Analysis of Influence of Price on Consumption of Public Healthcare Services in Mandera County, Kenya

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Abstract-The quantity of healthcare consumed is very so often measured by the amount of services used, like admission days, consultation visits or prescriptions. The consumption for admission services could respond in a different way to price changes as oppose to consumption for consultation services. This difference is due to the responsiveness of consumption for various healthcare policies to changes in the price of healthcare indemnity. Every variation in the family costs of services or payment costs will have consequences in the plans of the members and therefore, the consumption for healthcare services that is charged for by that plan. The objective of the study was to assess the influence of price on consumption of public healthcare services in Mandera County. This study used a qualitative research methodology; a cross-sectional descriptive research design involving 384 sampling population and multistage sampling technique was used involving purposive, census and systematic sampling to identify the facilities, healthcare workers and patient or clients. The findings were analyzed by means of Statistical Package for Social Science version. The study determined the influence of price on consumption of public healthcare services in Mandera County. By the end of study recommendations were drawn from the study results. The study indicates that whenever the respondents are choosing a hospital to attend they always wanted a cheaper hospital. Recommendations were that social status and employment are seen as significant determinants of this study, with this in mind and given the fact that those who are financially deprived are in greater majority, there is the need for the ministry of labor to create employment opportunity for the people. In addition, government should embark on economic and public policies that benefit the poor. These will empower the poor population to utilize health care services when they get sick.

Keywords-Influence of Price, Consumption of Healthcare Services, Hard to reach areas, Choice of Hospitals, Consultation Fee

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1. Introduction

Though there has been a considerable amount of research on consumption of healthcare in arid and semi-arid Kenya (Mwabu, 1986; Mbugua *et al*, 1996; Collins *et al*, 1996), such studies are missing in North Eastern Kenya. Therefore, issues that causes the low consumption of public health care services in Mandera County is not clear especially when the government is addressing accessibility of public healthcare services.

 Healthcare policy givers need to figure out the socio-economic issues patients consider as important when seeking quality public healthcare services as the study result provides a solution that may lead policy change which may be used to improve healthcare consumption in hard to reach areas such Mandera county.

A study done at Kibera sub-county in Nairobi (Republic of Kenya, 2005, UN HABIT, 2005) had some result with contradicting outcomes. In this study about 70 per cent of the subjects did not visit public hospitals though these facilities were closer to them than alternative facilities. This population opted to visit other healthcare services. These other healthcare facilities charged more than public hospitals in terms of cost, quality and also efficiency of healthcare services. In addition the public healthcare facilities have quality and available medicines which are the main determinant of the quality (Mwabu, Ainsworth, and Nyamete, 1993, Sahn, Younger, and Genicot, 2003). It is this missing evidence as to what really determines healthcare consumption in north eastern Kenya particularly in Mandera County that this study has address.

1.1 Objective of the Study

To assess influence of price in consumption of public healthcare services in Mandera County

1.2 Questions Research Questions

To assess influence of price in consumption of public healthcare services in Mandera County

2. Literature Reviews

2.1 Continuous Choice Model

Continuous choice model can analyze the intensity of demand and can predict the quantities of health care services consumed. Health care expenditure is a measure of intensity of demand of the services. The analysis of determinants of health expenditure can be used to derive the optimal amount of health expenditure for a society (Matteo, 2003) and can identify the factors affecting the health care expenditure.

2.2 Empirical Literature

Some studies found that prices are not important determinants of demand in health care facilities (Akin *et al.,*1985; Akin *et al*, 1986; Schwartz *et al*, 1988; Birdshall and Chuhan, 1986; Heller 1982; Christian, 2003), while other studies found that prices are indeed important determinants of demand for health care facilities (Mwabu,1986; Mwabu *et al.,*1993; Dor *et al.,*1982; Gertler *et al* 1987; Gertler and van der Gaag,1990; Bolduc *et al.,*1996; Dow, 1995; Dow, 1999; Deborah,1989).

Deininger and Mpuga (2005) investigate the impact of abolition of health user's fees on different group's ability to access health services and morbidity outcomes in Uganda. Policy makers in many developing countries have increasingly emphasized the need for some cost recovery methods in form of user fees. The argument presented or justification for imposing user fees is that several studies have shown that demand for health services is relatively price inelastic (Akin et al, 1995; Mocan et al, 2004). This result would therefore imply that users of health services are willing to pay for services that are of high quality.

