

THE DETERMINANTS OF HEALTH-SEEKING BEHAVIOR IN A NAIROBI SLUM, KENYA

Moses K. Muriithi

School of Economics, University of Nairobi, Kenya

Abstract

Although studies have previously been done in Kenya on health care demand, it has hitherto not been clear how health seeking behavior due to illness is affected by information on health care quality and by quality variation conditional on this information. Moreover, despite in-depth studies on health seeking behavior in Kenyan rural areas, similar studies in urban areas are missing. There are no econometric studies on health care demand in slums in Kenya. This study develops and tests the hypothesis that the information available about service quality in a health facility affects demand for health care. The key finding is that service quality, information about this quality, wealth, user fees, and gender, are the main determinants of patients' choice among alternative medical treatments. A policy geared towards improving health information among the slum households is encouraged.

Keywords: Information, slums, multinomial logit, quality, health providers

Introduction

Although there have been in-depth studies on health seeking behavior in rural areas of Kenya (Mwabu, 1986; Mbugua *et al*, 1996; Collins *et al*, 1996), similar studies in urban slums are missing. Thus, it is not clear what determines the demand for health care services among the slum households, and more so given the current health reform programs intended to improve urban health. It is important for planners and professionals to know among other things, the factors that patients believe wrongly or rightly to be the determinants of quality health services as this information can provide a guide as to which policies can be used to improve health services.

The lack of clear evidence on the determinants of health care demand is deepened further when one studies the outcome of a baseline survey done by UN HABIT and Republic of Kenya (2005) in Kibera slum, under the slum upgrading project. Some casual observations

show that over 70 percent of the respondents did not visit government health facilities although these facilities were nearer to them than alternative facilities. They instead visited alternative health facilities. Additionally, the alternative health facilities visited were more expensive than the government facilities in terms of both time and money costs. What was even more puzzling is the fact that, those who visited government health facilities said they faced no problem there with the availability of drugs, which in the health care literature, is held as a key determinant of the quality of health facilities (Mwabu *et al.*, 1993, Sahn *et al.*, 2003). It is this lack of evidence as to what really determines health care demand particularly in slums that this paper addresses.

Thus the broad objective of this paper is to explain the underlying determinants of the demand for health care services in the largest Kenyan slum (Kibera) based on a household survey conducted in 2008.

In this study, the working hypothesis is that information uncertainty about the quality of a health facility can reduce or increase health care demand or leave it unaffected, depending on the kind of information that households have about health services. Individuals might lack information about the quality or availability of service at a health facility and this can affect their decision to visit or not to visit that facility.

Reviewed Literature

Literature on demand for health care has come up with myriads of factors affecting such health seeking behavior. At the level of health care provider, the quality of medical care in terms of technical efficiency as proxied by availability of drugs has been cited as a key determinant of demand for health care (Sahn *et al.*, 2003; Mwabu *et al.*, 1993; Ellis *et al.*, 1994). Lack of adequate health information has been associated with variations in health care utilization at various health facilities, and especially between rural and urban sector as noted by Thompson (2003) when using Kazakhan data in analyzing health-seeking behavior of rural and urban households. There are studies that have analyzed the role of information on the demand for medical care (Kenkel, 1990; Hsieh and Lin, 1997). Using probit results, Kenkel (1990) indicated that more informed consumers are likely to visit a physician. Some studies found that prices are not important determinants of medical care (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 medical care (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). Gender issues in the access to health services have been incorporated in a number of studies,

for example; (Mwabu *et al.*, 1993) in Kenya ; (Sahn *et al.*, 2003) in Tanzania; (Hutchinson, 1999) in Uganda; and (Wong *et al.*, 1987) in the Philippines. Mwabu *et al.*, (1993) found that distance and user fees were both factors that reduced demand for health care, but men were less constrained than women. Hutchison (1999) found that individuals in households with women with higher levels of education were more likely to use curative care. Still, on education and gender, Jaurez (2002) and Wong *et al.* (1987) found that for both rural and urban mothers, the likelihood of choosing public clinic as the most frequently used option increases as education level increases. Cisse (2006), in an analysis of health care utilization in Cote D’Ivoire found that household headship, education level, drug prices, and income and distance to be positively related to health care utilization. The effect of household size on the demand for healthcare has been found to be positive and significant (Sarma, 2003; Hallman,1999), though Sahn_ *et al.* (2003) observed that large households sought care from non-hospital facilities.

