

# Appraisal of the payment coping mechanism of households affected by cancer among patients attending Jos University Teaching Hospital, Plateau State, Nigeria

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**ABSTRACT:** Cancer is a major public health issue that has impoverishing effects on households. This study assessed the payment coping mechanism of households affected by cancer among patients attending Jos University Teaching Hospital, Plateau State, Nigeria. This is a descriptive cross-sectional survey involving 179 cancer patients attending Jos University Teaching Hospital, Plateau State, Nigeria during the year 2015. They were recruited using systematic sampling technique. Questionnaire was used to collect data assisted by two research assistants from the oncology clinic. Data were analyzed descriptively using frequencies, percentages, mean, standard deviation and Chi-square was used to test for association between payment coping mechanism utilized by the patients across different socio-economic groups. The payment coping mechanism utilized by majority (78%) of the respondents was own money (salary, earnings, savings), followed by family members (46.6%), gifts from friends and neighbours (29.6%), borrowed money/loan (27.4%) and sale of lands (12.3%). Few respondents (14%) utilized payment coping mechanism from sales of household assets, community based support, cancer association, temporary stoppage of children education, social welfare/social worker, skip appointments and other unidentified mechanisms. This study also revealed that, majority (79.33%) of the respondents were among the lower socio-economic group, 15.64% were among the middle socio-economic group while only 5.03% belong to the upper socio-economic group. The Chi-square test of association revealed that, there is a significant difference p-value of  $0.000 < 0.05$  between the payment coping mechanisms utilized by cancer patients and their households across different socio-economic groups (lower, middle and upper). Out of pocket spending is the major payment coping mechanism for cancer treatment in the study population. The study recommends that, since cancer management is critical to the survival of the patient, Nigerian health insurance coverage should be expanded to include cancer treatment in order to protect patients and their households from ill-health mediated insolvency.

**Keywords:** Adult cancer patients, payment coping mechanism, oncology unit, socio-economic group.

## INTRODUCTION

Cancer treatment can be expensive and often a great source of stress and anxiety for people with cancer and their families especially due to the burden of high treatment cost. For instance, the high cost of medical care can alter their cancer treatment plan. This can put their health at risk and many lead to higher costs in the future. Therefore,

patients and their families are encouraged to talk about financial concerns with a member of their health care team (Cancer.Net, 2019).

According to Aydogan et al. (2016), cancer is a severe health problem with high mortality rate unless diagnosed and treated at early phase. Cancer often present a traumatic

experience for both patients and their caregivers, hence, caregivers use various coping methods to minimize the effects of anxiety-creating negativities in their daily lives.

Michael et al. (2019) submitted that, decades of struggle for an alternative health financing option in Nigeria from an existing but predominantly out-of-pocket (OOP) payment gave birth to the National Health Insurance Scheme (NHIS) in 2005. This scheme was established to provide accessible, high-quality healthcare services to Nigerians while protecting them from high cost of care. In spite of the over a decade of operations, the NHIS has continuously been criticized for the quality of its services. According to Asakitikpi et al. (2019), the cost of accessing government specialist hospitals as well as teaching hospitals in Nigeria is high. The neoliberal reforms in the health sector, which is today summarized in the NHIS are defective in significant ways leading to problems of inequality, accessibility and sustainability.

Cost of cancer diagnosis and treatment is borne by OOP in Nigeria, OOP is the major payment mechanism for health care in the country, this can lead to catastrophic spending especially for the poorest households (Onwasigwe, 2010). This is further compounded by the fact that 60 to 70% of Nigerians live below poverty line of 1 dollar per day (Merie-Nelly, 2013). Kastor and Mohanty (2018) submitted that the highest OOP expenditure was reported for cancer both in public and private hospitals among all the diseases that they studied in India.

According to Adams and Ke (2008), payment coping mechanisms are the short term strategies used to cope with the cost of medical care. It provides information on how individuals and households respond to unpredictable illness that diminish the health status and lead to poverty because they are affected by both payments for medical care and income losses from inability to work (health shock). Very high health care expenditures relative to income in households may force household members to cut their consumption of other minimum needs. This triggers the use of payment coping mechanisms to cater for the costs of health care (Adams and Ke, 2008). Such strategies include selling of assets, borrowing, perceived cost - saving behaviours like skipping appointment, skipping doses of drugs to make it last longer or seeking and use of treatment from cheaper alternatives at the expense of good quality care. The choice of a coping strategy differs in different context among households in the face of economic burden of illness and will depend on a household's asset base (Adams and Ke, 2008).

