



Determinants of Consumer Satisfaction of Health Care in Ghana: Does Choice of Health Care Provider Matter?

Edward Nketiah-Amponsah (Corresponding author)

Department of Economic and Technological Change, Center for Development Research (ZEF)

University of Bonn, Walter-Flex-Str. 3, D-53113, Bonn

Germany and Department of Economics, University of Ghana, Box LG57 Legon-Accra, Ghana

Tel: 491-511-799-5829 E-mail: enamponsah@uni-bonn.de; eddyil@yahoo.com

Ulrich Hiemenz

Department of Economic and Technological Change, Center for Development Research

University of Bonn, Walter-Flex-Str. 3, D-53113, Bonn, Germany

Tel: 49-228-731-861 E-mail: ulrich.hiemenz@uni-bonn.de

Abstract

A modern health system which provides high quality care has trickle-down effect on the quality of life of the individual citizens and the overall economic development of the country. One method which is applicable to the measurement of quality of health care is consumers' ratings of the services provided. This paper investigated the overall level of satisfaction associated with the choice of a health care provider. Parents whose children (aged-under five) fell sick four weeks prior to the survey and had sought intervention within 2 days were asked their overall level of satisfaction with health care providers. Using the ordered logit model the study confirms the notion in Ghana and elsewhere that private health care is associated with higher levels of satisfaction or quality. Control variables that were found to be statistically significant were gender of the child, maternal age and education, distance and waiting time among other. To the best of our knowledge, no study has examined the effect of provider choice on overall satisfaction of health care in Ghana.

Keywords: Consumer satisfaction, Health care provider, Ordered logit, Ghana

1. Introduction

This paper focuses on the overall satisfaction that consumers gain from consuming health services from a given provider. Quality of health services is gaining momentum in the health care literature. Increasingly, health care stakeholders such as governments, health authorities and consumers are attaching importance to health care quality (Lapsley, 2000; Smith et al. 2006). More and more, patients' satisfaction is recognized as essential component in the evaluation of health care quality (Derose et al. 2001; Donabedian, 1992). The quality of health care is not confined to clinical effectiveness or economic efficiency but also incorporate social acceptability as an important quality objective (Calnan, 1997; Donabedian, 1992; Maxwell, 1984).

Monitoring and evaluating consumer satisfaction with health care is a crucial input to improving the quality of health system and changes in the system as well as providing feedback for health care professionals and policy makers (Bara et al. 2002). Measures of consumer satisfaction with health care can provide important assessment of quality of health care not adequately captured by other health service statistics such as patient throughput, waiting times, consultation times and proximity (Sitzia and Wood, 1997; Williams and Calnan, 1991). In fact, it has been suggested that patient satisfaction is a major quality outcome in itself (Derose et al. 2001). The extent to which health care users are satisfied with their local providers may be a key factor underpinning their health behaviour and health care utilization (Rakin et al. 2002; Hadorn, 1991). It is envisaged that timely, accessible, appropriate health interventions, continuous and effective health services are important components of health care quality (Cambell et al. 2000).

In Ghana, the Institutional Care Division (ICD) of Ghana Health Service (GHS) has direct responsibility of ensuring health care quality. The need to improve health care quality was given prominence in the Health Sector 5-year Programme of Work (1997-2001) and the second 5-year Programme of Work (2002-2006) (Note 1). A qualitative

analysis of satisfaction with medical services was conducted in 1997 and 2003 as part of the Core Welfare Indicator Questionnaire. It was found that satisfaction had increased from 57% in 1997 to 78.6% in 2003 indicating a 21 percentage point increase. However, the level of satisfaction was not scaled but simply defined for persons who consulted health practitioners and cited no problem with the health system (Ghana Statistical Service, 1997 and 2003).

Previous studies on parental satisfaction of health care for children aged under-five regarding the services of a given health provider is virtually non-existent in Ghana and elsewhere. Although the kids are the patients in question, they cannot make their own satisfaction evaluation, and thus the mothers or caregivers make such judgments. Previous studies have investigated patient's socio-economic and demographic characteristics in relation with satisfaction partly because of the ease with which this data can be collected. The literature shows that characteristics such as age, educational level, health status and amount of information conveyed by the health provider are significant predictors of health care satisfaction (Chahal et al. 2004; Cohen, 1996; Hall and Dorman, 1988).