From the reviewed literature it is clear that there are multitudes of correlates that affect demand for health care but what is not clear is whether these factors influences demand for health care in a slum environment. This concern is drawn from earlier baseline surveys that show the price and waiting time as having no weight in health seeking behavior of the resident of Kibera. This paper has attempted to address this surprising result from baseline survey conducted in Kibera slum(Republic of Kenya, 2005).

Methods And Materials

Model and Estimation

The Multinomial Logit Model

In a multinomial logit model, an individual is assumed to know all the provider-specific attributes and to choose the alternative that maximizes his utility. The observed choice is determined by the differences in utility across alternatives, rather than in levels of utility. This implies that the visit decision involves a comparison of the utility obtained from each option. A MNL model is specified as:

$$(y_i = j) = \frac{e^{\beta_j v_i}}{\sum_{j=1}^J (e^{\beta_j v_i})} \quad j= 1, \dots, j \text{-----}(1)$$

Because $\sum_{j=1}^J y_i = 1$, a restriction is needed to ensure model identification and the usual restriction is that $\beta_1 = 0$. While in a conditional logit values of Xs are used as deviations from their means in a multinomial logit deviations in coefficients are used to compute marginal benefits expected at alternative source of treatment. The facility with the highest benefit is chosen where the utility comparison is expressed as;

$$V_{ij} = pr(V_{ij} > V_{ik}) \text{ for all } j \neq k \text{-----(2)}$$

Where, V_{ij} is the perceived benefit of visit to facility j by individual i while V_{ik} is the benefit of visit to facility k by the same individual i , V_{ij} are the benefits of medical treatment that individual i expects at facility j ($j=1.....J$).

The random utility model associated with a visit to a health provider under the above specification and which is estimated is

$$V_{ij} = V(X_i, Z_j, I_i) + e_{.j} \quad (3)$$

Where,

X_s are individual specific variables like sex, age, occupation, education, assets, household size, and trust; Z_s are the facility attributes like distance, quality and user fees while I is the information index that individual i associates with health facilities.

Data Sources and Description of the Variables

The data were collected in Kibera slum located in the heart of the Nairobi City in 2008. Data were collected on the use of health facilities in and around the slum area. We collected information on quality of health care at a facility level as opposed to data on perceived quality of care typically collected from households.

Figure1: The map of Kibera



Source: internet

In order to strengthen the data from the household survey, some six focused group discussions were conducted. The information from FGD centered on perceived quality of services, and the trust that residents of Kibera had in the services available at health facilities. The information collected was partly used to construct trust and service quality indices.

Table1: Definitions of Variables used in the regression models

Variables	Definitions
Health facility dummies	Dependent variables include public clinics, private clinics, and private hospitals.
Self-treatment dummy	This is the dependent variable which serves as the comparison treatment option. This option includes self-medication, advice from other household members, friends, remedies from shops and treatment from non-medical practitioners.
User fees	The cost of treatment in the visited health facility in monetary terms, including the consultation and cost of treatment and drugs.
Distance	Distance to the nearest health facility, in kilometers.
Quality of a health facility	An index derived from measures obtained from facility questionnaires containing information on relationship to agreed standard as to what constitutes good quality care. Data on types of drugs, proportion of professionally trained staff, and availability of health inputs are among the variables used to construct this index.
Sex	A dummy variable: male = 1 female = 0.
Age	Age in years for all the individuals in the household.
Health Information score	An index constructed from the qualitative information given by respondents about qualifications of health personnel, advertisements at facilities, type of treatment received, consultation charges, membership to insurance schemes, availability of immunization services, and whether or not a health facility was licensed.
Trust index	An index constructed from information given by respondents about the degree to which respondents trusted health care providers or were loyal to them.
Household size	Number of household members.
Occupation dummies	1 = formal employment, 0= otherwise.
Acreage	Land holding in acreages either in urban center or elsewhere by the household
Education	Years of completed schooling.