According to Kumar (2017), there are overriding empirical evidence that illness costs; both indirect and direct, draw significant households' income, particularly for poorer households. Although strategies to cope with cost of illness are context-specific however, coping strategies are broadly divided into two groups: cost prevention strategies and cost management strategies. Cost prevention strategies are aimed at reduction in the cost of illness by either ignoring the illness or by delaying the

treatment. These strategies are used by poor households by modifying illness perception and continuing work despite the illness and by not seeking the treatment for illness to avoid financial costs. On the other hand, cost management strategies, aimed at managing the cost of illness; it constitutes resource mobilization, spending adjustments, and labour supply adjustments strategies (Kumar, 2017).

Kumar (2017) also opined that resource mobilization strategies are aimed at covering the financial cost of illness; empirical literature revealed that, use of savings, borrowings, and selling of assets are the most commonly used strategies to cope with cost of illness. Spending adjustment strategies are aimed to adjust the spending of the households, for instance, delay in repayment of loans, reduction in expenditure on social events, food and education are the common spending adjustment strategies adopted by poor households to cope with ill-health. Labour supply adjustment strategies are aimed to cover the indirect cost of illness; households cope with indirect cost of illness opt for intra-household's labour substitution and poor households sometimes even withdraw children from school and put them to work. The coping strategies adopted to deal with indirect cost of illness not only impacts the households but also the next generation of households as it sometimes hampers the education of children (Kumar, 2017).

Jos University Teaching Hospital (JUTH) is a health centre in Plateau Nigeria, with facilities for screening and treatment of cancer which include chemotherapy, radiotherapy and surgery. Given the incidence of cancer, a study on how households cope with treatment will aid in the formulation of policies that may help to prevent households from being pushed into poverty. Therefore, this study was undertaken to determine the payment coping mechanism of households affected by cancer.

### Research question

1. What are the payment coping mechanism utilized by cancer patients and their households attending JUTH?
2. What is the socio-economic group of cancer patients and their households attending JUTH?

### Hypothesis (H<sub>0</sub>)

There is no significant difference between the payment coping mechanisms utilized by cancer patients and their households across different socio-economic groups (lower, middle and upper).

## METHODOLOGY

### Study area

The study was carried out among all the cancer patients

attending the oncology clinic in JUTH, Plateau State in 2015.

### Research design

The research adopted an institutional based descriptive cross-sectional survey.

### Study population

Two hundred and seventy-six (276) patients that attended the clinic in 2014 were used as the population for the study.

### Sample size

The sample was obtained from an estimated 276 cancer patients that received care from the oncology clinic in the year 2014 obtained from the clinic register and admission records. A sample size of 163 patients was determined using the formula:  $n = N/1+N(e)^2$ . Where  $n$  = required sample;  $N$  = total population (sampling frame)  $e$  = error of tolerance which is 0.05 at 95% confidence level and 1 = constant (Yamane, 1967). Provision of 10% was made in order to cater for attrition and non-response, making the sample size 179 patients approximately.

### Sampling technique

Systematic sampling technique was used to recruit the respondents into the study.

### Inclusion criteria

Patients whose age are 18 years and above, diagnosed of cancer and are receiving treatment in JUTH either as outpatient or inpatient or within the period of study, patients who are conscious and are actively involved in the management of their condition, willingness to participate in the study and available at the time of study are included in the research.

### Ethical consideration

Ethical approval was obtained from the research ethical committee of JUTH, Plateau State, Nigeria. All participants were fully informed about the study and their consent was obtained before participating in the study.

### Instrument for data collection

Self-constructed questionnaire was used to collect information from the respondents. The instrument was

developed from literature on cancer patient's payment coping mechanism.

### Validity of the Instrument

A physician in oncology unit and two senior lecturers from the Department of Nursing Sciences were given a copy of the instrument, purpose of the study and the research questions to assess the relevance of content, clarity of statements and logical accuracy of the instrument so as to establish the content validity. The suggestions made by these experts were used to edit the questions before administration.

