Provider-Client Perception and Experiences on the National Health Insurance Scheme (NHIS) Medicines List in Both Public and Private Pharmacy in the Bantama Sub-Metro of Ashanti Region of Ghana

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Abstract

Background: Health insurance schemes are formed in both developed and developing countries as a result of the existing challenges in the health care financing system stemming from uneven social and economic distribution. This study was conducted to find out the perception and experience of providers and clients in both public and private facilities on NHIS medicines list. **Methods:** A quantitative descriptive study was conducted through systematic random sampling to recruit 455 participants from both Nimo Pharmacy (Private facility) and Komfo Anokye Teaching Hospital (Public facility). **Results:** Majority of the clients were aware of NHIS medicines or generics medicines and branded medicines. However, most of them preferred NHIS medicines to branded medicines. The reasons provided for opting for NHI medicines were effective (p-value= 0.088) affordability (p-value= 0.001) availability (p-value= 0.001), safety (p-value=0.645) and less side effects (p-value=0.012). Again, factors that might influence providers' prescription patterns of NHIS medicines list were; provider's personal preference, clients' preference, confidence in the generic company and advertisement by generic company.**Conclusion:** A database of all generic medicines should be created as well as their inventory level be maintained for every accredited NHIS facility by the Ministry of Health and National Health Insurance Authority. This will make information on NHIS medicines readily available and clients can easily be directed to another accredited facility by the provider to access NHIS medicines if they are not available at the visiting facility.

Keywords: Health Insurance, medicines list, client-provider-perceptions, Branded and generic medicines,

1. Introduction

There are several health care systems in the world, each with unique characteristics to address specific health needs of individual countries. The health insurance scheme was however formed in both developed and developing countries as a result of the existing challenges in the health care financing system stemming from uneven social and economic distribution such as low economic growth, huge variations in income level and poor infrastructure[1]. Developed countries like the United Kingdom, France and Germany have shown great interest in health insurance as a mechanism to collect and distribute resources for the health sector in a more equitable way [2]. Voluntary insurance mechanisms such as the Private Health Insurance (PHI) are implemented on a large scale in countries like Brazil, Chile, Namibia and South Africa [3] and community-based health insurance (CBHI) now available in developing countries like the Democratic Republic of the Congo, Ghana and Senegal [4].

In Africa, CBHI provide quality healthcare and financial protection for citizens in terms of reducing their out-of-pocket payments [5]. In the past 25 years, several countries in Sub-Saharan Africa introduced a form of SHI. The major obstacle with SHI schemes in Africa was the limited number of enrolled people [6]. Therefore implementing a national health insurance which enrolls large number of people may be an ideal solution for African countries on their way to universal health coverage. Countries such as Rwanda [7] and Uganda [8] showed weak financial sustainability because of low renewal rates, high claims-to-revenue ratios and high operational costs. Presently, Ghana is the only country in sub-Saharan Africa that has successfully implemented a national health insurance scheme [6].

The NHIS in Ghana is intended to provide financial risk protection against out- of- pocket health care expenditure for all Ghanaians. This is operational in over 145 districts across the country with a total cumulative

membership of over 18 million. Out of which over 8 million, representing 34% of Ghana's current population are active card bearing members.The main sources of funding for the NHIS is the 2.5% National Health Insurance Levy (NHIL) on goods and services which forms 70% of the total revenue, social security taxes forms about 23%, premium forms about 5% and other funds contributing 2% [9-10].

The NHIS Medicines List in Ghana was developed in 2008 to serve as a guide to health providers in delivering healthcare services to subscribers. It contains medications in the various therapeutic groupings used in the management of about 95% disease conditions. The current list has five hundred and forty eight (548) formulations. The list excludes all anaesthetics (both local and general) and programme drugs [10]. Though drugs like Sulfadoxine + Pyrimethamine tablet, 525 mg, is a Programme drug, it has been maintained on the list due to its unavailability at some facilities across the country. This has been done to prevent malaria in pregnancy and aid the country's attainment of the Millennium Development Goal 5 (which is to improve maternal health).

