made up of adult (18 years and above) out patients in the health facilities of each of the two LGAs irrespective of gender.

Parents or guardians who brought children to the outpatient clinic were also included. Family Planning, Immunization and Antenatal Care (ANC) clients were excluded except those among them who were sick and had to be treated for some ailments at the outpatient clinic. This was because Family Planning commodities and vaccines are not normal contents of essential drug list that have to be paid for, and ANC clients, depending on their gestational ages, were likely to appear more than once during the two months' period of data collection.

SAMPLE SIZE ESTIMATION:

The sample size (N) per LGA was derived as follows:

$$N = \frac{2(Z\alpha + Z\beta)^2 pq}{(p_1 - p_2)^2}$$

$$\text{Where } Z\alpha = 1.96$$

$Z\beta = 0.84$ (the power of the study is 80%, so β is 20%)

$P_1 = 0.612^{20}$ (from the study in Brazil by Naves et al where 61.2% of prescribed drugs were actually dispensed)

$P_2 = P_1 \pm 15\%$ (15% difference in the study will be regarded as statistically significant)

$$\bar{p} = \frac{p_1 + p_2}{2}$$

$$q = 1 - \bar{p}$$

$$N/\text{group} = \frac{2(1.96 + 0.84)^2 0.687 \times 0.313}{(0.612 - 0.762)^2} = 149.85$$

The minimum sample size per LGA was therefore 150

SAMPLING TECHNIQUE:

There were 10 health centres in each of the LGA. All health facilities in both LGA were included in the study. Within the LGA, proportional sample allocation to health facilities based on the average of monthly turnover of patients over the preceding three months was adopted. (Table I) Eligible patients were consecutively recruited during a five day work week till the sample size was realized.

INSTRUMENT FOR DATA COLLECTION:

This consisted of a semi-structured interviewer-administered questionnaire which was used for the exit interviews of respondents. The questionnaire consisted of two parts; the first part explored socio-demographic data while the second part dealt with the respondents' perception of drugs availability in the health facilities. The questionnaire

was translated into Ibibio and back translated into English. The interviews were conducted by trained interviewers, two per facility, with the supervision of the second author.

The instrument was pre-tested in Uruan LGA of Akwa Ibom State before the commencement of the study to ensure the validity and reliability of the instrument.

DATA COLLECTION:

The questionnaires were administered on eligible patients as they emerged from the pharmacy with their drugs, after receiving previously prescribed drugs. A total of 308 respondents were interviewed between the second week of November, 2007 and the first week of January, 2008. These were made up of 154 respondents in Mkpato Enin and another 154 respondents in Nsit Ubiom.

Table I: Sample Allocation to Health Facilities, Based on Average Monthly Patients' turnover

| LGA | HEALTH FACILITIES | AVERAGE MONTHLY TURNOVER | NUMBER OF RESPONDENTS (N = 154) n (%) |
|---------------------------|------------------------------------|--------------------------|---------------------------------------|
| BI | Primary Health Centre, Mkpato Enin | 39.90 | 53 (34.4) |
| | Health Centre, Ukam | 18.80 | 25 (16.2) |
| | Health Post, Ikot Obio Ndoh | 18.10 | 24 (15.6) |
| | Health Centre, Ikot Akata | 7.54 | 10 (6.5) |
| | Health Centre, Ikot Ekpe | 6.73 | 9 (5.8) |
| | Health Centre, Minya | 6.73 | 9 (5.8) |
| | Health Centre, Ikot Akpaden | 6.03 | 8 (5.2) |
| | Health Centre, Ibekwe Akpanya | 5.22 | 7 (4.5) |
| | Health Post, Ikot Eyienge | 4.52 | 6 (3.9) |
| | Health Centre, Ikot Idiong | 2.20 | 3 (1.9) |
| Non-BI | Primary Health Centre, Ikot Edibon | 36.32 | 35 (22.7) |
| | Health Centre, Ikot Eyo | 22.88 | 22 (14.3) |
| | Health Centre, Itreto | 17.60 | 17 (11.0) |
| | Health Centre, Ndiya | 16.64 | 16 (10.4) |
| | Health Centre, Ikot Ukobo | 15.52 | 15 (9.7) |
| | Health Clinic, Ikot Akpan Abia | 15.52 | 15 (9.7) |
| | Health Centre, Ikot Udo Ide | 12.48 | 12 (7.8) |
| | Health Centre, Ikot Ukap | 8.32 | 8 (5.2) |
| | Health Centre, Ikot Uboh | 7.20 | 7 (4.5) |
| Health Clinic, Nung Obong | 7.20 | 7 (4.5) | |

DATA ANALYSIS:

The data were cleaned, collated and entered into the Statistical Package for the Social Sciences (SPSS) version 11 and analyzed. Data was presented in tables. Chi square statistical tests were used to compare proportions while student's t-test was used to compare means, both at 0.05 level of significance.

ETHICAL CONSIDERATIONS:

Ethical clearance for this study was obtained from the Akwa Ibom State Health Research Committee and permission to conduct the research was obtained from each of the local government authorities. Each respondent's consent was obtained after the objective of the study and the rights of the respondent were clearly spelt out to a prospective respondent. The questionnaires were anonymously filled and they were not available to people not directly involved with the study.