### Reliability of the instrument

Pilot test was done on 18 cancer patients attending cancer clinic at Bingham University Teaching hospital Jos using split-half method in order to establish the reliability of the instrument. The data obtained was analyzed using Spearman-Brown coefficient and a reliability of 0.82 was obtained which signified that the instrument was reliable. Two registered staff nurses in the oncology clinic were trained and used as research assistants.

### Operational definition of terms

Payment coping mechanism refers to the use of ones' income (salary, earnings, savings), someone else paying, money borrowed/loans, community based support, sale of household assets, gifts, appeal for support/begging, temporary stoppage of children's education, cutting down on minimum consumption expenses to pay for treatment and tests. While the socio-economic groups refer to the categorization of respondents into various groups that is, lower, middle and upper. This was determined using asset ownership like radio, television, bicycle, air conditioner, electric fan, motorcycle, fridge, kerosene stove, generator, gas cooker and car, type of food and living accommodation. More than one option was indicated and each item was scored separately.

Ownership of radio, television, bicycle and electric fan was scored 1; ownership of motorcycle, fridge, generator, gas cooker, washing machine, microwave oven and personal computer was scored 2 while the ownership of air conditioner and car was scored 3. Based on the highest total score which was 24 and the least score which was 0, the respondents that scored from 0 to 7 were classified as lower socio-economic class; respondents that scored 8 to 15 were classified as middle socio-economic class while the respondents that scored 16 and above were classified as upper socio-economic class.

### Data analyses

The data were analyzed using descriptive statistics such

as frequency, percentages, mean and standard deviation. Chi-square was used to test the association between the payment coping mechanisms of households affected by cancer across different socio-economic groups (lower, middle and upper). All the analyses were done using statistical package for social sciences (SPSS) version - 20 computer software programme (SPSS inc.IL: Chicago, USA).

## RESULTS

As shown in Table 1, the minimum age of the respondents was 18 years while the maximum age was 77 years. The mean age  $\pm$  standard deviation was  $46.02 \pm 12.32$ . Most (60.9%) of the respondents were females while 39.1% were males. The respondents were mostly married (64.2%), single (14%), divorced (6.7%) and widowed (15.1%). In terms of employment status, government employed had a higher distribution of 35.8% followed by the unemployed with 29.1%, private sector employed was 13.4%, self-employed was 14.5%, trader 1.1%, retiree 5% while respondents that engaged in farming and menial labour were the least with 0.6% each. With regard to the highest level of educational, 47.5% of the respondents had tertiary education, 24.6% had secondary education, 12.3% had primary education while 15.6% had no formal education.

As presented in Table 2, the payment coping mechanism utilized by most (78.8%) respondents was own money (salary, earnings and/or savings), 27.4% respondents utilized borrowed money/loan, 1.7% respondents indicated sale of household mobile assets, 12.3% respondents indicated sales of land, 4.5% respondents utilized community based support, 29.6% respondents utilized gift from friends and neighbours, 1.1% respondents utilized cancer association, 1.7% respondents temporary stopped their children's education, 46.9% respondents utilized their family members, 0.6% respondent utilized social welfare/social worker (waiver), 2.2% respondents skips appointment and another 2.2% respondents utilized other unidentified mechanism. Multiple responses were allowed.

As presented in Table 3, data on socio-economic group showed that 79.33% respondents were ranked as the lower socio-economic group, 15.64% respondents were ranked as middle socio-economic group while 5.03% respondents were ranked as upper socio-economic group respectively.

Table 4 shows that majority (98.5%) of the households that had terrible payment coping mechanisms were households in the lower socio-economic group; majority (54.5%) of the households that had poor payment coping mechanisms were among the middle socio-economic group; majority (82.4%) of the households that had fair payment coping mechanisms were among the middle socio-economic group; while all (100%) the households that had good payment coping mechanisms were among