In Ghana, most of the drugs on the National Health Insurance medicines list are generic. However, the perception and experiences of providers and clients on the NHIS medicines list is unknown since there has not been any published studies. Therefore, there was the need to determine the perception and experience of providers and clients in both public and private facilities on NHIS medicines list.

2. Methods

A descriptive cross-sectional study design was employed for the study. This study population was NHIS clienteles and workers at both KATH (Polyclinic Pharmacy) and Nimo Pharmacy as well as a management member from Bantama sub-metro office of NHIS. These two facilities were purposively selected because KATH was a teaching hospital attending to majority of the NHI clienteles and Nimo Pharmacy was one of the biggest and well patronized NHIS accredited private pharmacy shop in the sub- metro. A total sample size of 455 comprising 420 clients and 20 health workers and 15 NHIS officials and administrators in both facilities .The sample was determined using Epi-Info software version 7 with an assumed expected frequency of 50% at 95% confidence interval plus a 10% non- response. In terms of distribution, 60% of the sampling size accessed KATH (Polyclinic Pharmacy) and 40% accessed Nimo Pharmacy.

Systematic random sampling method was used to recruit participants. On average 20 participants were recruited in a day, using a recruitment interval of 2 and 3 for KATH and Nimo Pharmacy respectively starting with the arrival of the first client. This was repeated in both KATH and Nimo Pharmacy till a total sample size was attained. All NHIS clients (18 years and above) who took their prescriptions to both facilities during the survey were included in the study while NHIS clients under 18 years and those who did not bring their prescriptions to both facilities during the time of the survey were excluded from the study. A quantitative study was employed in which structured questionnaire was administered to providers and clients at both facilities. The data were analysed using descriptive and analytical approach with results expressed in frequencies, percentages and tables. Statistical significance for all testing was 0.05. Descriptive statistics variables were used to analyze the demographic variables of the participants while a chi-square test was used to determine differences in perception and experience on NHIS Medicines List among the clients and providers

3. Results

3.1 Demographic characteristics of respondents

The age, gender, religion and occupation of the respondents have been presented. Majority of the clients who accessed NHIS from KATH (Polyclinic Pharmacy) and Nimo Pharmacy were within the age group of 31 – 40 years (23.3%) and 21 – 30 years (20.7%) respectively, with overall mean age of 44 years and standard deviation of 15.2. Females were the predominant clients who accessed both facilities. Majority of them were traders (31.4%) and clients who accessed NHIS services from both facilities were mostly Christians (83.6%). Majority of providers at both KATH Polyclinic Pharmacy (55.0%) and Nimo Pharmacy (80.0%) were aged 21 – 30 years. The overall mean age of the provider was 30 years, with a standard deviation of 7.9. Also, 65% of the providers at KATH Polyclinic Pharmacy were males compared with 46.8% of them at Nimo Pharmacy. Majority of the providers from both facilities were Christians (KATH=100%; Nimo=93.3%), single (KATH=65.0%; Nimo=66.7%), and possessed a university degree (KATH=65.0%; Nimo=73.3%). Most of them (KATH=35.0%; Nimo=73.3%) also had working experience ranging from 0 – 5 years.

Table 1: Socio-demographic characteristics of Clients

Variables	Service Delivery Point			
	KATH N = 252 (%)	NIMO N = 168 (%)	TOTAL	X^2(p-value)
Age				7.24(0.299)
≤ 20	3 (1.2)	2 (1.2)	5 (1.2)	
21 – 30	52 (20.6)	35 (20.8)	87 (20.7)	
31 – 40	66 (26.2)	32 (19.0)	98 (23.3)	
41 – 50	58 (23.0)	31 (18.5)	89 (21.2)	
51 – 60	38 (15.1)	34 (20.2)	72 (17.1)	
61 – 70	23 (9.1)	22 (13.1)	45 (10.7)	
70 +	12 (4.8)	12 (7.1)	24 (5.7)	
Mean = 44, SD = 15.2	*Mean=43,SD=14.4*	*Mean=45,SD=16.1*		
Gender				3.72(0.054)
Male	86 (34.1)	73 (43.4)	159 (37.9)	
Female	166 (65.9)	95 (56.6)	261 (62.1)	
Religion				0.03(0.872)
Christianity	210 (83.3)	141 (83.9)	351 (83.6)	
Islam	42 (16.7)	27 (16.1)	69 (16.4)	
Occupation				4.05(0.400)
Trading	88 (34.9)	44 (26.2)	132 (31.4)	
Handiwork	14 (5.6)	9 (5.4)	23 (5.5)	
Agriculture	33 (13.1)	25 (14.9)	58 (13.8)	
Professional	50 (19.8)	35 (20.8)	85 (20.2)	
Unemployed	67 (26.6)	55 (32.7)	122 (29.1)	

