

Willingness to pay for clinical preventive services of patients attending the General Out-patient clinic of a tertiary hospital in south-south Nigeria

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Abstract: The prevalences of non-communicable diseases in Nigeria are currently close to those of the developed countries, but the uptake of clinical preventive services (CPS) has been very poor. This study assessed the willingness of respondents to pay (WTP) for a packaged CPS, delivered in one service point. The study was conducted among patients attending the general out-patient clinic of a tertiary hospital in Port Harcourt, south-south Nigeria, using a descriptive cross-sectional study design. Data was collected using a semi-structured interviewer-administered questionnaire, and assessed the respondents' attitude towards CPS and their WTP for the services, which was determined using the contingent valuation method. A total of 422 questionnaires were administered and analyzed. The respondents had an average age of 36.04 ± 1.99 years; majority had at least secondary school education (90.05%), were Christians of Pentecostal denomination (50.95%), self employed (52.13%), with an monthly average income of more than \$300 (56.64%). Most (89.57%) of the respondents were willing to pay for CPS; more than a quarter (25.93%) of them were willing to pay the prevailing cost of assessing the services, 33.84% were willing to pay less, while 34.28% were willing to pay more. The monthly income of the respondents significantly affected their willingness to pay for the services (p -value = 0.000). The respondents showed a willingness to pay for packaged CPS, the uptake of the services can therefore be improved, if the cost of the service is subsidized.

Keywords: Non-Communicable Diseases, Clinical Preventive Services, Willingness-to-Pay, General Out-Patient Clinic, South-South Nigeria

1. Introduction

Non-communicable diseases have significantly increased in Nigeria, as shown by several prevalence studies. The prevalence of diabetes in Nigeria has significantly increased since 1997, from the 0.65% recorded in rural Mangu community and the 11.0% recorded in urban Lagos [1] [2]; and the prevalence of hypertension has increased from 11.2% in the 1990s [1], to 27.9% in 2010, in a rural community in the Niger delta [3], and 44.3% in 2003 in cosmopolitan Lagos [4]. The increase has been recorded in almost all socio-economic groups, including the 42.2% recorded among the market women of Enugu, south-east Nigeria [5]; the 21.33% recorded among the lecturers of a medical school [6], and the 68.87% recorded amongst the traditional chiefs of an

oil-bearing community in south-south Nigeria [7].

The increased prevalence of the non-communicable diseases is reflected in the type of patients admitted in Nigerian hospitals, and is now responsible for a long period of morbidity and high mortality. Studies carried out in various tertiary hospitals in Nigeria indicate that more than 60% of the patients admitted into the medical wards were treated for non-communicable diseases [8] [9]; with the diseases responsible for a significant proportion of the deaths recorded in the medical wards [10]. This is even as the monthly expenditure on the treatment of the diseases can be as high as 60% of the family's total monthly income [11].

Sadly, the WHO estimates that non-communicable diseases would increase by 60% by 2020, and are likely to triple in Nigeria and other sub-Saharan African countries in

the next 50 years [12]. The WHO has also projected a three-fold increase in the next 50 years, in the number of the patients of the diseases that would require daily care in sub-Saharan Africa [12].

Non-communicable diseases unlike the communicable diseases are not curable, but treatable, with early detection and life-long treatment required for the prevention of the complications, and marked deterioration in the quality of life that often characterize the diseases. This is often not achieved in Nigeria, as a multi-center study found that most Nigerian diabetics have suboptimal glycemic control, are hypertensives, and have various complications of the disease [2].

These explain the emphasis placed on the prevention of these non-communicable diseases, especially with the success achieved with their implementation in the developed countries [13]. Non-communicable diseases are caused by genetic, environmental and lifestyle related factors, many of which are amenable to clinical preventive services. Clinical preventive services are delivered to asymptomatic people, in a clinical setting, by a health care professional. The services include immunization, disease screening, and behavioral counseling interventions that assist patients in adopting, changing, or maintaining behaviors known to affect health outcomes or health status [14].

Clinical preventive services are designed for healthy individuals, and currently provided in disparate clinical departments of tertiary hospitals in Nigeria. They are often poorly utilized, not only because the clients are used to accessing medical care, only when they are sick [15], but also because of the time and inconveniences of accessing the required services from various service points, in the tertiary hospitals [16].