LIMITATIONS OF STUDY:

The conclusions drawn from this study solely depended on the respondents' responses which was entirely subjective. Also, this study was unable to cover the entire purview of essential drugs management. Specifically, quantification and rational use were not covered.

RESULTS

A total of 154 respondents participated in the study in each LGA giving a response rate of 100%. The mean age of respondents was 29.3 ± 10.48 in the BI LGA and 31.58 ± 10.94 in the non-BI LGA. Most respondents in the two LGAs belonged to the age group 21 – 30 years; 93 (60.4%) for the BI LGA and 75 (48.7%) for the non-BI LGA. Majority of the respondents were females; 110 (74.4%) in the BI LGA and 106 (68.8%) in the non-BI LGA. Many respondents were married making up 74%, in the BI LGA, and 70.8% in the non-BI LGA. A total of 71

(46.1%) respondents in the BI LGA and 49 (31.8%) in the non BI LGA had completed secondary education. The predominant occupations in both the BI and non BI LGA respectively were trading (35.7%, 34.4%), farming (26.6% ,22.1%) and civil service (16.9%, 21.4%) (Table II).

A total of 45 (45%) respondents not using the facilities for the first time in the BI LGA reported using them often compared to 39 (35.8%) in the non BA LGA ($p = 0.03$) (Table III). In the BI LGA, 135 (88.8%) of respondents agreed that drugs prescribed were always available compared to 103 (66.9%) of respondents in the non-BI LGA ($p < 0.001$) (Table IV). Similarly, more respondents (86.3%) were of the opinion that drugs prescribed were usually available in the required formulation in the BI LGA compared to 115 (74.7%) in the non-BI LGA ($p < 0.05$). Table V shows the respondents' assessment of the cost of drugs in the health centres. One hundred and sixteen (75.3%) of the respondent In the BI LGA, 146 (94.8%) respondents were satisfied with the drug related services received in the facilities, while in the non-BI LGA, 134 (87.0%) reported being satisfied ($p < 0.01$) (Table VI). Out of those who were not satisfied with the drug related services, 4 out of 11(36.4%) said drugs were often out of stock. In the BI LGA, the sole person who expressed dissatisfaction said drugs were often out of stock s in the BI LGA said the drugs were not costly, compared to 50 (32.7%) in the non-BI LGA. ($p < 0.01$). In the BI LGA, 146 (94.8%) respondents were satisfied with the drug related services received in the facilities, while in the non-BI LGA, 134 (87.0%) reported being satisfied ($p < 0.01$) (Table VI). Out of those who were not satisfied with the drug related services, 4 out of 11(36.4%) said drugs were often out of stock. In the BI LGA, the sole person who expressed dissatisfaction said drugs were often out of stock

Table II: Socio-Demographic Characteristics of Respondents

| VARIABLE | BI LGA N = 154 n (%) | NON-BI LGA N = 154 n (%) | STATISTICS |
|----------------------------|----------------------------|--------------------------------|---|
| Age group of respondents | | | |
| 21 – 30 yrs | 93 (60.4) | 75 (48.7) | Mean age BI: 29.3 ± 10.48 Non-BI 31.58 ± 10.94 t = 1.87, df = 306 P = 0.63 |
| 20 yrs and below | 22 (14.3) | 18 (11.7) | |
| 31 – 40 yrs | 18 (11.7) | 33 (21.4) | |
| 41 – 50 yrs | 13 (8.4) | 19 (12.4) | |
| 51 – 60 yrs | 6 (3.9) | 6 (3.9) | |
| >60 yrs | 2 (1.3) | 3 (1.9) | |
| Sex of respondents | | | X ² = 0.25, df = 1 p = 0.62 |
| Female | 110 (71.4) | 106 (68.8) | |
| Male | 44 (28.6) | 48 (31.2) | |
| Marital Status | | | ** |
| Married | 114 (74.2) | 109 (70.9) | |
| Single/never married | 33 (21.4) | 26 (16.9) | |
| Widowed | 3 (1.9) | 9 (5.8) | |
| Divorced | 2 (1.3) | 3 (1.9) | |
| Cohabiting | 1 (0.6) | 3 (1.9) | |
| Separated | 1 (0.6) | 4 (2.6) | |
| Educational level | | | ** |
| Secondary school completed | 71 (46.1) | 49 (31.8) | |
| Primary school completed | 45 (29.2) | 58 (37.7) | |
| Post secondary education | 18 (11.7) | 22 (14.3) | |
| No formal education | 17 (11.1) | 15 (9.7) | |
| University education | 3 (1.9) | 10 (6.5) | |
| Occupation of respondents | | | ** |
| Trading | 55 (35.7) | 53 (34.4) | |
| Farming | 41 (26.6) | 34 (22.1) | |
| Civil servants | 26 (16.9) | 33 (21.4) | |
| Artisan | 4 (2.6) | 9 (5.8) | |
| Fishing | 3 (1.9) | 1 (0.6) | |
| Others* | 25 (16.3) | 24 (15.7) | |