Source: Author's Field Data, 2015

Table 2 Socio-demographic characteristics of Providers of NHIS medicines

Variables	Service Delivery Point			
	KATH n = 20(%)	NIMO n = 15(%)	TOTAL	X^2(p-value)
Age				6.67(0.036)
21 – 30	11 (55.0)	12 (80.0)	23 (65.7)	
31 – 40	7 (35.0)	0 (0.0)	7 (20.0)	
41+	2 (10.0)	3 (20.0)	5 (14.3)	
Mean = 30, SD = 7.9				
Gender				1.18(0.278)
Male	13 (65.0)	7 (46.7)	20 (57.1)	
Female	7 (35.0)	8 (53.3)	15 (42.9)	
Religion				1.37(0.241)
Christianity	20 (100.0)	14 (93.3)	34 (97.1)	
Islam	0 (0.0)	1 (6.7)	1 (2.9)	
Qualification				3.86(0.276)
SHS	2 (10.0)	2 (13.3)	4 (11.4)	
HND	4 (20.0)	0 (0.0)	4 (11.4)	
Degree	13 (65.0)	11 (73.3)	24 (68.6)	
Masters	1 (5.0)	2 (13.3)	3 (8.6)	
Work experience (years)				5.19(0.158)
0 – 5	7 (35.0)	11 (73.3)	18 (51.4)	
6 – 10	7 (35.0)	2 (13.3)	9 (25.7)	
11 – 20	4 (20.0)	1 (6.7)	5 (14.3)	
20 +	2 (10.0)	1(6.7)	3 (8.6)	

Source: Author's Field Data, 2015

3.2 Clients' Perception and Experience about NHIS Medicines List

Over seventy percent (74.2%) of the clients who accessed their NHIS medicines at KATH (Polyclinic Pharmacy) were aware that medicines prescribed to them were in their generics and only few ones were branded as compared with 81.6% of the clients at Nimo Pharmacy as shown in table 3. Whereas 60.3% of the clients who accessed KATH (Polyclinic Pharmacy) preferred both the generic and branded medicines, 52.4% of the clients

who accessed Nimo Pharmacy equally preferred both generic and branded medicines when given a choice. This was statistically not significant (p-value= 0.064). On opinion about the NHIS medicines list, majority of the clients who accessed both facilities found it to be effective (KATH=77.8%; Nimo=84.5%), available (KATH=67.9%; Nimo=89.9%), safe (KATH=97.2%; Nimo=96.4%) and with less side effects (KATH=98.8%; Nimo=94.6%). There was a statistically significant difference with respect to their opinion on NHIS medicines list in terms of cost (chi square = 39.81; p-value = 0.0001), availability (chi square = 27.33; p-value = 0.001) and side effect (chi square = 6.30; p-value = 0.012) as indicated in table 4.3. However respondent's opinion on effectiveness (p-value = 0.088) and safety (p-value = 0.645) of the NHIS medicines list was not statistically significant. In response to the question whether people recover faster on NHIS medicines than the branded ones, almost an equal percentage from KATH (26.6%) and Nimo Pharmacy (26.2%) responded negatively. This was however statistically significant (p-value = 0.0001).

