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Determinants of Personal Expenditure on Healthcare: A Case Study of Patients of a Public Hospital in Ibadan, Nigeria

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Abstract

The private individuals share about 76% in total healthcare expenditure in Nigeria, in contrast to about 24% by other sources. This has attracted researchers to explore the determinants of private health expenditure in the country. However, little attention has been paid to the role of socio-economic characteristics of service users as drivers of users' healthcare expenditure. This study was motivated to fill this knowledge gap by surveying the perspectives of service users on whether the level and changes in their socio-economic status may influence their propensities to spend on healthcare. The study has a descriptive design such that twenty (20) service users were recruited randomly from a general hospital in Ibadan, Nigeria with a semi-structured questionnaire and interview used as instruments of data collection. The collected data were analyzed using a mix of frequency counts, percentages and logistic regression. Findings revealed that users' income level, educational attainment and occupation are strong determinants (with high probability coefficients) of private healthcare expenditure. However, family size and proximity to health facility are weak determinants of private healthcare expenditure in Nigeria. It is therefore recommended that government should increase the minimum wage in the country in order to allow users to increase their spending on healthcare. Alternatively, the reach of available health insurance schemes in the country should be expanded so that more service users with low private funding are eligible to access healthcare. This is especially important given low public health expenditure and the current experience of rising inflation in Nigeria.

Keywords: service users, private healthcare expenditure, logistic regression, Nigeria

1. Introduction

Out-of-pocket expenditure is the primary source of health financing in Nigeria (Ezenwaka et al., 2022; Ajayi et al., 2021; Adebisi et al., 2020). According to Ajayi et al. (2021), on average, the Nigerian households personally account for about 76% of the total healthcare expenditure while other sources (government, insurance scheme and donor agencies) are responsible for the remaining 24%. More particularly, the public health expenditure in Nigeria has been around 7% in the last two decades – far from the World Health Organization's recommendation of 13% and the 15% consented to by the West African governments in Abuja in 2001 (Ezenwaka et al., 2022). These stylized facts indicate the trajectories of Nigerians in accessing available healthcare in the country. The direction of such trajectories is somewhat clear as a large pool of the Nigerian households are vulnerable to high mortalities due to their inability to finance the care needs that are critical to their living (Ajayi et al., 2021). Oyekola et al. (2021) and Tayo-Ladega et al. (2021) also attributed low life expectancy of the Nigerian adults (56 years on average) to the financial constraints they face on accessing the health facility. In addition, the inability of patients to afford hospital bills implies most of them not approaching or returning to the health facilities (Adebisi et al., 2020). Worse still, the National Health Insurance Scheme (NHIS), which was established in 2005, had achieved limited success on bolstering the universal health coverage of the general Nigerians (Ezenwaka et al., 2022).

Yet, there are Nigerian households who commit high personal budgets to their healthcare (Orisakwe, 2021; Olasehinde et al., 2017). Therefore, this creates a knowledge gap as to determine the factors which may be responsible for high private health expenditure by some households while others do not spend as large even if healthcare is an immediate priority. This study was motivated to close this gap by analyzing the perspectives of Nigerian patients on the drivers of their healthcare expenditure. Specifically, these drivers are centered on their socio-economic characteristics such as the income levels, family size, educational attainment, occupation and location of residence relative to the health facility. Following this introductory section, Section 2 takes a brief tour of the relevant literature with focus on the available evidence on the relationship between patients' socio-economic information and their out-of-pocket expenditure on health. Section 3 presents the methodology adopted to put the study together. Section 4 contains the empirical results and discussion of findings. Then, the findings are concluded with recommendations offered in Section 5. Limitations of the study are then provided in Section 6.

