TITLE: VARIATIONS IN INCIDENCE OUT OF POCKET SPENDING FOR ILLNESS AMONGST HOUSEHOLDS OF DIFFERENT SOCIO-ECONOMIC GROUPS: AN INVESTIGATION USING EXPENDITURE DIARIES

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ABSTRACT

Introduction: Where out-of-pocket payment (OOP) serves as the major means of financing health care, the cost of health care might differentially influence health seeking behavior of households of different socio-economic status (SES) groups. This study examined the variations in health care seeking and incidence and level of OOP across households of various SES groups.

Methodology: The study was carried out in south-east Nigeria. A pre-tested household diary was used to collect information from 1128 households over a period of one month. Household consumption expenditure data was used to disaggregate households into SES quintiles. The incidence of spending on health care and the reasons for not spending when the household should have done so were determined across SES quintiles. The levels of expenditure on healthcare and burden of OOPS were also compared across SES quintiles.

Results: The poorest households had the least incidence of spending on health care. The most common reason amongst the poorest households for not spending on health care when they should have was the cost of health services while for the richest household, this was because the illness was not considered serious enough. Households in the richest quintile representing 19.7% of the entire population accounted for 50.6% of the total expenditure on health while those in the second quintile and the poorest quintile accounted for 9.9% and 6.4% of total health care expenditure respectively.

Conclusion: There is a wide gap between what poor and rich households spend on health and with no financial protection mechanism, poor households might be forgoing needed health care. Policy makers need to be persuaded that a shift away from out-of-pocket payment for health care which is inequitable and inefficient is necessary and requires urgent attention.

INTRODUCTION

Out of pocket expenditure remains the dominant method of paying for health care in Nigeria. Between 2000 and 2006 out of pocket expenditure as a percentage of private expenditure only reduced from 92.7% to 90.2% (1). Private prepaid plans as a proportion of private expenditure on health increased from 5.1% to 6.7%, while the private expenditure on health as percentage of total expenditure on health increased from 66.5% to 70.3%. In addition, general government expenditure on health as percentage of total government expenditure decreased from 4.2% to 3.5%, with a reduction in per capita public expenditure on health from int$20 to int$18. The prevailing health financing situation is such that there is an insignificant level of financial risk pooling, and the absence of risk sharing ultimately transfers the burden of payment for health services to the poor.

Out of pocket payment mechanism for health care services is considered a major impediment to access to and use of services by households who need health care. Knaul et al. (2) describe the absence of financial protection as "a recently diagnosed disease of health systems". With an under five mortality rate of 200/1000 and maternal mortality ratio of 800/100,000, improvements in the health system in Nigeria would depend on improvements in the health care financing structure of the country in ways that relieve households of the financial burden of health care.

Communicable diseases such as malaria constitute major reasons for health care seeking among households in Nigeria and thus health care expenditure (3, 4). The high illness burden and the variations in the frequency of occurrence of common communicable diseases amongst individuals and households of various geographic and SES groups have also been documented by several studies (5-7). Coincidentally, poorer populations might have illness episodes but rather than reporting it, might say that they are not ill, may overlook symptoms or may seek cheaper care from patent medicine dealers and shopkeepers (8-10).

A major reason for delay in care seeking or failure to register occurrence of symptoms as evidence of illness by households is the cost of care seeking. The anticipated expenditure on health is usually enormous and includes the direct cost of care and the opportunity costs associated with absence from work, especially where majority of the population are informally employed and household production depends on day-to-day labour intensive effort. Additionally, the prevailing out-of-pocket mechanism of payment for health services in many low income countries exposes households to grave consequences of care seeking, and can make a difference between whether a household becomes poor or not. Such concerns have been widely raised, and proffered as justification for establishing alternative financing mechanisms that protect households from the financial consequence of illness (11, 12). In Nigeria, a National Health Insurance Scheme (NHIS) was set up to provide financial risk protection for illness occurrence for households. However, after nine years of its establishment, the NHIS has only attained a coverage level of 3% (13) and the emphasis is still on public sector employees who are in the minority and largely reside in urban areas.

