Research Article

Assessing the financial impact of physician self-referral on patients and how they cope with payment in Southeast Nigeria

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Background: Dual practice occurs where healthcare professionals, particularly medical doctors, engage in concurrent public and private clinical work for remuneration. This practice can impact financial burden on patients when they are transferred from the public sector to private practice.

Objective: This study investigated the impact of physician self-referral on patient's finances and how they coped with paying for private bills when diverted to private practice.

Study setting: This study was carried out in Enugu Urban Southeast Nigeria.

Methods: A cross-sectional multistage sampling design was used to elicit information from 407 households who had first visited a public hospital and then gone to a private hospital/clinic in the last 12 months of the study.

Findings: The total mean expenditure for treatment in private hospital for the patient group who were referred from public hospitals was higher at a cash figure of N32,104($105), whereas the estimated cost of treatment in the public sector was found to be comparatively low at N9960 ($33). The total median costs were compared using a Wilcoxon signed rank test ($p < 0.0001$). Nearly half of the referred patient group saw themselves as having "serious and very serious" financial impact as a result of the transfer from the public sector to private practice. The major coping mechanism for paying for private bills was out-of-pocket followed by borrowing and sale of household's assets.

Conclusions: Public hospital administrations/managers could strengthen measures against transfer of public patients to the private sector. Regulatory measures are needed to reduce patient's financial burden associated with diversion from the public sector to private practice.

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Introduction

Dual practice (DP) occurs where healthcare professionals, particularly medical doctors engage in concurrent public and private clinical work for remuneration [1][2][3][4][5][6][7][8]. Proponents of dual practice have argued that it is beneficial in the healthcare system where it operates [5][9][10], in areas such as access expansion, motivation to improve healthcare quality, and skills development enhancement. On the other hand, the opponents have argued on the contrary that dual practice could contribute to long waiting list in the public sector, create competition for time between public and private work, increase in healthcare bills, and cause outflow of government resources in the public sector, including public patients [11][12][13][14]. DP seems like a double-edged sword, but only research can discover which side of the sword is sharper to cause more harm to the healthcare system of the country where this practice operates.

In Nigeria, private sector medicine is liberalized, and private practice officially permitted outside regular shifts. The Code of Medical Practice in Nigeria [15] allows medical and dental surgeons in full-time employment in the public sector to use their off-duty hours to engage in private medical or dental practice for remuneration. Although the guidelines allow private practice only within off-duty hours, this rule is rarely adhered to, many public-sector doctors in full-time contract operate a 24-hour private hospital services, thus competing for business with their employer — the government [16][17].

Dual practice arguably, may increase cost of healthcare in both private and public sectors [13][18]. It is assumed that the dual practitioner may intentionally over-treat patients to gain reputation and boost their private practice in the public sector. By so doing, over-treatment helps DP doctors to charge a higher fee-for-service (FFS) for unnecessary treatment. For example, when a physician is known for giving good treatment and curing patients to their satisfaction in the public sector, the reputation gained may increase patient's utilisation of their private practice. In a healthcare system where payment for healthcare services is FFS, as it is in most developing countries including Nigeria, there could be under-treatment, which means that doctors might have a laissez-faire attitude, whereby patients who are not willing to tolerate poor quality and inadequate care services in the public sector must make their way to the private sector. By creating delays or hurdles in the public hospital, consultants and their staff can make patients seek private care even when they did not anticipate using it. This attitude indirectly persuades patients to visit private practices of DP doctors.

The implication of this practice is the tendency to divert public patients to private practice. The result of diversion may be that a patient who would have low-cost treatment in a public facility now faces a substantial bill for private services, whilst high fees charged could affect household's non-health spending [19].