2. A Tour of The Relevant Literature

Adesina and Ogaji (2020) explored the household income as a driver of private health expenditure in Yenegoa, Nigeria. The researchers administered a structured questionnaire among 525 households in two communities in the sample area. The threshold for catastrophic health expenditure was benchmarked at 10% of the total household income on health expenditure or 40% on non-food expenditure. It was found that while the median monthly income of the sampled households was N115, 000 ($82), out-of-pocket expenditure was the common mode of health financing in about 95.6% of the households. More tellingly, the incidence of catastrophic health expenditure was computed as 32.7%, implying that the private

health financing overshot the threshold. However, Adesina and Ogaji (2020) further found the incidence of catastrophic health expenditure was only 9% in the sample of insured households. It follows that a mechanism of reducing sub-optimal health outcomes for households, which may occur due to financial risks on their private expenditure, is to expand the reach of social insurance among the households.

In a related study, Adeniji (2021) examined the burden imposed by out-of-pocket expenditure on the patients living with cardiovascular diseases (CVD) in Ibadan, Nigeria. The author recruited 744 patients who were admitted to the cardiology departments of private and government hospitals between November 2019 and January 2020. Findings revealed that the patients with CVD suffered increasing costs of healthcare over the period of their hospital care. And given that these costs are borne almost entirely by the households, most of them (82%) suffered financial burden while accessing care. While this burden was less pronounced among high-income patients, all the sampled patients generally complained of financial stress during their rehabilitation post-discharge. Adeniji (2021) therefore offered similar recommendation as Adesina and Ogaji (2020) that the government should intensify efforts on promoting health insurance among Nigerians. Also, while reporting the findings from the National Living Standard Survey, Ezenekwe et al. (2020) argued that considerable government attention should be directed towards the Nigerian rural and less-privileged areas which still majorly rely on private funding of their healthcare access.

Ipinimo and Durowade (2022) investigated the determinants of catastrophic health expenditure among patients with non-communicable diseases in health facilities in Ekiti State, Nigeria. Using a multi-stage sampling technique, the authors selected 360 patient participants from private and public health facilities in the state. Having obtained ethical approval from the management of the visited health facilities, both authors self-administered semi-structured among the selected patients. Findings indicated that average prevalence of catastrophic health expenditure as 44.5% (for public health facilities) and 24.85% (for private health facilities) across the thresholds of the World Bank and the World Health Organization, which were adopted in the study. In addition, it was ascertained that socio-economic variables such as patients' educational level and occupation are precursors to the level and changes in patients' out-of-pocket expenditure. In particular, adults with university education tend to spend more on healthcare than those with less than university education. These findings amplified the earlier conclusion of Raghupathi and Raghupathi (2020) that adults with higher education are more likely to have better health than those without higher education. The mechanism of better health outcome for educated adults is that higher education is linked to higher-paying jobs and then higher spending of the patients to access high-quality healthcare (Ipinimo & Durowade, 2022; Raghupathi & Raghupathi, 2020).

Aregbesola and Khan (2021) examined the factors driving patients' out-of-pocket expenditure on healthcare access using household data of Nigeria. The data were sourced from the Harmonized Nigeria Living Standard Survey and were analyzed using the Heckman two-step selection model. The results of the data analysis informed that the private expenditure on healthcare hovered around 72.5%. More informatively, Aregbesola and Khan (2021) reported that the level of household education, employment status of the family, and family size are

significant determinants of out-of-pocket spending on healthcare. The authors therefore recommended that the Nigerian government should consider non-contributory health insurance scheme for the poor and other vulnerable people in the informal sector. While this recommendation lost touch with low literacy rate of people in the informal sector of the Nigerian economy, it bears semblance with that of Adewole et al. (2015). In particular, Adewole et al. (2015) collected qualitative data (using semis-structured questionnaires) from 345 households in a rural community in South-west Nigeria. They found that the rural patients are outside the coverage of the NHIS primarily due to their level of education, income and the high degree of informality of their economic activities. The authors therefore called for inclusiveness of people of rural areas in the NHIS by designing non-contributory scheme which would integrate their socio-economic characteristics.