A number of institutional issues also exist and contribute to the unsatisfactory prevailing health financing system. The regulatory framework for health care financing is relatively weak. Coordination of health expenditure across the federal, state and local governments is ineffective, and health information systems are poorly developed. Even if a public policy objective of universal health insurance coverage were set, differences in interests of political actors, insufficient engagement of the civil society, and weak technical and analytic capacity for decision making are potential factors that will constrain the attainment of such an objective (14). Up-to-date evidence on household burden due to out-of-pocket payments for health care can serve as a strong advocacy tool to elicit political support from policy makers, civil society groups and relevant actors in the decision making process of such public policies.

CONCEPTUAL FRAMEWORK

Household members who have an illness may or may not seek care. Their action will depend on whether or not they consider the illness serious enough to seek care, the process of seeking care, the associated costs, the perceived benefit accruable from seeking care, and the available resources that can be channeled to seeking and obtaining treatment. Thus, when illness occurs, some households may decide not to seek care, especially if they cannot afford the associated costs. Those that seek care incur health expenditure since they almost always have to pay out of pocket. The level of expenditure may differ for households of different SES groups depending on their access to cash. Households who have access to resources may seek necessary and unnecessary, as well as effective and ineffective care. If the care is necessary, then their relatively greater access to resources places them at an advantage over poorer households in terms of access to health care and health. If the care is unnecessary or ineffective, the expenditure on care could be considered a waste of resources which could have been better deployed either for the primary household (for other needs or as savings), or to other households in need through a redistributive process. It is hypothesized that richer households account for a larger proportion of all expenditure on health care and that some of the expenditure is unnecessary while the poorer households are denied care because of the cost of health care.

MATERIALS AND METHODS

Study design: This cross sectional study was carried out in Enugu and Anambra states, Nigeria between January and June 2008. The data used for this paper was collected from households over a one month period using weekly consumption expenditure diaries. Two urban and 2 rural Local Government Areas (LGAs) were selected purposively for this study. The urban areas were the two state capitals Enugu and Awka North while the two rural areas were Udi in Enugu state and Awka South in Anambra state. Enugu and Anambra states belong to the Ibo speaking part of the country with Christianity as the predominant religion, and a population of 3.26 million and 4.18 million

people respectively (15). The predominant occupations in the two states are subsistence farming, civil service and small scale trading. (http://www.enugustate.gov.ng/default.html Accessed 02/07/09). The LGAs used in the study were chosen because they were representative of communities where different health financing mechanisms like health insurance, out-of-pocket payments (with or without reimbursement), payment in kind and community payment schemes were being used.The LGA numbering system for households usually used during immunization exercises was used as a sampling frame. The actual sample size per area was obtained using the estimated number of households per state (approximately 1 million), a power of 80%, 95% confidence level and 1% incidence of use of rare health financing mechanisms such as the NHIS (16).

Data collection and instruments used: In order to reduce the information bias with recall of expenditures by households (17), health expenditure pictorial diaries were placed in 1128 households selected by simple random sampling. The diary was pre-tested to make sure that the pictures were easily identifiable by individuals from different backgrounds and that the wordings of the text corresponded to the pictures. Diaries were placed at the beginning of each week by trained field workers. A household member was trained by field workers on how to fill the diaries under supervision of a male/female household head. Diaries were placed in each household for a four week period, and filled diaries were collected and replaced weekly. Information on illness, expenditure on health, transportation, entertainment, food, education, clothing, and cooking fuel were all recorded

Data analysis: Households were disaggregated into SES quintiles based on their monthly consumption expenditure. Means of household expenditure were computed for various quintiles. To obtain the adult equivalent (AE) figures which were used to compute the SES, per capita values were computed and adjusted using the formula $AE==(A+\alpha K)^{\theta}$ where A=number of adults in household, K=number of children, α=cost of children and θ=the degree of economies of scale (18). The values

used for α and θ were 0.4 and 1.0 respectively. To examine differences that may occur between groups, a statistical test of significance was done and the STATA software was used for analysis.