The principal objective of this paper is to examine the extent to which the choice of a given provider influences health care satisfaction. Consequently, we model the overall level of satisfaction associated with the consumption of a particular providers' health services using a 5 point Likert scale from (1) very dissatisfied to (5) very satisfied. The satisfaction levels were elicited by asking the respondents, in this case the mother or care-giver to score their overall satisfaction from 1-5. Thus we test the hypothesis that there is no difference in the level of satisfaction associated with the choice of a given health care provider.

2. Profile and Overview of the Health Sector in Ghana

The economy is dominated by agriculture, which contributes about 39.3% of the Gross Domestic Product (GDP), followed by the services sector (32.9%) and lastly the industrial sector, 27.8% (ISSER, 2006). The Ghanaian economy averaged a real GDP growth of 5.3% over the period 2000-2008. Approximately 50% of the population rely on agriculture for their livelihood. Ghana is the second largest producer of cocoa in the world, only next to Cote d' Ivoire. It is also the second largest producer of gold and third largest producer of timber in Africa. In recent times, the economy exports non-traditional commodities such as pineapple, banana, yam and cashew nuts. Besides, tourism is gaining importance as a foreign exchange earner.

Since Ghana's independence from British colonial administration in 1957, several policy interventions have been sought to primarily achieve economic growth and the subsequent trickle-down effect on the other sectors of the economy including the social sector of which health is prominent. In the area of health care, the public and private sectors are important stakeholders with the public sector organized according to national (2 teaching hospitals), regional (10 regional hospitals), district (281 district public and other hospitals), sub-district (622 public health centres) and community about 1 658 Community Health Planning Service and maternity homes at the community level (Ghana Health Service, 2005). Modern health care is complemented by traditional medicine which is quite popular among rural dwellers.

Out of the 281 district and other hospitals, over 50% are private or mission hospitals. However, the private and mission health facilities are greatly supported by government through staff salary and other facilities. They provide both outpatient and inpatient services. At the sub district level where health centres are the highest health facilities and first line of referral to formal health from the community clinic and maternity homes, over 98% of them are public or belong to the government. In order words, mission or private sector participation in the operation of health centres is very low (Akazali et al. 2008).

The Ministry of Health (MOH) is the central government institution in charge of sector-wide policy development, financing, regulation, monitoring and evaluation using its agencies including Ghana Health Service (GHS) which is an executing agency responsible for health service delivery. However, despite the strategically dispersed location of health centres in Ghana, the teaching, regional and district hospitals still have to contend with outpatient and other primary health related cases which could be handled at the district level creating congestions and long queues. Ghana faces acute shortage of health personnel.

For instance, in the year 2006, 1 180 Ghanaians shared one hospital bed while one medical doctor attended to

14 908 patients (see Figure 2) as compared to the World Health Organizations' (WHO) norm for sub-Saharan Africa of 1 medical doctor to 7 500 patients. The problem of inadequate health personnel is further compounded by frequent industrial action precipitated by poor working conditions and low remuneration.

The health sector is also characterized by persistent exodus of health workers and over the period 1993-2002, 3 157 health workers, representing 31% left Ghana for greener pastures (ISSER, 2003). This is against the backdrop that Ghana receives medical aid in the form of medical doctors from Cuba, who are usually posted to the remotest part of the country. Anecdotal evidence has it that there are more Ghanaian medical doctors in the State of New York of the United States of America alone than the resident doctors of Ghana.

In the area of health care financing, health spending lags behind other equally important sectors such as education and interest payment. Public spending on health care remains one of the less controversial roles of government partly due to its spillover effect on GDP. Although, per capita public health spending has been increasing steadily over the period, 2000-2006 (see Table 1), it is still below the levels achieved by sub-Saharan African countries such as Mauritius, Botswana and South Africa. In 2003, the WHO reported that Ghana's per capita public health expenditure was US\$31 while Mauritius had US\$105 (Note 2). It is worth mentioning that the boost in public health spending in Ghana has been fuelled by donor support. For instance, donor support as a proportion of public health spending amounted to 11.1%, 16.2% and 14% in 2003, 2005 and 2006 respectively (GHS, 2007). The donor support excludes projects directly initiated and implemented by the donor agencies such as Danish International Development Agency (DANIDA), European Union (EU) and United States Agency for International Development (USAID).

