

Akılcı İlaç Kullanımı Üzerine Sağlık Sigortasının Etkisi

[Influence of Health Insurance on Rational Use of Drugs]

ÖZET

AMAÇ : Nijerya 2005'te Ulusal Sağlık Sigortası Projesi'nin Kamu Sektörü Sosyal Sağlık Sigortası bileşeni ile tanıştı. Kamu çalışanlarına katkı payı içeren bir sağlık güvence paketi sağlandı. Ordu için tüm katkı devlet tarafından ödenmektedir. Sağlık sigortasından önce Nijerya askeri hastanesinde reçeteleme örüntüsü yüksek muayene başına ilaç sayısı, düşük jenerik ilaç kullanımı ve yüksek enjeksiyon kullanımından dolayı akılcı değildi. Bu çalışmanın amacı, Dünya Sağlık Örgütü (DSÖ)'nün kriterlerini kullanarak aynı tesiste sağlık sigortasının akılcı ilaç kullanımını nasıl etkilediğini incelemektir.

YÖNTEM: Ikoyi, Lagos Nijerya'daki Askeri Hastanenin polikliniğinde 2008 - 2011 arasında kabul edilen hastaların kayıtları üzerinden yürütülen retrospektif kesitsel bir çalışmadır. Veriler tabakalı örnekleme ile rasgele seçilen yıl başına 45 hasta olmak üzere 180 hastanın kayıtlarından toplanmış ve DSÖ'nün istediği reçeteleme indikatörleri hesaplanmıştır.

BULGULAR: Toplam 180 hastaların yaşı 1 hafta ile 66 yıl (mean 24,09±17,02) arasındaydı. En fazla hasta büyük gruplar 10 yaş altı (%28,3) ve 30-39 yaş (%27,8) gruplarındaydı. Erkek kadın oranı 1,15'e 1 idi. 180 muayenede 160 hastaya 466 ilaç reçete edilmişti. Muayene başına ilaç sayısı 2,6, jenerik reçeteleme hızı %56,4 ve antibiyotik yazma hızı %35 iken enjeksiyon reçetesi hızı %8,9 idi. Kalitatif çalışmadaki 50 soru formundan 29'u doktorlar 16'sı eczacılar tarafından dolduruldu. Doktorların %82,8'i ve eczacıların %75,0'ı reçete edilmiş ilaçların hasta tarafından ödenme sayısı ile ilgiliydi. Cepten ödeyen hastalar için doktorlar piyasa ismini %44,8 ve jenerik ismi %37,9 önerirken, eczacılar piyasa ismini %81,3 ve jenerik ismi %19,7 önerdiler. Aradaki fark istatistiksel olarak anlamlıydı (p=0.04).

SONUÇ: Cepten ödemedi sağlık sigortasına geçişte ödeme şekli değişikliği muayene başına ilaç sayısını azalttı ve jenerik reçetelemeyi arttırdı. Muhtemelen sağlık sigortası altında artmış ödeme gücünden kaynaklanan antibiyotik reçeteleme hızında hafif artış oldu. Nijerya'da sağlık sigortası ajansları paydaşlarını akılcı ilaç kullanımı konusunda aydınlatma ihtiyacı duyarken hükümet sigorta yararlanımlarını optimize ederek kapsanan toplumu genişletmelidir.

SUMMARY

AIM: In 2005, Nigeria introduced the Formal Sector Social Health Insurance component of National Health Insurance Scheme. This provides public sector workers with a package of health interventions in return for employee and/or employers contributions to the scheme. For the military, the entire contribution is paid by the government. Before health insurance was introduced, the prescription pattern at a Nigerian military hospital was reported as irrational with high drugs per encounter, low use of generic prescriptions and high level of injection use. The aim of this study is to evaluate how health insurance affects the rational use of drugs in the same facility using World Health Organisation criteria.

METHOD: Retrospective cross-sectional study of case notes of patients seen at the general out-patients clinics of Military Hospital, Ikoyi, Lagos Nigeria between 2008 and 2011. Data collection from 180 case notes sampled through stratified sampling technique to retrieve 45 case notes per year. Materials were collected to calculate prescribing indicators as stipulated by the WHO.