Ethical Considerations: Ethical approval for the study was obtained from the ethical committee of the university of Nigeria teaching hospital, Enugu as well as from the ethics committee of the London School of Hygiene and Tropical Medicine, London, United Kingdom.

RESULTS

Characteristics of households

Data was collected from a total of 1128 households giving a population of 4988 individuals. As shown in table 1, 595 (54.9%) of the household heads were male and mean age of household heads was 50.3 years (SD=16.1). Mean adult equivalent composition of households was 3.2 (SD=1.2). Most of the respondents (44.1%) were farmers followed by artisans and petty traders.

Illness episodes that households had in the one month period

The most common reported illness suffered amongst households was malaria accounting for 47.1% of illnesses that occurred within the one month period (Table 2). This gave an illness episode of 518/1000 households per month. This was followed by respiratory tract infection and diarrhea. There was no incidence of cancer while HIV/AIDS and surgical interventions were rarely reported.

Household expenditure over one month period by SES

As shown in table 3, the highest quintile spent the most over a one month period compared to the other SES groups (spending more on non food and health than all the other SES). There is a similar pattern of distribution with the non food consumption and health consumption expenditure pattern, with the highest quintile spending more and the lowest quintile spending the least.

Households care seeking and expenditure on health care

There was no clear pattern in the distribution of incidence of expenditure among the SES quintiles. A lower proportion of households in the poorest quintile (49.6%) spent money on health care within the study period compared with the other SES groups while the highest proportion was amongst households in the second quintile (table 4). However, a significant trend was observed across the SES groups (chi-squared for trend 13.9, $p<0.0005$). The proportion of households not spending on health was highest amongst the richest quintile (37%). However, for 66 (77.7%) of these richest households, the reason was because the illness was not serious. In contrast, health service cost (75.0%) was the main reason for those in the poorest quintile, and the proportion decreased with increase in SES. The observed difference was significant (chi-squared for trend=12.2, $p<0.005$). Households in the richest quintile representing 19.7% of the entire population accounted for 50.6% of the total expenditure on health with those in the second quintile and the poorest quintile accounting for 9.9% and 6.4% respectively (figure 1).

DISCUSSIONS

Households in the poorest quintile had the lowest frequency of health care spending. There are two possible reasons for this. Households might be so used to a high level of illness that they don't register a given condition as a problem but rather feel that they are well. On the other hand, the circumstances households are faced with may be such that their threshold for being able to respond to illness is much higher. Both situations would be more common amongst poorer groups. Some authors have reported that the two poorest quartiles are less likely to pay out of pocket at the time of using services in the same study region, and are more frequent users of installment payment (6). Given that those in the poorer groups usually have greater health needs (19), it is likely that a large proportion of such health needs are unmet with resultant inequity in access to care, and the possible consequence of widening of inequalities in health outcomes.

The finding that those in the second quintile had the highest frequency of expenditure might be a reflection of the need for health services amongst poorer population groups, and also the better capacity of those in the second quintile (compared with those in the first) to spend on health care given their better access to financial resources. It is also possible that they are better able to apply coping mechanisms. Studies have shown that some households are able to cope with the cost of illness by reducing consumption, selling assets, and borrowing from family and friends (20-23). Flores et al, 2008 found that coping strategies employed by households could provide up to three-quarters of the costs associated with in-patient care. However, despite having the highest frequency of spending on health care, the relatively low volume of expenditure observed still reveals their poor financial capacity; and if the expenditure by the richer groups is necessary, those in the second quintile are still likely to have many unmet needs.