Increase in the cost of care when patients are moved from the public to private sector has been researched, but not much attention has been given to cost of care associated with physician self-referral in literature. For example, a study by Blaivas and co [20] found an overwhelming increase in cost of care on diagnostic imaging where more than $226 million per year was recorded as additional expenses for abdominal CT scan due to physician self-referral. Similarly, there was an estimated cost of £2 million per annum to NHS Scotland due to self-referral to physiotherapy services even where there was no difference in health conditions presented by the patient group [21]. In view of the fact that the same clinician who was ordering the tests was performing the same test raises the suspicion that some tests could have been motivated by financial interest. This might have a substantial financial burden on patients who would have to pay their medical bills by fee-for-service. It has also been shown that self-referral can significantly drive up the total cost for some medical conditions and imaging-type tests [22]. These authors found that the highest cost came from heart-related diseases, which was attributed to self-referral by the physician. It is not clear whether self-referring doctors do inform patients about their interest in the facility and if patients have choice over which facility to visit. However, it is possible that the self-referring physician might have an ulterior motive for sending patients to a particular facility.

The work of Kilani et al. [23] seems to call to question the motive for self-referral in "medical imaging" where an estimated increase in the cost of imaging services associated with self-referral stood at an overwhelming $3.6 billion in 2006 for Medicare. A similar evidence has been noted in the work of Hughes and colleagues that investigated how physician self-referral for imaging soared the cost of chronic care for Medicare beneficiaries in the United States [22]. This evidence suggests that self-referral might increase utilization of healthcare services as well as healthcare cost for patients. This practice provides a huge market incentives for DP physicians, and unless the Government takes the matter seriously, it would continue to pose a challenge to the public healthcare sector in Nigeria.

In other instances, the mean cost of psychiatric services were found to be significantly higher due to physician self-referral [24], and doctors who diverted patients to facilities where they had financial

interest charged up to 7.5 times higher for each episode of care than doctors without such financial interest [25]. When a doctor refers patients from the public system to facilities they own or owned by colleagues with the intent of getting a commission per case referred, the extra cost is borne by the patient, and not all patients may be prepared to bear the additional costs.

How patients cope with medical bill payment, especially those without insurance coverage remains a challenge, especially for the poor as individual coping strategy for paying for healthcare differs. Some may find it easy whilst for others borrowing, sale of assets or other forms of assistance may be the only option. Evidence from Nigeria shows that use of out-of-pocket payment (OOP) is a major coping strategy [26][27]. Other studies that looked at payment coping mechanisms in paying for healthcare bills also support Onwujekwe and colleagues' findings asserting OOP as the major payment coping strategy followed by options such as borrowing, and sale of land or household's assets [19][28]. Those who do not have enough savings are put in a difficult situation to either borrow or sell any marketable assets.

In a country like Nigeria where over 90% of the population pay for healthcare by OOP [29] due to a lack of national health insurance coverage, the cost of private hospital bills may be a burden to many patients, particularly those from low socio-economic background. At present, there is a lack of literature focusing on financial burden faced by patients when they are diverted from the public system to a private practice. Most of the evidence on increased medical bills associated with physician self-referral in literature were from radiological services. This present study looks broadly at hospital visit experience and captured a variety of health conditions.

In Nigeria, no study of this kind has assessed the financial burden faced by public patients when their move to the private sector is influenced by physician self-referral, and how they were able to cope with payment. This evidence is crucial for any reforms in dual practice and provides useful data for tertiary and district hospital managers, health management boards and ministries of health in Nigeria.

Methodology

Study design and setting

The study used a cross-sectional multistage sampling design. Information was obtained from a household survey of service users. The study was carried out in Enugu Urban area of southeast Nigeria,

which is a capital city with a high concentration of private and public hospitals located in the area.

Sample and sample size

The sample for this study was calculated using the EPI Infor 7 software for population survey.