RESULTS: From analysis of 180 case notes, patients were aged from 1 week to 66 years (mean 24.09±17.02). More patients were below 10 years (28.3%) and 30-39 years (27.8%). The overall male to female ratio was 1.15:1. There were 446 drugs prescribed for 160 patients. The average drug encounter rate was 2.6, the generic prescription rate was 56.4%, antibiotic encounter rate was 35.0% while the injection prescription rate was 8.9%. Out of 50 questionnaires in the qualitative study, 29 doctors, 16 pharmacists returned theirs. Doctors (82.8%) and pharmacists (75.0%) were interested in mode of patient payment for prescription medicines. For patients who pay out-of-pocket, while doctors favoured generic and branded drugs (44.8%), generics (37.9%); pharmacists favoured generic and branded drugs (81.3%) and generics (19.7%) with slight statistical difference (p=0.04) between both professionals.

CONCLUSION: The change in payment pattern from out-of-pocket to health insurance has actually reduced average drug prescribed per encounter, increased prescription of generics possibly because hospital reimbursement is at the rate of generics and based on capitation for these group of patients. There was scant moral hazard in the slight increase in antibiotic prescription possibly due to improved affordability under health insurance. Nigerian health insurance agencies need to pursue enlightenment of stake holders on rational drugs use, while government needs to increase the covered population to optimize benefits accruable from health insurance.

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INTRODUCTION

Prescription drugs or medicines are essential to the health care delivery system; in fact its availability improves utilization of the system (1); but medicines are expensive, making up a large portion of the cost of health. According to Otoom *et al.*, (2), expenses on prescription drugs account for 2% of the Gross Domestic Product in Jordan. The total cost of prescription drugs purchased by Nigerians is difficult to find but before the National Health Insurance Scheme (NHIS) was introduced in 2005, most of the expenses for medicines were borne by patients' Out-Of- Pocket (OOP) (3,4). Wagner and Ross-Degnan, (5) estimate that worldwide between 25% and 65% of public and private spending on health is on prescription drugs.

To reduce the socio-economic cost of healthcare on people, health insurance was introduced in Germany as early as 1811. Health insurance is a social device for pooling the health risks and cost of an exposure unit with a view to predictability (6). Irrespective of the means of funding health services, irrational use of medicines is prevalent in Nigeria and other countries (1,7,8). But it is believed that health insurance system apart from financing healthcare could also incentivize patients, providers and systems to implement affordable and appropriate use of medicines (9).

Nigeria introduced NHIS with the aim of providing health insurance so that insured persons and their dependants are able to have access to good quality and cost-effective healthcare services (10). In our study centre, the formal sector programme of the NHIS operates based on "contributions made by or for an insured person entitled him or her, a spouse and four biological children under the age of 18 years to a defined health benefits package" (10). The Formal Sector Social Health Insurance Programme is a "scheme where the healthcare of employees in the formal sector is paid from funds created by pooling the contributions of employees and or employers". In the case of members of the uniformed services such as the military, the federal government as employer pays all the contributions (10). NHIS became operational in our study centre in July, 2007.

In previous studies, the pattern of drugs use in some Nigerian military health institutions was reported as irrational (8,11,12). In view of the transition from OOP to insurance form of payment for medicines, there is need to assess the impact of NHIS on pattern of prescription drugs use and the attitude of prescribers and dispensers underlying it.

The aim was to evaluate how health insurance affects rational use of drugs using the general outpatients' clinic of a Nigerian military hospital as case study. This would enable comparison of the pattern of medicines use under NHIS with previous reports.

METHODS

This was a cross-sectional study using the case notes of patients seen and treated under the NHIS at the General Outpatient clinics at Military Hospital, Lagos, Nigeria between 2008 and 2011. For the study of rational drugs use in a single facility, a minimum of 100 case notes are required (13). Case notes of 180 patients from the same facility were sampled as in a previous report (11) and studied for prescribing indicators using the criteria of the WHO (13). The case notes were sampled using systematic sampling method to retrieve 180 case notes from a total of 4500 case notes used within the period. This was by sampling every 25th case note out of 4500. Data collected from patients' records included age, gender, diagnosis, and prescription notes, to calculate prescribing indicators as described by the WHO (13).

To augment the quantitative data, a qualitative survey of doctors, pharmacists and nurses was conducted in July-August, 2012 to evaluate their attitude to rational drugs use. The qualitative survey of doctors, pharmacists and nurses considered on years of professional practice of the health professionals, their preference for generic or branded drugs, their interest in who pays for drugs prescribed to patients whether OOP or NHIS, their knowledge about responsibility for keeping costs of medicines low for patients and their use of formularies for prescriptions. All data collected were analyzed using Microsoft Excel® software. Certain characteristics were evaluated for relevance with $p \leq 0.05$ taken as statistically significant. Consent for this study was obtained in writing from the Ethics Committee, Military Hospital, Lagos, Nigeria.