The higher level of the expenditure on health care by richer groups is not surprising since they have greater access to financial resources. The important question here is whether the expenditure was on necessary health needs. Richer population groups may be subject to supplier induced demand from health care providers who seek to raise more money from such less poor patients through inappropriate charges for consultations, diagnostic tests or prescriptions. It is also possible that the richer groups buy health care of better quality or care that yields better health outcome. Makinen et al. (24) in a study covering eight countries showed that in the event of illness, richer households were more likely to see a doctor, obtain care, receive medication and spend more in absolute terms. Thus, where different population groups go for care and the quality of care they demand or receive might vary. For example, a poorer household with malaria might purchase chloroquine from a patent medicine dealer for symptoms perceived to be malaria at a cost of 40 naira (US$0.3), while a richer household, aware of the opportunity cost of lost days in poor health, is likely to purchase an artemisinin-based combination medication, costing about 1000 naira (US$6.7) from the same

provider. If the greater health expenditure is for unnecessary health care, the inappropriate expenditure represents inefficiency in the use of resources. Such funds could have been more efficiently deployed through redistribution systems of pre-payment mechanisms.

Despite experiencing illness, some households did not seek care. Though the overall proportion of those who did not seek care when ill was low (less than one out ten), the proportion was higher among the least poor quintile (9%). Such a result arouses some curiosity since it is expected that the likelihood of not seeking care when needed would be higher among poorer groups. The question then is why more of the richer groups failed to seek care when they needed it. This study found that a significantly higher proportion of those who did not seek care for illness amongst the richest group did not do so because they considered the illness as not serious enough to warrant seeking care. Given the economic context in the study area, a rational decision to seek care is likely to be made if the perceived marginal benefit derivable exceeds the anticipated marginal cost. Amongst the richer groups, the finding that not seeking care was because the illness was considered unserious indicates that unnecessary health service could actually be what is being reduced.

A significantly higher proportion of those in the poorest group did not seek care due to transport costs and cost of assessing care. Full user fees are known to deter necessary use of services with the impact being more amongst poorer groups (25-27). What seems to be the case here is that the perceived marginal benefit exceeds the cost, but there are resource constraints limiting the capacity to seek care. Thus, those in the poorer group are less likely to receive necessary services than those in the richer group, whose service use are more likely to be restricted because they consider it unnecessary.

In the event of occurrence of illness, the impact of inequalities will be reduced if effective pooling mechanisms are put in place to ensure generation of funds according to ability to pay, and access and benefits provided according to need. The universal coverage scheme in Thailand was generally found

to protect individuals from catastrophic expenditure and richer households who experienced catastrophe were largely those who sought more expensive care offered by the private sector (28). However if enrolment into prepayment schemes is made voluntary, protection of households from catastrophe might not be guaranteed. Revenue collection through taxation might be quite difficult given the context of the country, and a mix of mechanisms might be necessary to help raise the needed revenue. Whatever prepayment schemes are implemented, it is important that the program is structured to benefit the poor. Poor individuals and households are usually excluded from publicly funded interventions and subsidies (29); efforts at targeting should ensure that constraints that keep the poor from accessing necessary interventions and enrolling into prepayment schemes are identified and corrected.

A further potential implication of the observed demand for health care (using expenditure pattern as proxy) is that if cost of assessing services is reduced to near zero through a prepayment mechanism, improvement in service utilization among poorer groups might be considered more of an improvement in access to services for the poorer groups, but might constitute an opportunity for moral hazard amongst the richer groups. Such a situation would mean that policy makers need to come up with pragmatic approaches that will ensure improved access and limit moral hazard in their plans for introduction of prepayment schemes.

Limitation of the study: If poorly supervised, data collected with pictorial diaries is subject to a lot of errors, unanswered questions and the questionnaires could generally be haphazardly filled. However this situation was limited with the consistent monitoring of the entries by the field workers and a cross-check of the data entered with the household head. Despite this limitation, the findings of this study provide a broad view of the burden of out-of-pocket expenditure on households, and would serve as a guide to studies aimed at exploring the overall economic impact of such expenditures in the entire country.

CONCLUSIONS

This study has shown that poorer households are not spending much on health care, an indication that such households forgo health care seeking and treatment. The expansion of the existing national health insurance scheme has been advocated so that more people (especially the poor) would be provided with some degree of financial risk protection. Subsidies and outright payments for the poor are likely to be necessary to reach this group. Redistributive measures through such schemes will in addition help ensure efficient deployment and use of private funds. Policy makers need to be persuaded that a shift away from out-of-pocket payment for health care which is inequitable and inefficient is necessary and requires urgent attention. Otherwise it will be difficult to improve the country's health system performance, while the attainment of the health related millennium development goals will remain a mirage.