The parameters used for the calculation were the population of Enugu South Local Government Area based on the projected 259000 population by 2015 [30], power of 80%, confidence limit of 95% and expected frequency of 50%. This suggested that a sample of 384 was required, however, to allow for contingencies a total of 407 questionnaires were administered and completed. The questionnaire was constructed by the researcher to reflect the study objective and was reviewed by the research team. A pre-test of the questionnaire was conducted with 20 respondents, who were not included in the final questionnaire study. The questionnaire was administered by a single researcher to minimise misunderstanding and recording of answers. Data on the socio-demographic characteristics of respondents were obtained as well as information on their hospital visits experiences. Information on the various costs incurred when referred from public to private practice was obtained including their perceived estimated costs for the same health conditions had they been treated in the public system. The cost items included consultation fee, cost of drugs, cost of laboratory test, cost of X-ray, and so on.

Sampling procedure and data gathering

A cross-sectional multistage sampling design was used to recruit respondents for this study. Multistage sampling, simple random sampling, systematic sampling and consecutive sampling were used at different stages in this study [31].Out of the three local government areas (LGAs) that make up the Enugu Urban, one LGA was selected randomly. The selected LGA consists of five residential areas with two areas randomly selected for the questionnaire administration. A list of eligible streets within the selected residential areas was compiled and four streets from each were chosen randomly. This was followed by the application of systematic random sampling to select houses for questionnaire administration using even or odd numbers. Thereafter, the survey respondents were recruited in sequence after selecting the households. Only the survey respondents, who met the criterion of having visited a public hospital and then moved to a private one in the last 12 months were administered the questionnaire. This process continued until the required household sample was achieved. In a situation where there were more than one household in a visited building, consecutive sampling was

used to administer the questionnaire to other eligible households living in the building before entering the next sampled building. The data for this study were collected in 2017 as part of a larger mixed method study.

Ethical approval and consent to participate

This study adhered to all protocols on the conduct of research on human subjects. A written informed consent was obtained from all participants before completing the questionnaire. Ethics approvals were obtained from the Committee on Medical and Scientific Research in a university teaching hospital in the study area (Ref: NHREC/05/01/2008B-FWA-00002458-IRB00002323) and a State Ministry of Health in Southeast Nigeria (Ref: MH/MSD/EC/0181).

Data analysis

Descriptive statistics in SPSS version 26 was used to obtain the mean and median of all cost items associated with private hospital treatments following the referral from public hospitals. The estimated mean and median cost items that constitute treatment expenditures in the public hospitals for the same health conditions for which patients were referred were also obtained. Frequency tables and percentages were generated to show the socio-demographic characteristics of respondents. The various cost items in both private (actual expenditures) and public hospitals (estimated expenditures) by the referred respondents (n=34) were then compared (Figure 1 and Figure 2). The skewed nature in cost data suggests that all statistical tests undertaken should be non-parametric. The total median costs were therefore compared using a Wilcoxon signed rank test. Percentages were also obtained on the self-rated financial impact of private treatment for the patient group referred from public hospitals and their coping strategies for paying for private treatment. The types of health problems for which information was collected included malaria, childhood diseases, pregnancy/child delivery-related, eye problem, stroke, and respiratory disease.

Findings

Variable		N (%)	Summary statistics (where applicable)
Referral	Referred	34 (8.4)	
	Not referred	373 (91.6)	
Sex	Male	129 (31.7)	
	Female	278 (68.3)	
Age group	18-38	243 (59.7)	Mean=38.72 SD= 12.49 Range=19-86 Standard error = 2.35
	39-59	131 (32.2)	
	60-80	31 (7.6)	
	Over 80	2 (0.5)	
Highest Edu. level	Primary school	41 (10.2)	
	Junior secondary	7 (1.7)	
	Senior secondary	171 (42.6)	
	Ordinary Nat. Dip	34 (8.5)	
	Higher Nat. Dip	51 (12.7)	
	Bachelor of Science	71 (17.7)	
	Master of Science	10 (2.5)	
	Other	16 (4.0)	
Marital status	Currently married	316 (77.6)	
	Single	68 (16.7)	
	Separated	2 (0.5)	
	Widowed	21 (5.2)	
Occupation	Govt worker	30 (7.4)	
	Employed in priv. sector	48 (11.8)	