Econometric results

Table 2 provides econometric results of our stated multinomial logit in equation 3 above. The independent variables of interest are the user fees, quality index of the facility, waiting time, information index, acreage as a proxy for assets, trust index, household size, distance, occupation, education and age. Our dependent variable is demand for health care. The dependent variable is discrete and is measured as a categorical variable consisting of five categories, that is, self treatment, Public clinic, private clinics, public hospitals and private hospitals. Self treatment is considered a reference or base variable.

Table 2: Multinomial Logit Parameter Estimates (Absolute *t*-statistics in Parentheses)

Variables	Public clinics	Private clinics	Public hospitals	Private hospitals
	Coefficient estimates	Coefficient estimates	Coefficient estimates	Coefficient estimates
User fees	-.0047696 (11.94)	-.0005119 (6.02)	-.00010331 (2.02)	-.0001102 (2.08)
Facility quality index (the higher the index, the better the quality)	.3341173 (1.97)	.9751281 (5.41)	.2050169 (1.21)	1.002703 (5.42)
Waiting time	.0347823 (2.25)	.028216 (1.83)	.04250011 (2.75)	.0267459 (1.73)
Health service information index (the higher the index more informed the patient)	1.171722 (2.33)	5.156972 (9.52)	1.084405 (3.67)	6.339419 (11.33)
Acreage	-.7214043 (2.72)	-2.082656 (0.95)	-.6349885 (2.42)	-.2785803 (1.05)
Trust index (the greater the trust, the higher the index)	.5901797 (5.61)	.5035723 (4.53)	.6404762 (5.98)	.5568273 (4.90)
Distance	-2.502082 (2.22)	-2.082656 (1.78)	-2.233896 (1.99)	-1.656626 (1.39)
Household size	1.398719 (4.37)	1.131099 (3.48)	1.08512 (3.41)	.911039 (2.76)
Occupation (1=formal employment)	-.0712954 (0.29)	.2995476 (1.16)	.0449243 (0.19)	.2270215 (0.85)
Education	.3873954 (2.95)	.2788896 (2.05)	.3378681 (2.56)	.2561829 (1.86)
Age	.10030717 (2.37)	.1294236 (2.88)	.1223703 (2.87)	.16021704 (3.48)
Sex (1= male)	-2.412717 (2.47)	-1.781863 (1.78)	-2.638726 (-2.70)	-1.367104 (1.34)
Constant	-15.71434 (4.77)	-32.49531 (8.95)	-17.77896 (-5.32)	-40.84233 (10.88)
Log-likelihood=-1039.0756 ; LR chi2(44) =5033.95 ; Number of observations=483				

Discussion Of Results

Distance

Distance has a significant and negative impact on the choice of a health facility. Increasing distance would increase the likelihood of a household opting for self-treatment rather any of the formal health providers , a result also reported by Mwabu *et al.* (1993) and Cisse (2006). The negative impact of distance is higher at the public facilities. In the ML models, distance carries a negative coefficient which is statistically signed in both private clinics and private hospitals. The sign of the distance coefficient can be explained by appealing to the monetary cost of treatment. An increase in distance implies paying some cost to travel to the source of treatment as opposed to seeking self treatment. There is a sense in which distance adds an extra burden to the monetary cost of treatment. Given the fact that those who visit private health facilities have already made a decision to spend extra money on treatment, the impact of distance on the choice probability for private providers should not affect their choice probabilities substantially. However, assuming that the visiting public

facility is driven by low user fees, holding other factors constant, an increase in distance is synonymous with increasing price (i.e., through travel cost), and has the effect of lowering the probability of visiting a public facility. This result differs from that of Bolduc *et al* (1996) who used travel time as an indicator of access to medical care, and found it to be implausibly positively correlated with the probability of seeking health care at both public and private facilities.