*Mostly students

**Chi square not valid because cells contained expected values less than 5.

Table III: Frequency of Facility Use by Respondents

N=109

| FREQUENCY | LOCAL GOVERNMENT AREA | |
|--------------|-----------------------|---------------------|
| | Mkpat Enin (BI) | Nsit Ubiom (Non-BI) |
| | n (%) | n (%) |
| Often | 45 (45.0) | 39 (35.8) |
| Occasionally | 52 (52.0) | 56 (51.4) |
| Rarely | 3 (3.0) | 14 (12.8) |

X² = 7.32, df = 2, p = 0.03

Table IV. Respondents' Opinion on Availability of Prescribed Drugs

N=109

| FREQUENCY | LOCAL GOVERNMENT AREA | |
|--------------|--------------------------|------------------------------|
| | Mkpat Enin (BI) n (%) | Nsit Ubiom (Non-BI) n (%) |
| Often | 45 (45.0) | 39 (35.8) |
| Occasionally | 52 (52.0) | 56 (51.4) |
| Rarely | 3 (3.0) | 14 (12.8) |

 $X^2 = 21.3$, $df = 1$, $p < 0.001$ **Table V: Respondents' Assessment of the Cost of Drugs in the Health Facilities**

N=153

| ASSESSMENT | LOCAL GOVERNMENT AREA | |
|---------------|--------------------------|------------------------------|
| | Mkpat Enin (BI) n (%) | Nsit Ubiom (Non-BI) n (%) |
| Very costly | 5 (3.3) | 28 (18.3) |
| Fairly costly | 33 (21.4) | 75 (49.0) |
| Not costly | 116 (75.3) | 50 (32.7) |

 $X^2 = 58.60$, $df = 2$, $p < 0.01$ **Table VI: Respondents' Satisfaction with Drug Related Services received in the Health Facilities**

N=154

| SATISFACTION | LOCAL GOVERNMENT AREA | |
|--------------|--------------------------|------------------------------|
| | Mkpat Enin (BI) n (%) | Nsit Ubiom (Non-BI) n (%) |
| Yes | 146 (94.8) | 134 (87.0) |
| No | 1 (0.6) | 11 (7.2) |
| Don't Know | 7 (4.6) | 9 (5.8) |

 $X^2 = 8.83$, $df = 1$, $p < 0.01$

DISCUSSION

The socio-demographic characteristics of respondents in the two LGAs were similar as both shared many geographical and cultural characteristics. More than two thirds of those who patronized the health facilities in both LGA were females. This could be explained by the fact that apart from visiting the health centres for their personal illness, the females were more likely to take

their sick children to the health centre for care. There was a significant increase in facility usage in the BI facilities compared to the non BI which could be an expression of confidence by the users. Similar studies also reported increased utilization of BI health facilities compared to the non BI.^{21,22} The implication of these findings is that drug revolving fund scheme seemed to be well received in the areas of study.

A significantly greater number of respondents in the BI facilities opined that drugs were always available in the health facilities. This seemed to explain one of the reasons of respondents visiting the BI health facilities more often than those of the non-BI LGA. Researchers in Enugu State had also found that respondents in the BI LGA of Oji River rated the PHC services to be at least good following the implementation of the BI programme there.¹⁷ Similarly, in a study to determine facility user's preference between the free and B.I. health services in an LGA in Oyo State, Nigeria 68.7% rated drugs as being readily available during the BI services compared to 23.4% that had same rating for free health service.²² Contrary findings were however reported in a study in southern Nigeria where inadequacy in the quality of child health services in primary health care facilities was attributed to several factors including lack of essential drugs.²³ Some researchers in South Eastern Nigeria found that the key indicator identified by the community for evaluating performance of the primary health centres remains access to essential drugs.²⁴ Concerning the cost of drugs, the opinion of respondents in the two LGAs was significantly different. Up to three quarters of the respondents in the BI LGA felt the drugs were not costly, compared to about a third in the non-BI LGA. This is similar to findings in an experimental study in Cameroon, where it was found that the probability of using the health centre increased significantly for people in the B.I. programme area who felt the drugs were not costly compared to those in the control area.²⁵ Different findings were reported in four LGAs in South East Nigeria, where patients demonstrated widespread dissatisfaction with fees charged, long waiting time and treatment instructions given them.²⁶ Similarly, in a study to assess the perceptions of clients on drugs situation in the primary health

centres of Tafa LGA, north central Nigeria, clients expressed dissatisfactions with the drugs situation in the primary health centres.²⁷ High cost of drugs clearly has adverse effect on health services utilization.

The respondents' feedback in both LGA showed that their satisfaction with the services rendered depended on whether prescribed drugs were usually dispensed, prompt services were rendered and the health staff was friendly. Availability of essential drugs therefore affects patients' perception of health care delivery.

CONCLUSION

The respondents' perception of drugs availability tilted significantly in favour of the BI LGA. This seemed to have resulted in a higher patronage and greater satisfaction with drug services in the BI facilities.

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