Also, clients preference on medicines list either generics or branded would be based on recommendation from their doctors (KATH= 99.6%; Nimo= 98.81%), recommendation from their pharmacists (KATH= 51.59%; Nimo= 61.31%), how much money to save (KATH= 50.0%; Nimo= 17.86%) and severity of illness (KATH= 87.3%; Nimo= 81.55%)

Table 3 Clients' Perception and Experience on NHIS Medicines List

Variable		Service Delivery Point			
		KATH	NIMO	TOTAL	X^2 (*p-value*)
		n = 252 (%)	n = 168 (%)		
Awareness of generic and branded as prescription medicines					3.08 (0.079)
Yes		187 (74.2)	137 (81.5)	324 (77.1)	
No		65 (25.8)	31 (18.5)	96 (22.9)	
Preference of medicine					5.49 (0.064)
NHIS medicine/Generic		50 (19.8)	50 (29.8)	100 (23.8)	
Branded		50 (19.8)	30 (17.9)	80 (19.1)	
Both		152 (60.3)	88 (52.4)	240 (57.1)	
Opinion on NHIS medicines list					
Effectiveness					2.92 (0.088)
	Effective	196 (77.8)	142 (84.5)	338 (80.5)	
	Ineffective	56 (22.2)	26 (15.5)	82 (19.5)	
Cost					39.81(0.001)
	Expensive	7 (2.8)	37 (22.0)	44 (10.5)	
	Affordable	245 (97.2)	131 (78.0)	376 (89.5)	
Availability					27.33(0.001)
	Available	171 (67.9)	151 (89.9)	322 (76.7)	
	Not available	81 (32.1)	17 (10.1)	98 (23.3)	
Safety					0.21 (0.645)
	Safe	245 (97.2)	162 (96.4)	407 (96.9)	
	Unsafe	7(2.8)	6 (3.6)	13 (3.1)	
Side effects					6.30 (0.012)
	More side effect	3 (1.2)	9 (5.4)	12 (2.9)	
	Less side effect	249 (98.8)	159 (94.6)	408 (97.1)	
Fast recovery when on NHIS medicines compared with branded ones					41.44(0.001)
Yes		35 (13.9)	67 (39.9)	102 (24.3)	
No		67 (26.6)	44 (26.2)	111 (26.4)	
Don't know		150 (59.5)	57 (33.9)	207 (49.3)	
Preference when paying out-of-pocket					9.94(0.002)
NHIS medicines		103 (40.9)	95 (56.6)	198 (47.1)	
Branded medicines		149 (59.1)	73 (43.4)	222 (52.9)	

Source: Author's Field Data, 2015

3.3 Providers' Perception and Experience on NHIS Medicines List

Majority of the providers from both facilities (KATH= 70.0%; Nimo= 66.7%) generally disagreed to the statement that 'NHIS medicines or generics are more effective than branded ones' as shown in table 4. About one-fourth (25.0%) of the providers at KATH (Polyclinic Pharmacy) disagreed to the statement that 'NHIS

medicines were more available than the branded ones' as compared with 13.3% of the providers at Nimo Pharmacy. Also, on the issue on whether 'providers may substitute NHIS medicines for branded ones when NHIS medicines are out of stock' and 'NHIS medicines equivalent is not available on the market', majority of the providers from both facilities (KATH= 40.0%; Nimo= 40.0%) disagreed with those statements. Also, seventy percent of the providers at KATH were uncertain about the quality of the NHIS medicines as compared with 20.0% of providers at Nimo. Lastly, factors that can influence providers' prescription pattern were assessed in terms of providers' personal preference, clients' personal preference, confidence in the generic company /manufacturer and advertisement by the generic company or manufacturer are detailed in table 4.