**Table 1.** Demographic characteristics of respondents (N = 179).

Variables	F	%
Age		
18 - 27yrs	9	5.0
28 - 37yrs	32	17.9
38 - 47yrs	64	35.8
48 - 57yrs	40	22.3
58 - 67yrs	23	12.8
68 - 77yrs	11	6.1
Minimum Age	18	
Maximum Age	77	
Mean $\pm$ Std. Dev.	46.02 $\pm$ 12.32	
Sex		
Male	70	39.1
Female	109	60.9
Marital Status		
Married	115	64.2
Single	25	14.0
Divorced	12	6.7
Widowed	27	15.1
Employment status		
Unemployed	52	29.1
government employed	64	35.8
private sector employed	24	13.4
self employed	26	14.5
Trader	2	1.1
Retiree	9	5.0
Farmer	1	.6
Menial labour	1	.6
Highest educational level		
Primary	22	12.3
Secondary	44	24.6
Tertiary	85	47.5
None	28	15.6

the upper socio-economic group. This shows that the higher the social group, the better their payment coping mechanisms.

The calculated chi-square value of 236.244 which is greater than the critical chi-square value of 12.592 (at 5% significance level and  $df = 6$ ), indicates that there is an association between socio-economic group and payment coping mechanisms. The p-value of  $0.000 < 0.05$ , shows that this association is significant.

Based on this, the null hypothesis is rejected while the alternative hypothesis is accepted. Hence, there is a significant difference between the payment coping mechanisms utilized by cancer patients and their households across different socio-economic groups (lower, middle and upper).

**Table 2.** Payment coping mechanism utilized by households affected by cancer in JUTH.

Parameters	F	%
Payment mechanism		
Own money (salary, earnings, savings)	141	78.8
Borrowed money/loan	49	27.4
Sale of household mobile assets	3	1.7
Sales of lands	22	12.3
Community based support	8	4.5
Gift from friends and neighbours	53	29.6
Cancer association	2	1.1
Temporary stoppage of children's education	3	1.7
Family members	84	46.9
Social welfare/social worker (waiver)	1	0.6
Skips appointments	4	2.2
Use alternative healthcare system	0	0.0
Other mechanisms	4	2.2
Difficulty in paying for cancer management (N=179)		
Very easy	14	7.8
Fairly easy	49	27.4
Difficult	61	34.1
Very difficult	55	30.7

\*Multiple responses were allowed.

**Table 3.** Socio-economic group of households affected by cancer in JUTH.

Parameters	F	%
Asset		
Radio	147	82.1
Television	144	80.4
Air Conditioner	15	8.4
Bicycle	20	11.2
Motorcycle	16	8.9
Car	59	33.0
Fridge	56	31.3
Generator	38	21.2
Gas Cooker	31	17.3
Electric Fan	56	31.3
Washing Machine	5	2.8
Microwave Oven	12	6.7
Personal Computer	18	10.1
Socio-economic group		
Lower	142	79.33
Middle	28	15.64
Upper	9	5.03
Total	179	100.0

More than one option of the parameters was indicated.

## DISCUSSION

In this study, most of the respondents have difficulty in

paying for cancer treatment as majority used own money to pay for their treatment followed by assistance from family members, gifts from friends and neighbours, borrowed money/loan and sale of lands in that order. Several authors (Onwasigwe, 2010; Onwujekwe et al., 2010) revealed that, the cost of cancer treatment in Nigeria is borne out of pocket (OOP) which can be catastrophic. Ewelukwa et al. (2013) supported the finding that, most of the respondents used OOP spending and own money to pay for healthcare. It was concluded that the high expenditure incurred on drugs alone highlights the need for establishment of pro-poor interventions like exemptions and waiver aimed at improving access to healthcare for the vulnerable poor and rural dwellers. The findings conform to the assertion of Adams and Ke (2008) that, payment coping mechanisms to cater for the costs of health care include borrowing and selling assets which ranged from 23% of households in Zambia to 68% in Burkina Faso. In general, the highest income groups were less likely to borrow and sell assets. It has been reported that in most African countries, the health financing system is too weak to protect households from health shocks. Borrowing and selling assets to finance health care are common. In the same vein, Murphy et al. (2019) reported similar finding that, in managing healthcare cost, some people will adopt one or more coping strategies such as borrowing money, perhaps at exorbitant interest rates, or sale assets, some necessary for their future income, with detrimental long-term effects, this is particularly relevant for chronic illnesses that requires consistent OOP payment.