Quality of health care

The quality of the health care has a statistically significant impact on demand for health care. However, the impact is smaller at public hospitals. The coefficient in private health facility is quite high implying that increasing quality further in private hospital increases the likelihood of visiting private hospital relative to self treatment. Private health facilities are profit motivated so that there is a focus on improving service quality to attract patients. The result could be indicating that the quality is higher at private clinics. The finding is in agreement with the studies by Sahn *et al* (2003) in Tanzania, Mwabu *et al.* (1993) in Kenya, and Ellis *et al.* (1994) in Egypt who also found that medical quality, assessed in terms of both health staff qualifications and by the availability of drugs increases the probability of a visit to both private clinics and public hospitals. The fact that service information is strongest in determining the demand for health care at private health facilities implies that information about quality of care in the study area is being transmitted through channels that advertise the quality aspects better at private health facilities. The past experience in Kenyan public health facilities of persistent lack of drugs and shortages of inpatient doctors and nurses could still be in the memories of the majority of the households in the Kibera slums, discouraging them from using public facilities which currently could be offering good quality services, but about which they are unaware of.

Trust

Patients' trust in the health providers is a significant determinant of the demand for health care in the slum areas of Kibera. ML coefficient estimates show a very significant impact of trust on treatment choice in all facilities and in all specifications. Increasing trust increases the likelihood of choosing all other healthcare provider relative to self treatment. The implication of this is that the more trusting the relationship that the provider builds with their patients, the higher the probability of a visit to that provider in the event of illness or injury relative to going for self treatment. Trust in this context means a relationship between the health provider and the household in which it is understood by the household members that quality care will be offered by the provider when needed. This relationship is

underpinned by qualitative utility that is not measurable. This qualitative utility, like other utility indices depends on characteristics of the patient and the nature of the agency relationship between the patient and the health provider. Apart from a business relationship resting on credit, for example, trust also depends on the patient's health outcome after visiting a health provider. The campaign against the use of over-the-counter drugs without the prescription of a physician is likely to erode trust in self-treatment and shift demand in the formal health care system. Though public facilities usually deliver quality health care at a slow pace, there is a strong perception in Kibera slums that it is the government clinics that should lead in extending modern care to the public. A high positive coefficient on the trust variable within the public health facility system supports this conjecture.

Waiting time

The waiting time coefficients are higher and statistically significant in ML model across all alternatives and consistently positive. This result is surprising because the expectation could be that if waiting time is increased patients would opt for self treatment. This implies that the time spent waiting for treatment is associated with unobservable utility and that the probability of choosing any health facility increases with time spent waiting for treatment. This sounds unconvincing because the result suggests that there is no opportunity cost for waiting for treatment at a facility. However, there are several plausible reasons for a positive coefficient for waiting time. First, the marginal utility of quality emanating from the contact with a health provider could be much higher than the disutility that is resulting from time spent on waiting for treatment. So long as the patient can have some utility enhancing unobservable in quality of health care provided by the health facility, waiting time will be negatively related to self-treatment and positively related to aspects of quality at formal sources of care. Patients can wait for a long time at a facility if waiting time is correlated with unobservable or measured quality. It is important to stress that the coefficient on waiting time is relative to that for self-treatment. The same argument holds in the case of the trust variable. The waiting time could be correlated with unobservable aspects of trust, leading to a positive coefficient on the waiting time. The results for the public health facilities and particularly, the public hospitals do not have statistically significant parameters for quality, yet the waiting time coefficient is positive and statistically significant. The trust index coefficient at public hospitals is the most significant. The marginal benefit that a patient gets from waiting time is a function of the interaction between trust with waiting time at a facility. Individuals might prefer to wait for treatment from a health provider they trust. Third, there is no direct opportunity cost for a seriously sick person because the person cannot work, except for