There is therefore an urgent need to encourage the uptake of clinical preventive services in Nigeria, and other countries in similar epidemiological transition stage. Social marketing has been successfully used in improving the uptake of similar health products and services [17] [18]. Social marketing is defined as the application of commercial marketing technologies in the analysis, planning, execution and evaluation of programmes, and products designed to influence the voluntary behaviour of target audience, in order to improve their personal welfare and that of the society [17]. Social marketing places a lot of emphasis on the packaging, pricing and promotion of the product, to make it very attractive to clients [17]. The social marketing of clinical preventive services would require packaging the services into a single health product that is delivered in an integrated way; promoting it to encourage clients to patronize the services, even when they are healthy; and making the services available as close as possible to where the clients live or work, and at a price most clients can afford.

Pricing is a vital component of social marketing, as it is important to ensure that time and financial cost do not constitute barriers to the utilization of the services [17]. This is especially as clinical preventive services often do not have obvious immediate health benefits, coupled with the fact that the purchasing power of the clients in Nigeria is low, and

non-communicable diseases have shown to be indiscriminate in Nigeria, often affecting persons in the lower socio-economic class [19].

Willingness to pay (WTP) study has been widely used in determining the price a potential client is likely to pay for products or services, for which market does not exist, or where the market is subject to severe failure; and has been severally used in Nigeria [20] [21]. WTP has been defined as the maximum amount an individual is willing to pay, sacrifice or exchange to receive a good or avoid something undesired [20]. It is therefore suitable for the determination of the price clients are willing to pay, for a packaged clinical preventive service.

2. Materials and Methods

Study area: This study was carried out in January 2013, in the University of Port Harcourt Teaching Hospital, one of the two tertiary health care institutions in Port Harcourt, the capital of Rivers State, south-south Nigeria. Although located in Port Harcourt, the hospital constantly draws patients from the neighboring States of the Niger delta region; a catchment population that can be conservatively put at ten million people. The hospital is an 800-bed multi-specialist teaching hospital that offers not only tertiary health care services, but also secondary and primary health care, due to the near collapse of the other facilities in the State and region. The huge number of patients seen in the hospital greatly increased the waiting time of patients, such that it routinely takes more than five hours, for a patient to access the desired care in the hospital.

Study design: A cross-sectional study design was used, with the data collected using a semi-structured interviewer-administered questionnaire. The questionnaire was administered to adult patients attending the general out-patient clinic of the University of Port Harcourt Teaching Hospital, Port Harcourt.

Sample size estimation: The minimum sample size for the study was calculated using the formula for studying proportions in populations of more than 10,000 persons. The degree of accuracy was set at 0.05, while the estimated uptake of clinical preventive services in the study population was put at 8.3% [16]. The minimum required sample size for the study was thus determined to be 117, but made up to 422 to take care of non-responses and design effect.

Data collection: The general out-patient clinic of the hospital sees a daily average of 250 undifferentiated patients. The respondents for the questionnaire were chosen using the systematic sampling technique, with a sampling fraction of one in six patients, beginning from a randomly selected starting point.

The questionnaire was interviewer-administered, and used to gather information on the socio-demographic characteristics of the respondents, their attitude towards paying for clinical preventive medical services, and their willingness to pay for the services. The respondents' WTP was assessed using the Contingency Valuation Method

(CVM), the method that was used for most of the WTP studies carried out in Nigeria [20] [21].

In the WTP elicitation scenario, clinical preventive services was described as medical examinations, laboratory tests, drugs and lifestyle modifications carried out for the early detection and prevention of common non-communicable diseases like cancers, hypertension and diabetes mellitus, and their complications in a patient. The respondents were also informed that the services are accessed when the client is healthy and without any symptom of ill health. They were also told that although several of the services are already available in various service points in the hospital, the patient would be able to access all of them in one service point, following the payment of the specified fee. The respondents were then requested to express their willingness to pay for the integrated services; as well as the amount of money they are willing to pay. The maximum amount of money the respondents were willing to pay was elicited using the bidding game approach. All amounts were generated in Nigeria naira, and then converted to US dollars, based on the prevailing exchange rate of N162.00 to \$1. The starting bid was fifteen thousand naira (\$92.59), the total prevailing cost of carrying out a health risk assessment and the relevant screening tests for prostate cancer, cervical cancer and diabetes mellitus in the University of Port Harcourt Teaching Hospital. This was either increased or decreased by 10% for two bids, with the last bid taken as the respondent's maximum WTP; after which the respondent was asked to mention the maximum or minimum amount he/she is willing to pay.