Variable		N (%)	Summary statistics (where applicable)
	Self-employed	191 (46.9)	
	Artisan	73 (17.9)	
	Student	12 (2.9)	
	Unemployed	36 (8.8)	
	Other	17 (4.2)	

Table 1. Socio-demographic characteristics of respondents (N=407)

Table 1 shows that 129 males (31.7%) and 278 females (68.3%) responded to the questionnaire. In terms of the age group of respondents, 59.7% were from the 18-38 age group, while 32.2% came from the 39-59 group, and 7.6% fell into the 60-80 age group. There were only two respondents over 80. Regarding the educational level of respondents, 10.2% had primary education, while the highest number of respondents (42.6%) studied up to senior secondary education level. Those who completed a higher education diploma or bachelor's degree were 38.9% and 2.5% had progressed to a master's degree qualification. A majority of the respondents (77.6%) were currently married. The largest group (46.9%) were self-employed persons, followed by employed artisans (17.9%) and others working in the private sector (11.8 %). The pattern in Table 1 suggests that more of the females, age group 18-38, married and self-employed would have fallen into the sub-sample of the referral group whereas that pattern is not linear for education. However, there is need to be cautious in interpreting any pattern here due to a small sub-sample of the referral group.

Category of cost	Cost in (N*) Min - max	Mean (SD)	Median	IQR
Transport to private hospital	0-2500	536 (622)	250	900
Transport from private hospital	0-2500	492 (566)	250	900
Cost of hosp. card	0-5000	1851 (1454)	1500	1713
Consultation fee	0-20000	3079 (4020)	2000	3500
Cost of drugs	0-200000	17540 (34407)	8250	11300
Cost of lab test	0-26000	3303 (4983)	2000	4500
Cost of X-ray	0-15000	1882 (3843)	0	2250
Other costs	0-75000	2456 (12860)	0	0
Total mean cost	1250-215500	**32104 (39738)**	22100	23400

Table 2. Respondents' expenditures for treatment in private hospitals as a result of referral from public hospitals (n=34)

*Respondents answered all questions, *N=Nigeria Naira*

Table 2 shows that mean cost of drugs for all patients referred from a public hospital was N17540 (57USD) with a median of N8250 (27USD). The mean costs of transportation to and from private hospital were N536 (1.8USD) and N492 (1.6USD) respectively with median values of N250 (0.82USD) each. Mean cost of hospital card/registration was N1851(6USD), consultation fee N3079 (10USD) with medians at N1500 (4.9USD) and N2000 (6.5USD) respectively, cost of laboratory test was N3303(10.79USD), with a median cost of N2000 (6.5USD), cost of X-ray N1882 (6USD) and a median of 0 naira. The total mean cost of treatment in private hospital as a result of referral from the public sector was N32104 (USD105) with a total median cost of N22100 (72USD). Cost of drugs followed by laboratory test remain the highest cost items for the referral group.

Category of costs	Cost in (N) Min - max	Mean (SD)	Median	IQR
Transport to private hospital	0-1000	314 (330)	200	300
Transport from private hospital	0-1000	298 (308)	200	300
Cost of hospital card/ registration	0-800	345 (198)	400	350
Consultation fee	0-1000	76 (233)	0	0
Cost of drugs	0-100000	6074 (17530)	1500	4750
Cost of lab test	0-30000	2236 (5438)	1000	1850
Cost of X-ray	0-5000	580 (1286)	0	75
Total mean cost	160-115900	**9960 (21504)**	4550	8980

Table 3. Estimated mean cost of treatment in public hospitals for the same health conditions for which patients were referred to the private sector (n=34)

Respondents answered all questions

In Table 3, the estimated total mean cost of treatment in a public hospital for the referral group was N9960 (USD33), with median value of N4550 (15USD). Other cost items include cost of transportation to and from public hospital (N314 or 1USD) and N298 (0.97USD) respectively with a median value of N200 (0.7 USD) each. Cost of hospital card/ registration was N345 (1.1USD) with a median cost of N400 or 1.3 USD, consultation fee was N76 (0.24USD) and a median of 0-naira, cost of drugs stood at N6074 (20 USD) while the median cost was N1500 (4.9USD). The cost of laboratory test recorded N2236 (7USD) with a median cost of N1000 (3.3 USD). The highest estimated cost item in public hospital was drugs followed by laboratory test.