RESULTS

From analysis of the 180 case notes, the patients age range was from 1week to 66years (mean 24.09 ± 17.02). There were more patients below 10 years of age ($n=51$, 28.3%) than between 30-39years ($n=50$, 27.8%), 20-29 years ($n=29$, 16.1%), 10-19 years ($n=15$, 8.3%), 50-59years ($n=9$, 5.0%) and 60 and above ($n=2$, 1.1%).

Table 1: Comparison of Some Prescribing Indicators in A Nigerian Hospital (n=180)

Item	2007	2012
Number of patients with drugs prescribed	168 (93.6)	160 (88.9)
Total number of drugs prescribed	537	466
Average number of drugs per patient (range)	3.0 (1-8)	2.6 (1-9)
Number of drugs prescribed in generic names (% of total)	235 (43.8)	263 (56.4)
Number of antibiotics prescribed (% of total)	50 (27.8)	63 (35.0)
Number of injections (% of total)	43 (23.9)	16 (8.9)

There were 96 males and 84 females, male to female ratio of 1.15:1. Table 1 is a comparison between the prescribing indicators recorded in 2007 and those of this study. The total number of drugs prescribed was 466 (range from 1 to 9) for 160 patients, 20 patients (11.1%) had no drugs prescribed. Using WHO criteria, the average drug encounter rate was 2.6. There were 263 drugs prescribed in their

generic names, giving a generic prescription rate of 56.4%. Sixty-three patients had antibiotics in their prescriptions; the antibiotic encounter rate was calculated as 35.0%. The injection encounter rate was 8.9% as 16 patients had injectables in their prescriptions. Table 2 shows the comparative number of drugs per prescription in 2007 and this present study.

Table 2: Comparison of Distribution of Prescribed Drugs at A Nigerian General Outpatient Clinic

Number of drugs	2007 (% of population)	2012 (% of total population)
1-2	54 (32.1)	75 (46.9)
3-4	86 (51.2)	60 (37.5)
5-6	25 (14.9)	20 (12.5)
7-8	3 (1.8)	4 (2.5)
9	-	1 (0.6)

Fifty questionnaires were distributed to doctors and pharmacists working at the hospital in July-August 2012 using a convenience sampling technique. It evaluated the knowledge and attitude towards rational drugs use for patients paying through health insurance and OOP. Of these 29 doctors and 16 pharmacists returned the questionnaires giving a response rate of 90%. The qualitative data from the doctors and pharmacists were collated for analysis. The attitude of the doctors and pharmacists to rational drugs use are shown in Table 3. An almost equal

proportion of doctors had practiced <3years and >10years (37.9% vs 34.5% respectively) while most pharmacists in this survey had practiced for less than 3years (87.4%). There was no statistically significant difference between the two groups (chi square 0.08, $p=0.77$). With respect to the drug of choice for patients on health insurance, more doctors would prescribe generics (n=15, 51.7%) than both types (34.5%) and branded (13.8%). Among pharmacists, slightly more support both types (n=9, 56.3%) than generics (43.7%). There was no statistically

significant difference between the two groups ($p=0.17$). For patients who pay for medicines out-of-pocket, more doctors would prescribe both types ($n=13$, 44.8%) than generics (37.9%) and branded (17.2%). Pharmacists favoured both types ($n=13$, 81.3%) over generics (10.7%). The difference between the two groups was statistically significant (chi square 6.35, $p=0.04$). As to the number of drugs prescribed for patients, doctors would not give fewer drugs to patients on NHIS ($n=22$, 75.9%). Similar

response was given by the pharmacists ($n=10$, 62.5%). The two professional groups had statistically similar attitude (chi square 0.90, $p=0.34$). More doctors and pharmacists did not use the formulary in prescribing drugs with 62.1% for doctors, and 81.3% for pharmacists. There was no statistically significant difference between doctors and pharmacists (chi square 1.77, $p=0.18$).