Employing similar approach as Aregbesola and Khan (2021), Archibong et al. (2023) analyzed the secondary data on healthcare financing as obtained from the Ministry of Health of Cross River State, Nigeria. Archibong et al. (2023) revealed that while private spending accounted for about two-third of the total health spending, it is not significant to herald satisfactory health outcomes for the patients. This is because the income levels of the general patients are low, making the private spending to be grossly insufficient to meet the patients' care needs. Hence, the researchers advocated for increased budgetary allocation of the government in order to boost the healthcare delivery for the patients and reduce the incidence of catastrophic health expenditure among them. Similarly, Edeh (2022) computed the catastrophic health expenditure of Nigerian households using the data contained in three rounds of the Nigerian General Household Survey. Relative to the threshold level, Edeh (2022) found that the households facing catastrophic health expenditure has increased from 27% in 2010 to 48% in 2016, despite the diffusion of the NHIS among the Nigerian population over the same period. By implication, the NHIS seemed not to have significantly achieved its mission which was laid out in 2005 to include increased universal health coverage for the Nigerian households. In the perspective of Onwujekwe et al. (2010), the initial implementation of the NHIS was biased towards the urban centers of Nigeria, making the rural areas to face increased trajectories of catastrophic health financing.

2. Methods

This study is descriptively designed in order to understand the perspectives of patients on their expenditure on healthcare and perceived factors underlying such perspectives. To achieve this purpose, twenty (20) patients in a general hospital in Ibadan, Nigeria were recruited to participate in this study. A simple random sampling technique was adopted because patients were selected without any criterion. Two forms of research instruments were used to collect data from the respondents: questionnaire and interview. The questionnaire was self designed by the researcher and contained open-ended items on the respondent's demographic information including age, gender, income level, occupation, family size, educational attainment and closeness of their residence to a health facility. It also asked for information about the patients' expenditure on healthcare and their perspectives on the relationship between socio-economic status and out-of-pocket expenditure on healthcare. Prior to the field survey, the Cronbach alpha coefficient of the questionnaire was obtained as 81.25%, implying that the

instrument has high reliability properties. In addition, to collect perspectives on the relationship between the participants' socio-economic information and their personal expenditure on healthcare, each participant was involved in a semi-structured interview. Similarly, the interview sessions, which lasted for an average of 12 minutes per participant, were semi-structured with similar questions as those of the questionnaire.

The data collection process was entirely confidential as patients' identities were protected. Ethical approval was obtained from the management of the selected hospital before access was granted to the researcher to visit the patients. It is noteworthy that 14 of the participants were out-patients while only 6 were in-patients. The name of the selected hospital was not purposively mentioned in this study as a consent to the ethical requirements of the hospital. The data analysis proceeded in three steps. First, the retrieved data on the questionnaire were coded in an Excel spreadsheet and transferred to an SPSS work-file. Second, the patients' socio-economic information was interpreted using frequencies and percentages. Third, the participants' perspectives were analyzed using logistic regression which was aimed at estimating the odds of the socio-economic factors as to determine changes in the patients' out-of-pocket health expenditure. The interview responses were discussed alongside the analysis of questionnaire data. To this end, the logit model in this study is presented a $Y = \beta X + e$ where Y is a latent dependent variable being 1 if private expenditure is high and 0 if otherwise. X is a scaler comprising a set of socio-economic factors. β is a set of probability coefficients of the factors and e is a stochastic error term which is distributed with zero mean and constant variance. That is $e = (0, \sigma)$.

3. Empirical Results and Discussion of Findings

The demographic characteristics of the sampled service users indicated that 65% are female while 35% are male. With the mean age as 45±12 years, it can be said that the participants are relatively old. In essence, 4 (20%) of them were in the age group of 62-80 years. A number of them (60%) have formal jobs while 40% are artisans or into small businesses. While 2 service users declined to reveal their monthly income level, the average monthly income of the willing others was N120, 000 ($85). Nevertheless, there are three outliers with income level above N500, 000 ($357) per month. Most of the respondents have low family size (2 members per household). Eleven of the participants (55%) have at least first degrees, 30% had polytechnic education and 15% had only secondary education. A pointer to the level of education of the participants was that none of them suffered language barrier in order to complete the questionnaire. Also, all interviews were held in English with none of the participants struggled to fairly communicate in it. This approach benefitted from Archibong et al. (2023) who mentioned that qualitative data collection from homogeneous participants without language barriers lends credence to the reliability of the collected data.