Few respondents (14%) utilized payment coping mecha-

**Table 4.** Chi-square test of association between payment coping mechanisms and the different Socio-economic groups of households affected by cancer in JUTH (n=179).

Payment coping mechanisms	Socio-economic group			Total
	Lower	Middle	Upper	
Terrible	132 (98.5%)	2 (1.5%)	0 (0.0)	134 (100.0)
Poor	10 (45.5%)	12 (54.5%)	0 (0.0)	22 (100.0)
Fair	0 (0.0)	14 (82.4%)	3 (17.6%)	17 (100.0)
Good	0 (0.0)	0 (0.0)	6 (100.0)	6 (100.0)
Total	142 (79.3%)	28 (15.6%)	9 (5.0%)	179 (100.0)
Chi-Square				236.244
Df				6
p-value				0.000

nism from sales of household assets, community based support, cancer association, temporary stoppage of children education, social welfare/social worker, skip appointments and other unidentified mechanisms. This is because majority of the respondents belong to lower socio-economic group, they have to depend on the above coping mechanism to pay for their treatment. The implication is that, the continuity of their treatment will depend on the sustainability of these sources. Finding of this study is supported by Onwujekwe et al. (2010) that, the use of own money was the commonest payment coping mechanism. The sales of moveable household assets or land were not commonly used as payment coping mechanisms. They were of the view that there is the need to reduce OOP spending and improve equity in healthcare financing by designing and implementing payment strategies that will assure financial risk protection of the poor such as pre-payment mechanisms with government paying for the poor. In addition, Huntington et al. (2015) in their study supported the finding that, 39% respondents reported applying for financial assistance while 46% used savings to pay for myeloma treatment.

With regard to socio-economic status of the respondents, this study revealed that, majority were among the lower socio-economic group, few were among the middle socio-economic group while fewer belong to the upper socio-economic group. This finding implied that most of the respondents could not afford OOP expenditure to maintain their health care payment, hence have to depend on other sources of payment outside own money which is likely to be difficult for them. This finding was supported by that of Kamar (2017) that, the socially and economically backward households become more impoverished and experiences a decline in overall economic situation due to illness shocks. Due to high cost of illness, these households borrow at high rate of interest, reduce expenditure on food or education, or sell assets. The socially and economically better-off households due to their secure jobs, strong asset base, and strong social networks were able to cope with cost of illness.

The Chi-square test of association revealed that, there is a significant difference p-value of  $0.000 < 0.05$  between

the payment coping mechanisms utilized by cancer patients and their households across different socio-economic groups (lower, middle and upper). This is because, households that had terrible payment coping mechanisms were households in the lower socio-economic group; majority of the households that had poor payment coping mechanisms were among the middle socio-economic group; majority of the households that had fair payment coping mechanisms were among the middle socio-economic group; while very few households that had good payment coping mechanisms were among the upper socio-economic group. This shows that the higher the social group, the better their payment coping mechanisms. Adams and Ke (2008) supported the finding that, payment coping mechanisms did not differ strongly among lower income quintiles. In eight countries, the coefficient on the highest quintile of inpatient spending had a p value below 0.01. Formal prepayment schemes could benefit many households and an overall social protection network could help to mitigate the long-term effects of ill health on household well-being and support poverty reduction. In the same vein, Kastor and Mohanty (2018) submitted in their study that, treatment of cancer, heart diseases, and other rare and incurable diseases to be included in the ambit of the health insurance coverage.

## Conclusion

Most of the respondents belong to the lower socio-economic group. The major coping mechanisms utilized by the respondents are patients own money (salary, earnings, savings) and payment by family members. There is a significant difference between the payment coping mechanisms utilized by cancer patients and their households across different socio-economic groups (lower, middle and upper).

## Recommendations

Nigerian Health Insurance Coverage should be expanded

to include cancer treatment in order to protect patients and households from financial insolvency. Since prevention is better than cure, the importance of health education to prevent cancer cannot be over emphasized. The highest educational level of a good number of the respondents was tertiary education followed by secondary school. However, a significant number of them were unemployed. Therefore, there is need for government to create employment opportunities for them so that they can take care of themselves. There is also need for continuous entrepreneurship training in order to empower the unemployed economically.

## COMPETING INTEREST

The authors declare that they have no competing interests.

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