3. Methodology

3.1 Study Design and Data Collection

The study uses primary data collected in three Districts in Ghana (Lawra, Dangme West and Ejisu-Juaben) between October 2007 and January 2008. A cross-sectional survey of 531 women aged 15-49 who had at least one life birth between October 2002 and October 2007 were randomly interviewed using validated structured and pre-tested questionnaires based on the mortality rates of the Districts. The choice of the three Districts was informed by the poverty, morbidity and mortality trends as well as the need to capture the ecological zones of Ghana. In the 2003 Ghana Demographic Health Survey (GDHS), the Upper West Region had the highest mortality rate (Lawra District), the Ashanti region (Ejisu-Juaben), moderate and the Greater Accra Region (Dangme West), the least mortality rate. Due to the absence of a complete list of households in each District and due to the specificity of the subjects under study; women and children, a three stage stratified random sampling technique was employed where the first stage was the District, the second locality/village and the household being the third stage.

When we have heterogeneous population and the heterogeneity has an impact on the important features being studied such as health seeking behaviour, then simple random sampling and systematic sampling methods may be less appropriate (Anaman, 2003). One method which is applicable under such situations is the stratified random sampling technique. Since this study focuses on women and child health issues, the differential impact of demographic, household, community and environmental characteristics can be adequately captured by dividing the population into sub-population or strata and apply random sampling to the sub-populations/strata based on the different sizes of the populations. The use of this technique allows the researcher to get members of the different sub-population adequately represented in the sample.

To ensure data accuracy, quality and reliability, enumerators who were largely graduate students with experience in field surveys were recruited. The sample size was calculated with recourse to the estimated proportion approach (Cochran, 1977) since the total population of women who had given birth over the past five years in the three districts is unknown. However, we are guided by the 2003 GDHS, and thus employing the sample size for estimated proportion approach;

$$n = \frac{t^2 p(1-p)}{e^2}, \quad \Pr(|p - P| \geq d) = \alpha$$

Where;

n = the sample size

t = the number relating to the degree of confidence anticipated in the result; in this case a 95% confidence interval ($t=1.96$ which is the abscissa of the normal curve).

p = an estimate of the proportion of people falling into the group in which we are interested, i.e. child mortality. α = probability of type I error, or level of significance. e = proportion of error we are prepared to accept (sampling error; 5% anticipated error).

Using the above formula, 255, 163 and 113 women aged 15-49 were interviewed in the Lawra, Dangme West and Ejisu-Juaben Districts respectively. Data for the study were obtained in face-to-face household interviews in the respondents' residence. In households where there were two or more women within the category (15-49 years), the first willing woman was interviewed. An over sampling of 20 additional women across the Districts was undertaken in order to eventually arrive at the 531 women. In all, the response rate was 94% indicating a higher willingness to participate in the survey. The 531 women had between them 773 children of which 317 representing 41% had fallen sick four weeks prior to the survey. This paper is based on the 317 children who had fallen sick four weeks prior to the survey. We investigated how the choice of health care provider (private medical care, public medical care,

pharmacy/over-the-counter drug, traditional/faith healing and self treatment) influences consumers' (in this case the mother or the caregiver) level of satisfaction.

3.2 Ethical consideration

As part of the requirements for conducting surveys on human subjects in Ghana and elsewhere, the study was approved by the Ethical Review Committee of the Ghana Health Service (Ministry of Health). In addition, all study participants gave informed consent before participation and all information was collected confidentially.

4. Empirical Estimation

Econometric analysis has been applied extensively to consumer or customer satisfaction related to health care delivery (Chu-Weininger and Balkrishnan, 2006; Margolis, et al. 2003; Bara et al. 2002; Derose, 2001; Hoerger et al. 2001; Fredrik, 2000; Qatari and Haran, 1999). Due to the ordinal nature of the dependent variable; the level of satisfaction associated with the use of an alternative health care which takes on the values 1-5, with 1 being the least and 5 the best, the appropriate model is the ordered logit model (Bara et al. 2002; Derose, 2001; Fredrik, 2000). The selected link function is logit over probit because of the computational advantages of the ordered logit model (Van Beek, 1997). This model takes into consideration the ordinal nature of the satisfaction variable and estimates the probability that a consumer will choose each satisfaction rating based on personal and provider characteristics (which in our model are a series of dichotomous variables). In order to compute the marginal effects after the estimation, we omitted one of the categories (very dissatisfied) since none of the parents (mothers) who utilized private health care chose the option "very dissatisfied".