persons accompanying the patient. Once sick the main decision to make is on mode of treatment, in which case, each mode has its cost. For low income groups, waiting time in a public facility, where user fees are low, can be taken as a boost to the net income (income after paying the user fees). This situation implies that the marginal net benefit from waiting time will be higher at a health facility with a low cost of treatment, such as a public clinic. This waiting for treatment at a facility is synonymous with using time as a resource to pay for quality service where fees are low.

Service Information

The information set that a patient has about a health facility and the services it offers both have a significant impact on choice of a health facility. Increasing information about the health service quality increases choice of visiting health provider relative to self treatment. It appears that private health facilities benefit more from the information set that households possess about the quality of health care being offered in the study area. This finding is in line with that of Thompson (2003), who found that lack of adequate health information was associated with variations in health care utilization at various health facilities, and especially between rural and urban areas. Our results also find support in Kenkel (1990) who using probit model, found the information patients possess on health services influences health care seeking behavior. The finding by Hsieh and Lin (1997) that demand for health care for elderly in Taiwan needs to be interpreted with caution due to the likelihood of selection bias in their study. However, their finding is in line with our result that the information available about health services is a key determinant of health care demand.

Gender

The coefficient on gender dummy is negative and statistically significant in public health facilities suggesting that being male decreases the likelihood of visiting public facilities relative to self-treatment. It is also the case that females are more likely to visit public health facilities than their male counterparts. This finding supports the hypothesis that females are more sensitive to their health status more than men. The coefficient on the gender dummy in private facility is negative but statistically insignificant. This has the implication that males in slum areas are as females likely to seek for medical care from the private facility relative to self-treatment. Overall, the females are more likely to seek out professional health care compared to their male counterparts. This finding concurs with Mwabu et.al (1993) who found women to be more likely to consult all types of providers of modern care relative to self-treatment. The large negative and statistically significant coefficients for the gender dummy in public clinics and public hospitals compared to low and insignificant

coefficients in private clinics and private hospitals suggest that women might be less endowed with resources to seek medical care at private facilities. Sahn *et al* (2003) report gender bias using Tanzanian data where men tended to visit public health facilities with lower frequencies compared to women. Our findings need to be interpreted with caution because the data did not separate out normal pregnancy related visits from other visits, and thus could affect the female frequencies of visiting private and public clinics.

Size of the household

The effect of the size of household on the choice of health care is positive and largely significant. Having a large family increases the probability of visiting both public and private health facilities compared to self-treatment. The intuition behind this comes from Bolduc *et al* (1996) who argued that the greater the number of working members there are in a household, the more likely individuals will turn away from self-medication.

While we would have expected persons from larger households to be less likely to seek care, because of competition for resources in the household, our finding rejects this expectation and is in support of Sahn *et al* (2003), and Bolduc *et al* (1996) who found household size to be positively related to probability of seeking health care from the formal health care system. Sahn *et al*, especially, found household size to positively affect the demand for health care in the public facilities, a finding that is backed up by our ML results. Another plausible reason is that in a large household there is less attention to members of the household in terms of their nutritional needs and this makes them prone to illness, increasing probability of using medical care.

Acreage

The size and magnitude of acreage coefficient is negative and statistically significant in both public clinics and public hospitals. This result supports the idea that people with more resources are less likely to seek medical care from a public health facility. They have the ability to seek health care from comparatively more expensive sources like private health facilities. Intuitively, this implies that having a strong asset base reduces the chances of visiting public facilities relative to self-treatment, which includes drugs at pharmacies and chemists.