Table 4 Providers' Perception and Experience with NHIS Medicines List

Statements		Strongly agree n (%)	Agree n (%)	Neutral n (%)	Disagree n (%)	Strongly disagree n (%)
NHIS medicines or generics are more effective than branded ones	KATH	0 (0.0)	2 (10.0)	1 (5.0)	14 (70.0)	3 (15.0)
	NIMO	1 (6.7)	3 (20.0)	1 (6.7)	10 (66.7)	0 (0.0)
	TOTAL	1 (2.9)	5 (14.3)	2 (5.7)	24 (68.6)	3 (8.6)
NHIS medicines are available than the branded ones	KATH	0 (0.0)	12 (60.0)	3 (15.0)	5 (25.0)	0 (0.0)
	NIMO	3 (20.0)	7 (46.7)	3 (20.0)	2 (13.3)	0 (0.0)
	TOTAL	3 (8.6)	19 (54.3)	6 (17.1)	7 (20.0)	0 (0.0)
Providers may substitute NHIS medicines for branded ones when NHIS medicines are out of stock	KATH	2 (10.0)	5 (25.0)	2 (10.0)	10 (50.0)	1 (5.0)
	NIMO	1 (6.7)	3 (20.0)	0 (0.0)	6 (40.0)	5 (33.3)
	TOTAL	3 (8.6)	8 (22.9)	2 (5.7)	16 (45.7)	6 (17.1)
NHIS medicines equivalent is not available on the market	KATH	0 (0.0)	4 (20.0)	6 (30.0)	8 (40.0)	2 (10.0)
	NIMO	2 (13.3)	3 (20.0)	1 (6.7)	6 (40.0)	3 (20.0)
	TOTAL	2 (5.7)	7 (20.0)	7 (20.0)	14 (40.0)	5 (14.3)
Uncertain about the quality of the NHIS medicines	KATH	0 (0.0)	14 (70.0)	1 (5.0)	4 (20.0)	1 (5.0)
	NIMO	3 (20.0)	3 (20.0)	5 (33.3)	4 (26.7)	0 (0.0)
	TOTAL	3 (8.6)	17 (48.6)	6 (17.1)	8 (22.9)	1 (2.9)
Unsure about the bioequivalence of the generic and branded ones	KATH	0 (0.0)	6 (30.0)	8 (40.0)	5 (25.0)	1 (5.0)
	NIMO	2 (13.7)	4 (26.7)	4 (26.7)	5 (33.3)	0 (0.0)
	TOTAL	2 (5.7)	10 (28.6)	12 (34.3)	10 (28.6)	1 (2.9)
Providers' personal preference influence their prescribing behaviour	KATH	1 (5.0)	11 (55.0)	5 (25.0)	3 (15.0)	0 (0.0)
	NIMO	6 (40.0)	2 (13.3)	3 (20.0)	3 (20.0)	1 (6.7)
	TOTAL	7 (20.0)	13 (37.1)	8 (22.9)	6 (17.1)	1 (2.9)
Confidence in the generic company/manufacturer can influence providers' prescription pattern	KATH	2 (10.0)	15 (75.0)	2 (10.0)	1 (5.0)	0 (0.0)
	NIMO	4 (26.7)	9 (60.0)	0 (0.0)	2 (13.3)	0 (0.0)
	TOTAL	6 (17.1)	24 (68.6)	2 (5.7)	3 (8.6)	0 (0.0)

Source: Author's Field Data, 2015

4.   Discussion

4.1 Clients' Perception and Experience about NHIS Medicines List

Generic medicines are used to effectively treat many of illnesses and this provides opportunity to substantially reduce costs to health sector and patients [11]. It was therefore encouraging to note that over seventy percent of the clients were aware of generic medicines and most of them (23.8%) preferred generics which were NHIS medicines to branded medicines (19.1%) as indicated in table 3. This might explain why significant proportions of clients (p-value= 0.001) were of the opinion that generic medicines or NHIS medicines were affordable (89.5%) as compared with branded medicines (See Table 3). Cost is one important factor considered by some clients and providers in considering generics or branded medicines [12]. As a result, a significant proportion of the clients (p-value=0.001) was of the opinion that NHIS medicines were less costly. This might further explain why majority of clients' preferred generic medicines or NHIS medicines (23.8%) to branded medicines (19.1%). Contrary to the above, other studies consider efficacy as the most important factor in opting for either generics or branded medicines [13]. As a result, majority of clients were of the opinion that generic or NHIS medicines were effective, available and with less side effect and safety. This might explain why more of the clients would prefer NHIS medicines which were generics to branded medicines.