Table 3: Characteristics of Prescribers in a survey on impact on health insurance in Nigeria

Characteristic	Doctors (%)	Pharmacists (%)	Chi-square, p value
Duration of professional experience			
<3years	11(37.9)	14 (87.4)	0.06*
3-5years	3 (10.3)	-	
6-10years	5 (17.2)	1 (6.3)	
>10years	10 (34.5)	1 (6.3)	
Type of drugs for patients on health insurance			
Generic	15 (51.7)	7 (43.7)	0.17*
Branded	4 (13.8)	-	
Both	10 (34.5)	9 (56.3)	
Type of drugs for OOP patients			
Generics	11 (37.9)	3 (18.7)	0.04*
Branded	5 (17.3)	-	
Both	13 (44.8)	13 (81.3)	
Favour fewer drugs for health insurance patients			
Yes	7 (24.1)	6 (37.5)	0.90, 0.34
No	22 (75.9)	10 (62.5)	
Use of formulary in prescribing and dispensing			
Yes	11 (37.9)	3 (18.7)	1.77, 0.18
No	18 (62.1)	13 (81.3)	

* p value alone

DISCUSSION

Over half of the population in the World's poorest areas of Asia and Africa lack access to essential drugs (14). Among those who have access, they do so at high financial costs with a large proportion paying OOP (15). Despite this high cost, irrational use of drugs is common in many parts of the World. Also, many health systems have financial incentives that encourage inappropriate prescribing and use of medicines (9).

General outpatient drugs used in some Nigerian military hospitals before NHIS were paid for using OOP payments. Their pattern of drugs use during this period was also reported as irrational (8,11,12). Since June 2007, the Nigerian military embraced the NHIS as a means to finance health care of troops and their families. The scheme provides coverage for primary care and other care on referral basis. There is no co-payment for drugs dispensed to military personnel and their families under the scheme (16). But evidence from high income countries indicate that because health insurance subsidises cost of medicines, its consumption may increase because consumers no longer pay the full price of medicines, i.e. moral hazard (17), hence this study.

In table 1, the average number of drugs per prescription in this study (2.6) is lower than 3.0 recorded in 2007 (11). Table 2 also showed that most patients (84.4%) in this study had 1-4 drugs per prescription. This is higher than (73.4%) in the 2007 study (11). However, there was a reversal as more patients had 1-2 drugs per prescription in 2012 (46.9%) than in 2007 while fewer had 3-4 drugs (37.5%) in this present study than (51.2%) in 2007 (11). It can be inferred that since lesser number of drugs are prescribed under NHIS, patients in this study may have avoided the moral hazard of more drugs per prescription due to change in payment pattern from OOP to health insurance. This could be attributable to the use of capitation payments for drugs dispensed at the general outpatient clinics. It is possible that change in payment pattern from OOP to NHIS has not resulted in more drugs prescribed for patients due to the use of capitation form of reimbursement for general outpatients. Studies have found in general, fee-for-service payment systems provide implicit financial incentives to increase service quantity whereas fixed reimbursement systems, such as capitation and fixed salaries, give doctors incentive to contain costs (18, 19).

While only 43.8% of medicines were prescribed in their generic form in 2007, more (56.4%) were prescribed now from Table 1. It seems that NHIS

enhanced the prescription of more generic drugs due to its policy of reimbursing at the rate of generics. Encouraging the prescription of generics has been utilized in some insurance schemes as in Thailand while it is used countrywide in Argentina, Colombia, Jamaica and South Africa to mention a few (20,21, 22), but there is no evidence that the policy is cost-effective in reducing the expenditure on medicines (9). To be effective in reducing cost and guarantee quality of medicines, health insurers need to utilize their considerable purchasing power to leverage on the pharmaceutical industry through negotiating for lower prices (9).

Table 1 showed that more patients encountered antibiotics in this present study than in the 2007 study (35.0% vs 27.8%) but there were far fewer injections in the present study than (8.9% vs 23.9%) in 2007. The increased use of antibiotics could be due to affordability as prescribers no longer had cost restraint i.e. a moral hazard. It is essential to continue educating prescribers and patients on the harmful effects of irrational use of antibiotics. Perz et al., (23) believes that antibiotic prescription rates can be significantly reduced using multi-faceted interventions. This comprises peer leader education sessions to practitioners, provision of mailed educational materials to parents and dissemination of key educational messages via mass media outlets and pamphlets in hospitals, clinics and pharmacies directed at the general public.

The doctor and pharmacist population in this study were alike in most of the characteristics except duration of professional experience, choice of drugs for patients who pay OOP and knowledge of who is responsible for keeping the cost of drugs low for patients in Table 3. In Nigeria, inadequate attention has been paid to prescription behavior under NHIS despite the considerable contribution of drugs to overall cost of healthcare. Poor attention by the NHIS could have profound implications for overall drug expenditures, to the disadvantage of the Scheme.