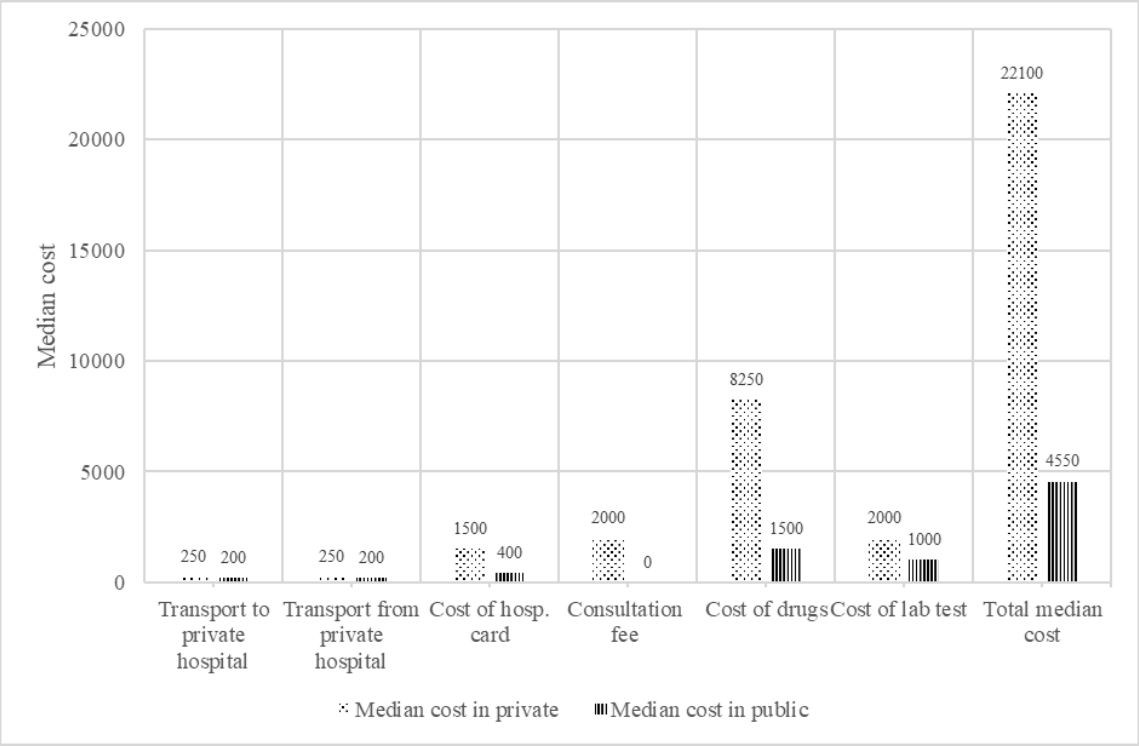

Figure1. Compares median cost of treatment for the same health conditions of patients referred from the public system to private sector (n=34)

Figure 1 compares total median cost of treatment in private hospital N22100 (72.2USD) with that of the public sector N4550 (15USD). The same applies to median cost of drugs, whilst the private care cost N8250 (27USD), the public care was N1500 (4.9USD). For the laboratory test, the private cost was N2000 (6.5USD) whilst the estimated public cost was half the private cost, N1000 or 3.3USD. The median cost of X-Ray and "other" median costs were zero in both categories and have therefore been excluded from the graph. Comparing Tables 2 and 3 shows that total mean cost of treatment in private hospital was N32104 or 105 USD whilst the estimated cost in the public sector was low at N9,960 or 33 USD. In both Tables, cost of drugs (N17540 or 57USD) for private expenditure and (N6074 or 20 USD) in the public sector were highest among the cost items followed by laboratory test (N3303 or 11 USD) for private expenditure and N2236 or 7USD for the public sector estimated cost. The Wilcoxon signed rank test shows that this difference in median total costs is significant ($p<0.0001$).