Results of the logistic regression are presented in Table 1. It is noteworthy that the patients' income level has the largest odds (28.76%) of influencing their expenditure on healthcare. This finding has a semblance with Adesina and Ogaji (2020) who argued that patients' consumption of healthcare is directly determined by their income levels. Thus, there is high likelihood that private expenditure on healthcare increases as the patient's income increases and vice versa.

During the interview sessions, the respondents further gave an illustration of how their choice of hospitals is determined by income size. That is, while the high-priced hospitals are patronized mostly by the high-income service users, the low-income patients inadvertently go to low-priced hospitals. However, the sampled patients did not particularly categorize themselves as either high-income or low-income. In addition, the patients' educational attainment has about 25.63% chance to cause a variation in patient's expenditure on healthcare. This result is not particularly striking because Aregbesola and Khan (2021) and Adewole et al. (2015) had submitted that people with post-secondary education generally has a budget for their healthcare. That is, in an attempt to protect themselves from health hazards, the elite often private-finance health insurance for themselves and their families (Aregbesola & Khan, 2021). On the other hand, people with limited formal education hardly insure themselves against healthcare risks (Adewole et al., 2015).

Table 1. Determinants of patients' private health expenditure (the logit estimates)

Socio-economic factor	Coefficient estimate	Standard error	Asymptotic t-statistic	Elasticity of means
Constant	0.0287	0.0055	2.3781*	0.0012
Income level	0.2876	0.0122	3.8721*	1.2904
Educational attainment	0.2563	0.1273	3.2766*	1.2018
Occupation	0.1482	0.1299	2.1987*	1.0421
Family size	0.0954	0.0613	1.6845**	1.0108
Nearness to health facility	0.0704	0.0624	1.5702**	0.8230

F-stat: 25.87**; Cox and Snell $R^2 = 0.772$.

* indicates that the coefficient is significant at 5%

** indicates that the coefficient is significant at 10%

Source: Field Report, 2023.

Moreover, the occupational status of patients has 14.82% chance of affecting their expenditure on healthcare. A sorting of the questionnaire responses revealed that patients with formal jobs (civil servants, private-sector workers, owners of registered businesses, etc.) claimed to spend more on their healthcare than patients who are artisans or owners of informal (small) businesses. While interviewing the respondents, a number of them mentioned that their expenditure on healthcare is actualized via compulsory contributions from their remuneration. It follows that, in the absence of such regular remuneration, the patients would budget low amount on their healthcare. This finding supports the earlier assertion of Olesehinde et al. (2017) that

individuals with regular incomes and formal jobs are generally more inclined to spend more on health expenditure than those with irregular incomes or informal jobs. Around this mechanism, the respondents further stated that their health insurance contribution is exclusively paid for by their employers. Nevertheless, this does not make them spend less when they suffer critical healthcare challenges. That is, most employment-linked health insurance packages do not cover tertiary care needs of the service users. On the other hand, the size of family has a low probability (9.54%) to affect private health expenditure. This appears a counterintuitive finding because a large family size should expectedly predispose people to spend more on health. In contrast, people raised in large families seem to consider themselves as having low health risks, hence they spend less on healthcare. In another argument, family with many members generally have low socio-economic status, leading them to ascribe low importance to healthcare spending. Nevertheless, Aregbesola and Khan (2021) have previously established that large family size portends low household incomes and thus low private health expenditure. Thus, it can be said that findings in this study extend the literature evidence of the negative relationship between family size and private health expenditure.