We posit that the level of satisfaction is suggestive of the quality of health care. There are other quality indicators, such as nurse and physician satisfaction, mortality and morbidity outcomes and other factors such as ratings of inappropriate health system use. However, due to data limitation, the analysis is restricted to the overall level of satisfaction. In the empirical estimation, we test the hypothesis that there is no significant difference between the levels of satisfaction associated with the choice of a health care provider such as private versus public health providers.

The assumption of the ordered logit model is that there is a continuous latent variable 'Satisfaction' or 'Utility' (y^*), which is unobserved and y which is observed. The variable y is an ordinal version of U which has threshold points. The value on the observed variable y depends on whether it crosses a particular threshold or not. Let y_1, y_2, y_3, y_4, y_5 denote the categories of the variable. Hence, the ordered logit model is based on the following specification:

$$y_i^* = \alpha' x_i + \varepsilon_i$$

$$y_i = 1 \text{ if } y_i \leq U_1$$

$$2 \text{ if } U_1 < y \leq U_2$$

$$3 \text{ if } U_2 < y \leq U_3$$

$$4 \text{ if } U_3 < y \leq U_4$$

$$5 \text{ if } y > U_4$$

The U 's merely provide the rankings. The model is estimated using maximum likelihood. In ordered logistic regression, an underlying outcome measurement is modelled as a linear function of the independent variables and a set of cut points. Thus the probability of observing outcome i corresponds to the probability that the estimated linear function, in addition to the random error, is within the range of the cut points estimated for the outcome.

$$\text{Prob}(\text{outcome}_j = i) = \text{Prob}(\kappa_{i-1} < \beta_1 x_{1j} + \beta_2 x_{2j} + \dots + \beta_k x_{kj} + \varepsilon_j \leq \kappa_i)$$

ε_j is assumed to be logistically distributed. The coefficients $\beta_1, \beta_2, \dots, \beta_k$ are estimated together with the

threshold points K_1, K_2, \dots, K_{k-1} , where k is the number of possible outcomes. K_0 is taken as $-\infty$ and K_k is

taken as $+\infty$. The model was estimated using Stata Statistical Software, Release 10.0 (StataCorp, 2007).

The control variables in the empirical estimation which encompass socio-demographic and economic characteristics have been chosen with recourse to general empirical literature. A negative sign on the coefficient means that a higher value of the variable increases the odds of a lower value of the outcome (*very dissatisfied*). For example, a negative coefficient on the variable “sex of child” means that parents of girls (sex=1) have higher odds of dissatisfaction of health services as compared to boys. For continuous variables, a positive sign of the linear predictor ensures that higher values of the coefficients lead to increased probability for the higher categories (say *very satisfied*).

4.1 Results and Discussion

In terms of childhood morbidity prior to health seeking, malaria remained the most endemic (see Figure 1). It accounted for 60% of the diseases suffered by the children, followed by diarrhoea (18%) and cough (15%). Generally, malaria remains the major cause of morbidity and mortality in sub-Saharan Africa, claiming more than one million lives each year, the vast majority of whom are children aged under-five, normally residing in remote rural areas with poor access to health services (Connor *et al.*, 2007). In Ghana, malaria is the leading cause of morbidity and mortality in both children and adults. In 2007, malaria accounted for 38.6% of outpatient attendance and was responsible for over 18% of deaths reported at health facilities (Ghana Health Service 2007).

From the descriptive statistics in Table 2, satisfaction with the health care system in general was 63.4% of those surveyed, while 11.1% were dissatisfied. The satisfaction level is generally high, though not as high as reported in other international literature (Bara *et al.* 2002; Fitzpatrick, 1991) given that the health system in Ghana is fraught with inadequate medical personnel and logistics. One might argue that where there are limited or no alternatives, health care users tend to be content with the status quo. In terms of specific providers, the table indicates that overall, subscribers of private health care are more satisfied than those who demanded other provider’s services. This is buttressed by the fact that none of the parents indicated that they were “very dissatisfied” with private health care. The highest level of dissatisfaction is associated with parents who utilized the services of pharmacy services/over-the-counter drugs. It is also evident from Table 3 that mothers with higher education are less likely to be very satisfied with health services.