Education

As expected, education has a positive and statistically significant coefficient. This result supports the prediction that educated individuals are more likely to seek out professional health care relative to self-treatment. The parameter estimates are positive and significant in all health facilities. These results are consistent with many results in the literature. Interestingly, and in conformity with Sahn *et al* (2003), the rate of increase in

demand is greatest for public health facilities than in the private health facilities. Cisse (2006) found education to positively affect demand for health care. Hutchison (1999) found more educated women to have a higher likelihood of seeking health care than less educated ones. This is also in line with the general notion that the pattern of reporting morbidity and contacting a health professional tends to increase with the level of education. The finding has the implication that educated people could distinguish real quality of health care by observing the qualifications of the health providers. A public health facility is guaranteed of quality and trained health personnel, compared with private clinics where the qualification of the health personnel is not readily known. Our findings do not support the widely held perception that a year of schooling reduces the probability of seeking health care from a public health facility relative to self-treatment.

Age

The effect of age on the demand for health care is significant and positive across all the health facilities indicating that the probability of using professional health care service relative to self-treatment increases with age. This finding could be confounded by other variables such as education, social learning, and income which are likely to increase with age. For example, the years of schooling and age are much related. Moreover, having stayed in the same area for a long time is likely to improve the information possessed about the social amenities, including health facilities. This finding is supported by survey data where the average stay in Kibera slum is 13 years. The finding differs from the conventional belief that as people get older, they seek treatment from traditional medical practitioners. The result is in tandem with the fact that the households headed by older people have a higher propensity of seeking professional health care rather than self-medicate. This to a large extent implies that the head of the household still controls economic resources even in a slum environment.

Occupation

Occupation of the household head did not have a significant impact on the choice of health facility. The sign for parameter estimation was positive for private clinics, and implying that a person in a formal employment, preferred private clinics to self-treatment. This is consistent with the widely held assumption that those who are formally employed would prefer professional health care to self-treatment, especially since they are enrolled in a mandatory health insurance that pays for formal health care.

User fees

As expected, the user charges have a negative coefficient which is highly significant, remarkably in all specifications. The direct implication is that increasing user charges decreases the likelihood seeking health care from the formal health provider relative to self

treatment. This contradicts Schwartz *et al.* (1988) and Akin *et al.* (1986) who found user fees to be insignificant determinants of choice of health care providers. Our findings are in line with those reported in Mwabu *et al.* (1993), Yoder (1989), Dow (1995), Cisse (2006) and Mwabu *et al.* (1989b) who all found user fees to be key in determining health seeking behavior of sick individuals.

Policy Implications

The study has yielded results of policy valuation. The estimation results show that quality and waiting time increased the probability of visits to private and public facilities relative to self treatment. This finding has important policy implications. To start with, the results show that increasing the quality of health facilities would be associated with long waiting queues at the facilities because of likely correlation between waiting time and unobservable aspects of quality in facilities with low cost of treatment such as public clinics. Quality improvements would increase the waiting lines because people would be willing to pay for quality by waiting longer at the clinics. Ways of managing such lines should be part of quality improvement strategies. Since queues at health facilities carry opportunity costs, measures that improve health of the household could harm their economic well-being if implementation of such policies is not properly managed.

Information on health services available in slums has been shown to be an important determinant of demand for health care. This is an interesting and important result, as it shows that public health information campaigns can be used to change patterns of attendance at government clinics. For example, the campaigns can be used to increase demand for treatment for common illness, or serious illnesses such as tuberculosis or HIV/AIDS or for preventive service. The findings also imply that for-profit-clinics have the incentive to use advertising campaigns to induce households to over-use health services. In other words, supplier-induced demand can occur due to advertisements for unnecessary treatments.

The study suggests the need to design a health information campaign for updating the general public about technological innovations and new treatments in health care markets.

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