It was further revealed that nearness to hospital was found as having low likelihood (7.04%) to lead to changes in private healthcare expenditure of the respondents. The interview responses also presented the respondents' view that their healthcare expenditure may vary, regardless of their proximity to a healthcare facility. It therefore follows that changes in private expenditure on healthcare can be explained strongly by patients' income level, educational attainment and occupational status, but weakly by their family size or closeness to a healthcare facility. While these findings partly re-establish existing evidence that incomes levels, occupations and educational attainments of service users are significant determinants of the service users' out-of-pocket expenditure on healthcare (Ipinimo & Durowade, 2022; Adeniji, 2021; Adesina & Ogaji, 2020), they also echo the claim of Tayo-Ladega et al. (2021) that individuals with health needs do not mind the distance between them and the health facilities.

The asymptotic t-statistics of the variables are related to their probability coefficients. That is, while variables with high t-statistics (or high statistical significance) tend to have high probability coefficients, those with low t-statistics have low probability coefficients. In addition, the R-squared implies that the variables included in the logistic model jointly account for about 77% variation in private health expenditure, and are jointly significant (as indicated by the F-statistic = 25.87). This further means that the factors included are not exhaustive of all the determinants of healthcare spending of private individuals in Nigeria – though they are largely responsible. The elasticity of means represent that changes in the factors have elastic responses from the dependent variable, except nearness to healthcare facility.

4. Conclusions and Recommendations

The service users are more responsible than the government for health expenditure in Nigeria. This study has empirically explored the determinants of such high private health expenditure. The determinants are derived from the socio-economic characteristics of the service users. Given findings in the preceding section, it is established that users' income level is a central factor determining their propensities to spend on healthcare services. This tells that while high

private healthcare expenditure is traceable mainly to the service users with high income levels, individuals with low socio-economic status tends to have low private expenditure. While the sample size in this study is relatively small because all the participants were involved in the interview sessions, the findings are instructive that the level of socio-economic status strongly influences the fraction of users' health expenditure in their total income levels. Thus, it is recommended that government should elevate earnings of workers in Nigeria by increasing the minimum wage in the country. This will expectedly increase the users' spending on healthcare. For workers with informal jobs, government should announce minimum hourly wage in order to promote their social inclusion. More importantly, access to the NHIS should be expanded such that more service users can finance their healthcare even if they have low socio-economic status. This is especially important, given the current experience of falling purchasing power of money in Nigeria. Alternatively, the government should radically increase the annual budgetary allocation to the health sector in order to extend access to healthcare to more service users in the general population.

5. Limitations of the Study

The findings in this study are limited on three grounds. First, the use of logistic regression as the analytical framework implies that the regression results in this study are probability estimates. This means that the estimates cannot be interpreted as indicating exact relationship between private health expenditure and the socioeconomic variables included in this study. As a result, readers should be cautious as relating the findings in this study as relating to one-to-one association between out-of-pocket health expenditure and socioeconomic characteristics of service users. Second, this study is limited by sample size. While only 20 health users participated in the data collection process, the author recognized the limitation of including only few respondents. Nevertheless, the rigorous ethical process of the sampled hospital implied that not more than 20 participants could effectively supply the required data in this study. Moreover, as a lone researcher, the efficiency and integrity of the data collection would not have been achieved if the sample size was extended beyond 20. Going forward, interested researchers are urged to look into whether the findings in this study can be repeated if the sample size is larger. There may also be a mega study which surveys socioeconomic characteristics of health users in different geographical locations in Nigeria. Third, this study included heterogeneous participants with different occupational backgrounds. In consequence, the impact of participants' income levels may be somewhat different if all participants were to have regular or irregular income streams. This therefore opens knowledge gap for future researchers to explore the nexus between users' income and health financing in the context that all the service users have regular or irregular sources of income.

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The data that support the findings of this study are available on request.

Competing Interests Statement

The authors declare that there are no competing or potential conflicts of interest.

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