In Uganda, Mwesigye (2002) shows that most of the fees were used to supplement staff salaries. Aside from other legally collected fees, charges were made for (i) faster or better access to "normal" services; (ii) service at "special clinics" in government facilities; (iii) private drug sales in public facilities; and iv) payment for services of state health workers outside state facilities (Barbosa, 1999). A number of studies (Bratt, 2002; Kivumbi and Kintu, 2002; Deininger and Mpuga, 2005 and Mwesigye, 2002) have been conducted relating to the issue of user fees in developing countries. In Uganda, inability of districts to exempt the poor from payments of user fees led to inconsistency in the implementation of this policy (Kivumbi and Kintu, 2002).

Other problems emerged due to lack of information. Most health facilities in Uganda did not have written and posted information on fee structures and exemption rules, and the majority of users learnt about what fees to be paid verbally. Complaints by the poor led to the abolition of these fees in 2001. Deininger and Mpuga (2005) show that abolition of user fees improved access and reduced the probability of sickness in a way that was particularly beneficial to the poor. The aggregate benefits are estimated to be significantly larger than the estimated shortfalls from the abolition of fees. An experiment in Ecuador (Bratt, 2002) tested the effects of increasing fees on the uptake of reproductive health services (obstetrics-gynecology, antenatal care and intrauterine device (IUD)

use) in private clinics. Overall, they found that demand was inelastic to changes in prices: for a medium increase of price they found that demand for IUD insertions was that of a luxury good, i.e. it increased despite the increase in price.

In Gabon, consultation fees were increased twice in a private hospital and there was a drop in outpatient visits (Issifou 2004). The first increase by 66% led to a drop in utilisation by almost 50% , and a further increase of 20% caused another 44% decline in utilisation. Corresponding elasticities confirm that the demand was very sensitive to a change in prices only after the second increase in consultation fees. In Sudan, Abdu (2004) reported a range of effects for three different levels of decrease in user fees in Sudan. They found that decreasing user fees by 25% and 75% led to a more than proportional change (i.e. more than 25% and 75%) in the number of pregnant women (respectively +52% and +130%) and children (respectively +64% and +280%) seen in health centres. The authors found a similar but smaller impact for a decrease in fees of 50% (+32% for children and +28% for women).

Ojeda (1994) reported on the effect of decreasing the price of IUDs in Colombia. Decreasing prices by 25% and 50% led to an increase in the number of users of 180% and 210% respectively. This also indicates a highly sensitive price elasticity of demand. However, high inflation at the time in Colombia may have amplified the size of the change in real terms. In a high quality, Kremer and Miguel (Kremer 2007) studied impacts on uptake of a worm prevention treatment at primary schools in Kenya when fees were introduced. Descriptive data show that 19% of pupils took the drugs after fees were introduced, while the uptake rate of free drugs was 75%. In a regression analysis, the authors found that introduction of cost-sharing were responsible for the major part of this reduction in uptake.

3.   Research Methodology and Design

This study used a qualitative research methodology; a cross-sectional descriptive research design involving 384 sampling population and multistage sampling technique was used involving purposive, census and systematic sampling to identify the facilities, healthcare workers and patient or clients.

3.1 Data analysis technique and procedures

It was analyzed using regretion:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where Y is the dependent variable (Healthcare consumption), β_0 is the regression constant, β_1, is the coefficients of independent variable, X_1 is how price affects public healthcare consumption, whereas ε is error term of 0.05

4.   Results and Analysis

4.1 Influence of Price on Consumption of Healthcare Services

The study sought to analysis the influence of price on consumption of public healthcare services in Mandera County. The results were recorded in the table below.

Table 4.1: Influence of Price on Consumption of Healthcare Services

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Whenever am choosing a hospital to attend I always want a cheaper hospital	18%	28%	3%	25%	24%
Cost of doctor consultation in private hospital is a major component of hospital fee be it inpatient or outpatient	12%	26%	2%	43%	16%
I will only go to a private hospital when I have no option from a public hospital	12%	24%	3%	43%	17%
Costs in private hospitals are exorbitant and that's why I don't go there	20%	21%	1%	35%	24%
I cannot recommend a friend to a traditional healer due to their cost of services	10%	22%	2%	35%	31%
In my view medicine are more expensive than doctors fees	4%	13%	3%	49%	31%
The government should give more health subsidies in order to ensure that people are able to go to hospital when sick	12%	24%	3%	43%	17%
I have never gone to hospital unless am sick because there is nothing free in a hospital even a simple health check	20%	21%	1%	35%	24%
Medicines are costly in hospitals including drugs for simple ailments like headache	7%	16%	2%	51%	24%
Alternative medicines like herbs are cheaper and more effective than conventional medicine	10%	24%	0%	29%	37%