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Variables	f (%)
No impact	6 (18)
Moderate impact	12 (35)
Serious impact	9 (27)
Very serious impact	7 (21)
Total	34 (100)

Table 4. Self-rated financial impact of private treatment for patient group referred from public hospitals (n=34)

Percentages rounded as small numbers

As Table 4 indicates, the degree of self-rated financial impact of private treatment is spread across the spectrum with no clear pattern. Just over half of those referred experience no impact or only moderate impact, whilst a good number of them suffer impacts that they consider to be serious or very serious. Given the small size of the referred group in this study, that pattern must be regarded as only a tentative finding, and this is an area deserving of future research.

Variables	F	% of all responders (out of 34)
Own money	31	91.2%
Borrowed money	9	26.5%
Sold household asset	2	5.9%
Sold family land	1	2.9%
Someone else paid	1	2.9%
Bill was reduced by doctor	2	5.9%
Total	46	

Table 5. Coping strategies for paying for private treatment by the referral group(n=34)

Some respondents identified more than one relevant coping strategy

This study attempted to shed more light on the impacts of referral by asking referred service users what coping strategies they used to pay for private treatments (Table 5). A majority – 31 of 34 service users– said they had used their own money. However, this appears to have been supplemented in some cases by money from other sources as 9 of the 34 reported having had to borrow money. A few individuals had sold property, got assistance from another person or negotiated a reduction in the bill with the doctor.

Discussion

The study examined patient expenditures for treatment in private hospitals/clinics when they are diverted from the public system due to physician self-referral practice by estimating the mean and median costs of treatment in a public hospital for the same health conditions for which referrals were made. Private treatment expenditures for the referral group following referrals from the public sector was examined, and then the estimated mean and median costs of treatment for this group had they been treated in the public system were calculated. Self-assessed financial impact of self-referral for the patient group referred was recorded, and the coping strategies used to pay for private treatment by

this group was also investigated. This present study sought to determine what private treatment cost patients when they are transferred from the public system due to physician self-referral practice.

The total mean expenditure for treatment in private hospitals for all patients who were referred from the public hospitals was higher than if they had remained in public care at a cash figure of N32,104 (Nigerian naira) (Table 2). There was a patterned increase across all individual cost items used in the analysis, so that private care always cost more than remaining in the public system. This gives rise to a suspicion that patient welfare considerations come second to profit, and that DPs are seeking to augment their public salary by charging a higher fee-for-service than would otherwise have been payable. The conclusions were identical regarding the median values with the median cost for patients who were referred from the public hospitals to private care being N22100, which is significantly higher than the median cost in public care if they had remained there ($p < 0.0001$). Earlier studies support the notion that DP can drive up healthcare costs [14][18][21][22][25].

This study did not specifically investigate why care costs more in the private sector. It might be that the dual practitioner has high recurrent and capital costs to fund, for example, rent, supplies and equipment. In the private sector, prices are rarely standardised; most practitioners set their prices at their own discretion. The government could consider using measures to discourage physician self-referring of patients from the public system because private treatments cost more and may constitute a financial burden for many patients.

The cost of treatment in the public sector was found to be comparatively low. The total estimated mean cost for all cost categories or items was N9,960 (Table 3) and the median cost was N4550. In any improved future study, it would be necessary to validate the cost variables using clinic-rated cases. The same pattern of low cost was noticed in the cost variables for both mean and median values. This result shows how much it would have cost to receive public treatment had the patients not been referred to the private sector [21][22][25]. The referred patients went to the private sector for the same health conditions they presented in the public sector, which makes it easier for a comparative treatment cost analysis of the two sectors. Previous evidence shows that DP can raise healthcare costs even in the public sector, as a doctor may over-treat to gain a reputation that assists their private practice [13][18]. In a typical "publicly funded, free at the point of service system", the system would bear the cost of overtreatment. Such incentives do not apply in Nigeria as patients rather than the system would bear the cost of overtreatment because the main payment mechanism is FFS, even in

public hospitals. Nigerian public hospitals use a standard schedule of treatment prices that makes the cost of services affordable, especially for the poor.