Studies have found prescription to have a substantial effect on use of generic drugs, especially in developing countries where patients seek to buy exactly what is prescribed [14] and so, most clients accept substitution of generics for branded medicines based on their own recommendations to prescribers, recommendations by their doctors and by their pharmacists [15]. This explains why majority of the clients

indicated that their preference on medicines list either generics or branded would be based on recommendation from their doctors (KATH= 99.6%; NIMO= 98.81%), recommendation from their pharmacists (KATH= 51.59%; NIMO= 61.31%), how much money to save (KATH= 50.0%; Nimo= 17.86%) and severity of illness (KATH= 87.3%; Nimo= 81.55%) This presupposes that the role of practitioners in promoting NHI medicines or branded medicines cannot be underestimated. As a result, clients might have received education on generics or NHIS medicines from their prescribers or practitioners and had understood the benefits associated with generics or NHIS medicines. This might explain why majority of clients would prefer NHIS medicines (23.8%) to branded medicines (19.1%) when paying out of their pocket as shown in Table 3. This is because clients or patients perceive generics as less expensive and also contain the same active ingredients as branded medicines [16].

4.2 Providers' Perception and Experience on NHIS Medicines List
Some providers raised major concerns regarding the effectiveness, availability, quality, safety, equivalence and bioequivalence on generic medicines and have acknowledged their economic benefits to the health care system [17-18]. This is evident in the study where majority of providers disagreed that NHI medicines or generic medicines were more effective than branded ones

Some providers might refuse substitution of generics or NHIS medicines for branded ones as a result of substantial price difference between a generic and branded product [19] which may be as a result different packages, colours and shapes but with the same active ingredient and therefore would think it is a different medicine all together [20]. This explains why majority of providers were not sure about the bioequivalence of generic medicines and at the same time would not substitute NHI medicines for branded ones when out of stock because it might cause a problem when clients are asked to pay a difference or top-up.This also testifies why majority of the clients (78.8%) reported that insurance would not pay if one chose to take branded medicines

5.   Conclusion
Majority of the clients were aware of NHI medicines or generics medicines and branded medicines. However, most of them preferred NHI medicines to branded medicines. The reasons provided for opting for NHI medicines were effective, affordable, available, safe and less side effects.

Majority of providers disagreed that NHIS medicines or generic medicines are more effective than branded ones and might substitute NHIS medicines for branded ones when NHIS medicines are out of stock. Also, factors that might influence providers' prescription patterns were stated as; provider's personal preference, clients' preference, confidence in the generic company and advertisement by generic company.

6.   Recommendation
1.   The Ministry of Health in collaboration with the NHIA should educate Ghanaians in order to increase awareness of NHIS medicines through the media.
2.   The NHIA should liaise with the Food and Drugs Authority and the Ghana Medical Association to educate physicians and pharmacists on effectiveness, bioequivalence of generic medicines so that they can provide the correct information to clients.
3.   A database of all generic medicines should be created as well as their inventory level for every accredited NHIS facility by the MOH and NHIA. This will make information on NHIS medicines list readily available and clients can easily be directed to another accredited pharmacy by the provider to access if they are not available at the visiting facility.
4.   Further research on providers' opinion about the policies governing the NHIS medicines list can be carried out to help the NHIA address any concerns regarding the medicines list to enforce the sustainability of the scheme.

Declaration
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List of Abbreviations
NHIS   National Health Insurance Scheme
NHIA   National Health Insurance Authority
CHPRE   Committee on Human Research, Publications and Ethics
KNUST   Kwame Nkrumah University of Science and Technology
KATH   Komfo Anokye Teaching Hospital
NHIL   National Health Insurance Levy
CBHI   Community-Based Health Insurance

Ethical consideration

The study protocols were reviewed and cleared by the institutional review board - Committee on Human Research, Publications and Ethics (CHPRE) of the Kwame Nkrumah University of Science and Technology (KNUST). A written consent was also sought from the Director of Pharmacy of KATH and the Managing Director of Nimo Pharmacy. In addition respondents consent were also obtained after the objective of the study had been concisely explained to them. Privacy and confidentially were maintained by ensuring that names and addresses of the respondents were not included in the questionnaires.

Consent to publish

We the authors of this manuscript declare that the corresponding author has our permission to submit this manuscript for publication.

Competing interest

The authors declare that they have no competing interests.

Authors' contribution

The data collection was undertaken by the first, second and third authors (NPB, KAM and AE). All the authors contributed in the design and preparation of the manuscript. All authors read and approved the final manuscript

Availability of Data

The complete data for this work can be obtained from the Research Repository of Department of Community Health, Kwame Nkrumah University of Science and Technology-Kumasi Ghana

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