Data analysis: The collected data were cleaned and entered into a database, and analysis carried out using SPSS. Summary measures were calculated for each outcome of interest; and bivariate analyses were carried out to explore the various relationships between socio-economic status and the respondents' WTP. The test of significance was conducted using chi square test, at 95% confidence interval, with P- value of 0.05 or less considered statistically significant

Ethical consideration: The approval to undertake the study was sought and obtained from the relevant departments of the University of Port Harcourt Teaching Hospital, Port Harcourt; while informed consent was sought and obtained from all the study participants.

3. Results

A total of 422 questionnaires were administered, retrieved and analyzed. The respondents had an average age of 36.04 \pm 1.99 years, had at least secondary school education (90.05%); were Christians of the Pentecostal denomination (50.95%), self employed (52.13%), and had an average monthly income of more than \$300 (56.64%) (Table 1).

More than a third of the respondents 149 (35.31%) had patronized some form of clinical preventive services in the past, resulting in the detection of 14 cases of hypertension and 8 cases of diabetes in the respondents. Most of these

services 135 (90.60%) were accessed in a hospital, while the remaining were accessed in a laboratory 10 (6.71%) or a pharmacy shop 4 (2.68%). Most of the respondents 122 (81.88%) were satisfied with the services they had patronized, but would advice more thoroughness 99 (66.44%), less waiting time 42 (28.19%) and reduced cost 8 (5.37%).

Most of the respondents 378 (89.57%) were willing to pay for the clinical preventive services. The 44 (10.43%) that were not willing to pay gave reasons that include financial constraints 32 (72.72%), cost of service should be borne by the government 4 (9.09%), and that the services are of little benefit to them 8 (18.18%).

Table 2 shows the amount of money the respondents are willing to pay for the clinical preventive services. The respondents were willing to pay an average of \$93.72 for the services, more than the prevailing price of \$92.59. More than a quarter of the respondents (25.93%) were willing to pay the prevailing cost of the services, 33.84% were willing to pay less, while 34.28% were willing to pay more.

Table 1. The socio-demographic characteristics of study participants.

Variable	Number (N= 422)	Percentage (%)
Educational status of respondents		
No formal education	5	1.18
Primary	37	8.77
Secondary	92	21.80
Tertiary	288	68.25
Occupation of respondents		
Self employed	220	52.13
Civil servant	107	25.36
Student	69	16.35
Unemployed	26	6.16
Religion		
Catholic	85	20.14
Protestant	83	19.67
Pentecostal	215	50.95
Spiritual	21	4.98
Traditional religion	5	1.18
Islam	13	3.08
Average monthly income		
Less than \$300	183	43.36
\$300 to \$600	134	31.75
\$601 to \$3000	89	21.09
More than \$3000	16	3.79

Table 2. Amount of money respondents are willing to pay for clinical preventive services.

Variable	Number (N= 378)	Percentage (%)
More than 20% less than starting bid	11	2.91
20% less than starting bid	29	7.67
10% less than starting bid	95	25.13
Starting bid	98	25.93
10% more than starting bid	73	19.31
20% more than starting bid	55	14.55
More than 21% of starting bid	17	4.50

Table 3 shows the amount of money the respondents are willing to pay, according to their monthly income. The monthly income of the respondents significantly affected their willingness to pay for the services (p-value = 0.000).

Respondents that earned more than \$600 a month were more willing to pay more than the starting bid price of \$92.59.

Table 3. Amount of money respondents are willing to pay for clinical preventive services, according to average monthly income.