The study above indicates that 18% strongly disagreed, 28% disagreed, 3% were neutral, 25% agreed while 24% strongly agreed that whenever they are choosing a hospital to attend they always want a cheaper hospital. On the other hand, 12% strongly disagreed, 26% disagreed, 2% were neutral, 43% agreed while 16% strongly agreed that cost of doctor consultation in private hospital is a major component of hospital fee be it inpatient or outpatient. Further, 12% strongly disagreed, 24% disagreed, 3% were neutral, 43% agreed while 17% strongly agreed that they will only go to a private hospital when they have no option from a public hospital. Moreover, 20% strongly disagreed, 21% disagreed, 1% were neutral, 35% agreed while 24% strongly agreed costs in private hospitals are exorbitant and that's why respondents don't go there. On the other hand, 10% strongly disagreed, 22% disagreed, 2% neutral 35% agreed while 31% strongly agreed that they cannot recommend a friend to a private hospital due to their cost of services. Further, 4% strongly disagreed, 13% disagreed, 3% were neutral, 49% agreed while 31% strongly agreed. Nevertheless, 12% strongly disagreed, 24% disagreed, 3% were neutral, 43% agreed while 17% strongly agreed that the government should give more health subsidies in order to ensure that people are able to go to hospital when sick. Moreover, 20% strongly disagreed, 21% disagreed, 1% were neutral, 35% agreed while 24% strongly agreed that they have never gone to hospital unless they are sick because there is nothing free in a hospital even a simple health check. Further, 7% strongly disagreed, 16% disagreed, 2% were neutral, 51% agreed while 24% strongly agreed that medicines are costly in hospitals including drugs for simple ailments like

headache. Finally, 10% strongly disagreed, 24% disagreed, 29% agreed while 37% strongly agreed that alternative medicines like herbs are cheaper and more effective than conventional medicine.

From the study above, it's clear that price affects the consumption of public healthcare services in Mandera County, Kenya. This agrees with Akin *et al.,* (1985) who posit that prices are important determinants of demand in health care facilities.

4.2 Regression Analysis

The study sought to carry out the analysis of price influence on consumption of public healthcare services in Mandera County, Kenya. The regression model was:

$Y = \beta_0 + \beta_1 X_1 + \varepsilon$

Whereby Y represent the Healthcare consumption, X_1 is price of health care, B_0 is the model's constant, and β_1 is the regression coefficients while ε is the model's significance from f-significance results obtained from analysis of variance (ANOVA).

Table 4.2: Model's Goodness of Fit Statistics

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.734[a]	.539	.503	.1752	1.421

a. Predictors: (Constant), price of health care.

Table shows that there is a good linear association between the dependent and independent variables used in the study. This is shown by a correlation (R) coefficient of 0.734. The determination coefficient as measured by the adjusted R-square presents a moderately strong relationship between dependent and independent variables given a value of 0.503.

Table 4.3: Analysis of Variance (ANOVA)

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.164	4	.541	11.657	.039[a]
	Residual	9.775	115	.085		
	Total	11.939	119			

a. Predictors: (Constant), price of health care,
b. Dependent Variable: Healthcare consumption

The ANOVA statistics presented in the table above was used to present the regression model significance. An F-significance value of p = 0.039 was established showing that there is a probability of 3.9% of the regression model presenting a false information. Thus, the model is significant.

Table 4.4: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.

(Constant)	3.544	.425		8.545	.045
Price of health care	.541	.154	.656	5.574	.035

a. Dependent Variable: Healthcare consumption

The following regression result was obtained:

$Y = 3.544 + 0.541X_1$ P=0.039[a]

From the model, when other factors (price of health care) are at zero, the healthcare consumption will be 3.544. Holding other factors constant, a unit increase in price of health care would lead to 0.541 (p=.039) reduction in healthcare consumption.

5. Discussions, Summary and Recommendations

5.1 Discussions

The study indicates that whenever the respondents are choosing a hospital to attend they always wanted a cheaper hospital. This posted a mean of 3.0885. These results were in line with Kremer and Miguel (Kremer 2007) that carried out a study on the impacts on uptake of a worm prevention treatment at primary schools in Kenya when fees were introduced. Descriptive data show that 19% of pupils took the drugs after fees were introduced, while the uptake rate of free drugs was 75%. In a regression analysis, the authors found that introduction of cost-sharing were responsible for the major part of this reduction in uptake.

5.2 Conclusion

On the basis of the study findings, it is concluded that whenever the respondents are choosing a hospital to attend they always wanted a cheaper hospital. Introduction of cost-sharing were responsible for the major part of this reduction in uptake.

5.3 Recommendations

Social status and employment are seen as significant determinants of this study, with this in mind and given the fact that those who are financially deprived are in greater majority, there is the need for the ministry of manpower and employment to create employment opportunity for its people. In addition, government should embark on economic and public policies that benefit the poor. These will empower the poor population to utilize health care services when they get sick.

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