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Table 1: Characteristics of households

Variable	N=1128 Frequency (%)
Gender of head of household (male)	595 (54.9)
Mean age of head	50.3 (16.1)
Mean number of adults in household	2.7 (1.2)
Mean number of children	1.7 (1.5)
Mean number of household members	4.4 (1.9)
Mean composition (adult equivalent)	3.2 (1.3)
Occupation of head of household	
Unemployed	58 (5.5)
Student	38 (3.6)
Housewife	9 (0.89)
Farming	469 (44.1)
Artisan	171 (16.1)
Petty trader	133 (12.5)
Government worker	64 (6.0)
Private sector employee	43 (4.0)
Big business	41 (3.9)
Self-employed professional	15 (1.4)
Other	23 (2.2)
Ownership of household items	
Radio	968 (90.4)
Television	631 (58.9)
Air conditioner	18 (1.7)
Fridge	320 (29.4)
Fan	643 (60.0)
Bicycle	210 (19.6)
Car	118 (11.0)
Motorcycle	157 (14.7)
Mean equivalized monthly household consumption expenditure (SD)	8123.0 (9110.3)
Mean equivalized monthly per capita food consumption expenditure (SD)	3027.3 (2931.0)
SES classification	
Q1: Lowest	226 (20.0)
Q2: Second	226 (20.0)
Q3: Middle	225 (20.0)
Q4: Fourth	226 (20.0)
Q5: Highest	225 (20.0)

Table 2: Illness episodes that households had in the one month period

	Total	Percent	Episodes of illness per 1000 household
Malaria	585	47.1	518.6
Respiratory tract infection	105	8.5	93.1
Diarrhoea	69	5.6	61.2
Cancer	0	0.0	0.0
Hypertension	18	1.4	16.0
Accidents/Trauma	14	1.1	12.4
HIV/AIDS	1	0.1	0.9
Surgery	3	0.2	2.7
Child birth	14	1.1	12.4
Other	433	34.9	383.9
Total	1242	100	1101.1

Table 3: household expenditure in Naira over one month period by SES (SD)

	Q1	Q2	Q3	Q4	Q5	Total
Mean all consumption expenditure	6395.4 (3199.5)	10173.0 (3912.9)	14904.1 (6371.7)	24878.9 (11476.8)	70242.8 (47357.6)	25288.2 (32057.0)
Mean non-food consumption expenditure	2597.5 (2036.7)	4955.1 (2841.1)	7771.9 (4610.8)	14973.7 (9595.1)	50887.3 (38924.1)	16213.9 (38924.1)
Health consumption expenditure (sum)	152,155	235,750	336,371	448,435	1,198,260	2370971

Table 4: Incidence of spending on health

	Q1 226 n (%)	Q2 226 n (%)	Q3 225 n (%)	Q4 226 n (%)	Q5 225 n (%)	Total 1128 n (%)	Chi squared for trend
Households that spent money	112 (49.6)	169 (74.8)	141 (62.7)	156 (69.0)	160 (71.1)	738 (65.4)	13.9 (0.0002)
Households not spending when they would have	41 (18.1)	37 (16.4)	43 (19.1)	53 (23.5)	85 (37.8)	259 (23.0)	27.3 (<0.0001)
Reasons for not seeking care							
Illness/condition not serious	16 (39.0)	16 (43.2)	17 (39.5)	30 (56.6)	66 (77.7)	145 (56.0)	22.8 (<0.0001)
Transport cost	14 (34.2)	5 (13.5)	4 (9.3)	7 (13.2)	6 (7.1)	36 (13.9)	12.2 (0.0005)
Health service cost	30 (75.0)	24 (68.6)	23 (53.5)	30 (56.6)	21 (24.71)	128 (50.0)	32.0 (<0.0001)
Provider too far	10 (24.4)	2 (5.4)	5 (11.6)	6 (11.3)	2 (2.4)	25 (9.7)	10.1 (0.0015)
Queues too long in facility	1 (2.4)	1 (2.7)	4 (9.3)	4 (7.6)	1 (1.2)	11 (4.3)	0.09 (0.77)
Poor drug quality	2 (4.9)	0	6 (14.0)	4 (7.6)	5 (5.88)	17 (6.56)	NA
Others	1 (2.4)	0	1 (2.3)	1 (1.9)	1 (1.2)	4 (1.6)	NA