Variable	Less than SB (N= 135)	SB (N = 98)	More than SB (N= 145)	p-value
Less than \$300	127	11	2	0.000
\$300 to \$600	6	79	48	
\$601 to \$3000	2	8	79	
More than \$3000	0	0	16	

SB – Starting Bid

4. Discussion

The study showed that 35.31% of the respondents had patronized some forms of clinical preventive services. This is higher than what is expected from people in the lower socio-economic class, in developing countries, where short-term and pressing issues of everyday living, along with lack of information, may prevent them from being concerned about, or taking preventive action for asymptomatic diseases that develop over a long period of time [22]. The patronage of the clinical preventive services can be attributed to the religious affiliations of the respondents, who are either adherents of African Traditional Religion, Christianity or Islam. Contrary to common expectation, especially in relation to “the will of God”, studies have shown that the adherents of these religions are not always fatalistic, but often know the link between lifestyle and non-communicable diseases, and are often receptive to clinical preventive services [23].

The respondents of our study sought the clinical preventive services not only in hospitals, but also in private medical laboratories and pharmacy shops. This is consistent with the findings in the developed countries where every effort is made to encourage the uptake of the preventive services, through the provision of services as close as possible to where people live or work [14].

The respondents in this study however advised that the services provided in these service centers should be more thorough and less time consuming. This is instructive, especially as high quality health care has been defined as the provision of client-centered services that meet the needs of the clients [24]. Good clinical preventive service is not just a battery of laboratory tests, but is built on the results of the health risk assessment of the client [25]. This is especially as several of the risk factors of the non-communicable diseases such as cigarette smoking and excessive alcohol intake are lifestyle related, and are therefore very difficult to detect with just laboratory tests. The effectiveness of clinical preventive services is often measured in terms of Clinically Preventable Burden which is defined as the total quality adjusted years of life (QALYs) that could be gained if the clinical preventive service were delivered at recommended intervals, to a U.S. birth cohort of 4 million individuals, over the years of life, for which a service is recommended [26]. A rating of the services showed that lifestyle modification services such as

tobacco-use screening, and brief intervention and problem-drinking screening are amongst the most effective [26].

The respondents were willing to pay an average of \$93.72 for the services, which is slightly higher than the prevailing cost of the services in the hospital. This is in spite of the fact that 43.36% of the respondents had an average monthly income of less than \$300. This willingness to pay can be attributed to the high educational status of the respondents, as other Nigerian studies have shown a positive correlation between formal education and willingness to pay [20] [21]. It can also be attributed to the respondents’ focus on the beneficial aspects of the product, which gives access to all the major clinical preventive services in one service point, without any mark-up in price; especially as the respondents are aware of the long waiting time in the study hospital. Consumers’ focus on the expected benefits of a product or service has been shown to be a major determinant of their willingness to pay [27].

However, the cost of the clinical preventive services is about 30% of the average monthly income, of more than 40% of the respondents. This study also showed that income significantly affected the amount of money the respondents are willing to pay, a finding also noted in the other Nigerian studies [20] [21]. The cost of the service was also the main reason given by the respondents who were not willing to pay for the service.

Clinical preventive services are very effective in the prevention and control of the non-communicable diseases [26]. They are also known to suffer severe market failures, resulting in their poor uptake, due to imperfect information and imperfect credit. Governments the world over are known to intervene, to remedy these market failures and achieve the social optimum, often through the public provision of health services, subsidies for private provision, regulation of private provision, and public provision of information [28]. Subsidization of clinical preventive services is therefore advocated in Nigeria, as is currently being done for immunization and the other preventive services used for communicable diseases. This is especially as the subsisting Nigerian policy on health requires that preventive services be provided free of charge, or at hugely subsidized price. Subsidy for clinical preventive services for non-communicable diseases is fully justified, even with the prevailing high prevalence of communicable diseases in Nigeria. The WHO Consultative Group on Equity and Universal Health Coverage recommends that universal health coverage can be pursued, even for low- or medium-priority services, before the attainment of near-universal coverage for high-priority services [29].

5. Conclusion

The respondents showed a willingness to pay for the packaged clinical preventive services, in spite of their low monthly income. The cost of the packaged services was however a barrier to uptake, especially for respondents with monthly income that are lower than \$300. The subsidization

of the services is therefore advocated, to remove this hindrance, as is the case with preventive services for communicable diseases. A social marketing programme is also required to drive the uptake of the packaged services, in the face of other competing needs.

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