The cost of physician self-referral for the patient group may indicate that there is a serious or very serious financial impact for this group. Self-referral was found to have a greater financial impact for certain individuals, which presumably are mainly the poor in the patient group. The hint that there might be a greater impact on poor patients may well have arisen from the fact that not all patients have the ability to pay for private bills, after all, given the option, they would have preferred obtaining treatment in a public hospital, where cost of treatment is much lower. Nearly half of the self-referred patient group had serious and very serious financial impact due to the private bills, which shows that certain number of the patient group would always bear greater financial burden due to self-referral. The existing literature is scant on evidence on self-rated financial impact of physician self-referral. However, other past studies have suggested that cost was inevitably higher where there is physician self-referral [21][22][24][25].

The individuals in the patient group coped differently with paying for private treatment after they were diverted from the public system. There were six coping strategies that were used in this study: own money, borrowed money, sold household movable assets, sold family land, someone else paid and bill was reduced by the doctor. Use of own money remains the main payment strategy used in Nigeria for paying for health care [19] due to the absence of health insurance coverage. It is not surprising that people borrow to cope with paying for healthcare especially in a health system like Nigeria where healthcare financing is mostly out-of-pocket payment. It might be that some members of this group were cash-strapped at the time they were self-referred by the physician. This confirms studies that investigated coping mechanisms for paying for healthcare [19][27][28], which found borrowing a common mechanism for coping with healthcare bills. One may speculate that borrowing is necessary as costs rise and become out of reach for some patients. There is need for financial protection measures in Nigeria when people face a high healthcare cost, but more importantly, to protect them from being transferred to the private sector when they have the option of accessing the same treatment in the public sector.

A small number in this group sold household movable assets to pay private healthcare bills. In southeast Nigeria, where this study was conducted, it is normal for people to sell household movable assets to fund medical bills [19][26]. This mostly affected those who were poor and had more serious health conditions and were not covered by health insurance. The affected patients might not have any

capital that can be converted to cash and whatever marketable assets were available could be sold for cash. In some instances, as the data show, bill can be reduced by the doctor either on the ground that the patient is not able to pay the bills or indirectly paving the way for a future patronage. In the context of DP, the literature is scant on self-reported coping mechanisms to pay for private treatment when patients face physician self-referral, therefore, it is not easy to compare this finding with data from previous studies. However, a few studies [26][28] have found that poor households had to sell household assets to meet the cost of healthcare. Therefore, reducing healthcare cost associated with physician self-referral is a duty the government could take on to protect public patients from the public-on-private dual practitioners.

Limitations

In the present study, the inputs into these costs items in the public sector were estimated (self-assessed) and may not represent true costings of those items. In any improved future study, it would be necessary to validate the cost variables using clinic-rated cases. The samll numnber of the patient group who were diverted from the public system may have affacted the emergence of a clear pattern of the impact of private bill in this study. So, there would be a need for a larger sample in any future research investigating the impact of physician self-referral on patient finances.

Conclusions

Diversion of patients from the public sector to private practice where dual practice doctors have interest could result in unnecessary financial burden on patients. The motive for this practice is not proven to be altruistic but merely fulfils financial interest of the self-referring physician. Public patients deserve to be rescued from this professional predatory behaviour by some dual practice doctors. There is need for measures against patient diversion from government hospitals except on a strong ground of proven necessity, endorsed by the hospital administration and agreed by the patient or carer. The implication of this practice is the financial consequences for patients who may pay exorbitant fees, which they would not have paid if treatments were offered in the public sector. Policy measures against patient transfers are needed to curtail this unethical professional conducts and possibly reduce undue financial burden on patients.

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