In table 3, while doctors believed that patients who pay OOP do not necessarily deserve to have more expensive drugs, the pharmacists were equally divided. The prescription and dispensing of expensive drugs when cheaper alternatives are available is wasteful and could contribute to catastrophic spending on health in those who pay OOP. Catastrophic health expenditure is defined as a level of OOP payment for health which exceeds 10% of total consumption expenditures of the household (24, 25). Perverse incentives to misuse medicines may exist when prescribers benefit from the sale of medicines (26). In Nigerian government hospitals and

clinics, drug prescription and dispensing are often performed separately by doctors and pharmacists respectively. But the desire of pharmacists to prescribe more expensive drugs to OOP payment patients in this study may not be completely divorced from the profit motive.

Table 3 showed that for patients on health insurance, more prescribers favour use of generics than branded medicines or both (n=22 vs 4 vs 19). This correlates with the finding of more generic prescriptions in this study. But there was statistically significant different response ($p=0.04$) to the preferred drugs for OOP patients with more preferring both forms over generics and branded drugs (n= 26 vs 14 vs 5). A higher proportion of pharmacists favoured the use of both types (81.3%) over generics (18.7%) for OOP patients. This wider choice offered to OOP patients may favour branded over generic prescriptions. Whenever generics are of similar quality as branded, the necessity for prescribing branded medicines would be questioned because of cost differences. Consistent with these differences in attitude to patients on health insurance and those who pay OOP, Hellerstein (26) found that physicians with a high proportion of patients on health insurance were more price sensitive and concluded that physicians (doctors) are indeed important agents in the choice of cost-effective drugs. She further calculated that physicians with a marginally higher percentage of health insurance patients are 10% more likely to prescribe a generic drug. Two later studies (27,28) essentially confirmed Hellerstein's findings and showed that physician habit has a significant influence on generic versus brand-name choices.

In Shanghai, China, the government insurance authorities had a medicine list for beneficiaries. This list reimburses only for medicines on it, patients had to pay OOP for those outside the list. In combination with other measures such as capping hospital expenditure on drugs and increasing provider fees, these policies successfully decreased the rate of growth for both total medical and medicines expenditures and decreased the use of imported medicines and high cost antibiotics (29). In a previous study, only 37.9% of prescribers claimed possession of the Essential Drugs List while 50% were using it (11). In this present study, table 3 showed that more prescribers were not using any formulary for their prescriptions (n=31 vs 14). It appears the NHIS needs to do more to encourage use of formulary or the EDL to optimize health expenditure.

Overall, the introduction of the Formal Sector Social Health Insurance package of the NHIS in Nigeria has not encountered the serious moral hazard of increasing patient medicine encounter rate in the outpatient setting; there was some increase in the use of antibiotics as compared to the period when patients paid OOP. In the Community-Based Health Insurance component of the Ghanaian NHIS formalized in 2003, there was no evidence of financial protection for outpatients though inpatients enjoyed considerable benefits (30). An important limitation of this present study is that financial benefits of the NHIS was not directly measured, rather the pattern of prescription was used as a proxy for assessing the quality of care rendered to the patients. There is need to assess the extent of financial protection afforded to patients by the NHIS in Nigeria to complement the study from northern Nigeria that showed poor client satisfaction (42.1%) so as to design adjustments that would enhance acceptance and improve benefits to clients (31). Another limitation of this study was that it surveyed general outpatients utilising NHIS for medicine payments, its findings may not apply to the majority of Nigeria's private sector employees who access treatment on OOP basis. There is need to increase the scope of the scheme to achieve universal population coverage as in many middle income countries.

CONCLUSION

In previous studies done before the introduction of the NHIS into Nigeria Army health facilities, patients paid for most services OOP. Despite the personal cost to patients, the pattern of outpatient drugs use was determined to be irrational. Since the NHIS commenced in 2007, patients in this survey had less drugs overall, fewer injections but slightly higher antibiotics prescribed. Prescribers and dispensers in this study showed interest in mode of patient payment for drugs, favoured the use of generics for patients on NHIS, and did not use the EDL as for prescriptions. There is need for co-operation of both professionals in proper prescription and counselling of patients to optimize benefits from drug expenditures. This would benefit patients, government and health insurers in Nigeria.

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