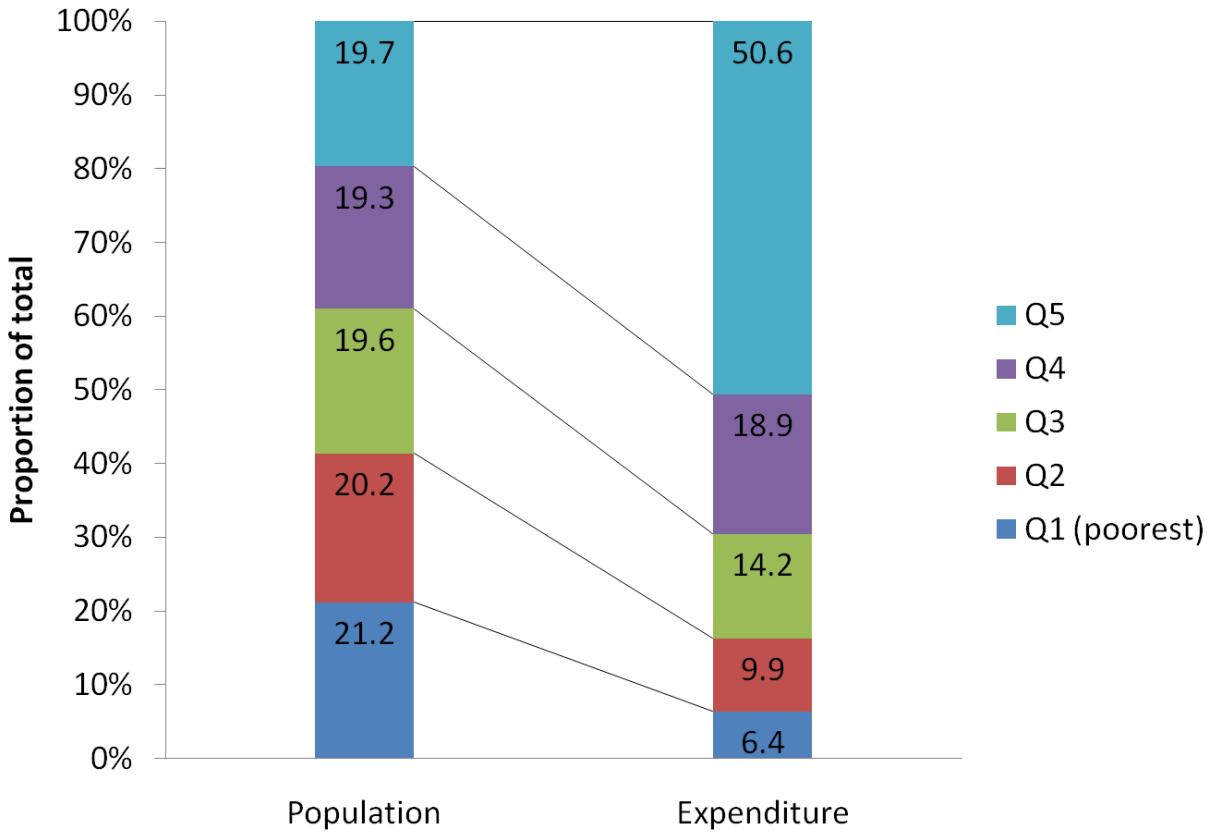

Figure 1: Graph showing distribution of out-of-pocket expenditure on health