<INSERT TABLE 2 and 3 here>

Tables 4 and 5 provide the empirical results for the consumer satisfaction model (ordered logit), reporting coefficients and marginal effects respectively. According to our econometric estimation, after controlling for a range of variables reflecting socio-economic and demographic factors, subscribers of private health care are more satisfied as compared to public, pharmacy services and traditional or faith healing (self-treatment is the reference group). This finding is inferred from the magnitude of the coefficients and the associated marginal effects. This might imply that the quality of private health care is relatively higher than public, pharmacy services and faith healing. The high quality of private health care relative to public is consistent with other studies such as Agha and Do (2009) who concluded that private facilities were superior to public sector facilities regarding physical infrastructure and availability of services. However, the difference between the two sectors is unnoticed in terms of technical quality of care provided (*see also* Jofre-Bonet, 2001). Boller *et al.* (2003) corroborates that private providers of antenatal care in Tanzania were significantly better than public ones with regard to all attributes of quality they investigated. Our finding is in line with other studies which have demonstrated that private health providers can deliver adequate health services than the public sector (Walker *et al.* 2001; Aljunid, 1995). Yet there are other studies that contend that within the private health care delivery, industrial or urban dwellers are more satisfied than those living in a more distant and marginalized settlement (Bazant and Koenig, 2009).

Control variables that were found to be significant were sex of the child, maternal age and education (Chahal, *et al.* 2004), marital status and previous knowledge of health issues (proxied by access to television). Higher educated mothers are found to be less satisfied with their children’s health care services. This might be attributable to the fact that they are more critical about health services provided in general coupled with the fact that they are more knowledgeable about social health issues and their “rights” (Agha and Do, 2009; Chahal, *et al.* 2004; Bara, *et al.* 2002).

Provider characteristics particularly distance (Baltussen *et al.* 2002) and waiting time (Chu-Weininger and Balkrishnan, 2006) were found to be inversely and significantly related to consumer satisfaction. The longer the distance to the nearest health facility, the lower the level of satisfaction associated with the choice of a given provider’s services. Stated differently, proximity to health facilities increases satisfaction while longer distances reduce health care satisfaction. Similarly, longer waiting times are associated with lower levels of satisfaction.

<INSERT TABLE 4 and 5 here>

Table 5 provides information on the estimated marginal effects of each of the satisfaction scales. The demand for private health care increases the level of satisfaction (very satisfied) by 31 percentage points while that of public health increases same by 19 percentage points. Thus parents who demand private health for their children are 12 percentage points more likely to be very satisfied than their counterparts who subscribe to public health care. Therefore, we reject the null hypothesis that private and public health care confer the same level of satisfaction.

The relatively low level of consumer satisfaction of public health care vis-à-vis private health care might be attributable to the general job dissatisfaction and lack of motivation among public sector health care providers. Agyepong *et al.* (2004) highlighted the workplace obstacles that caused dissatisfaction and de-motivated staff in Ghana's public health sector. Among the obstacles the authors mentioned in order of importance were low remuneration; lack of essential equipment, tools and supply to work with; delayed promotion; difficulties and inconveniences with transportation to work; staff shortages and housing among others. The authors concluded that given the workplace obstacles that de-motivate staff and negatively influence their performance, the public sector can hardly provide high quality care.

Parents who utilize pharmacy services are more likely to increase their satisfaction level with health care by 12 percentage points while faith/traditional healing was statistically insignificant, thus conferring the least level of satisfaction. Prior knowledge of health care and marital status is also associated with higher levels of satisfaction while mothers with at least secondary education are more likely to be dissatisfied. It is apparent that younger women (20-24 years) and older women (40+ years) are less likely to be very satisfied with health care. It is also evident that rural dwellers are 8 percentage points less likely to be very satisfied with health providers.

4.2 Limitation of the Study

The survey relied upon respondents' self-assessment of morbidity prior to health seeking. The reliance on self-recall of morbidity is somewhat problematic. Hence, the data for the study did not capture bio-medical variables such as the perceived severity of the illnesses reported which might influence significantly the demand for a particular choice of health provider. These variables are thus captured by the stochastic error term. Even, when such outcomes are captured, their reliability is questionable since severity may depend on the mother's familiarity with that illness, symptoms and its early detection. Thus in the absence of professional diagnosis, variables capturing severity of illness could be misleading.

It must be noted however that, measuring satisfaction can be problematic, partly due to the multifaceted nature of the concept including the very act of defining satisfaction (Collins and O'Cathain, 2003; Verbeek *et al.* 2001). Normally, satisfaction levels do not always equate solely to quality care. Other factors influencing satisfaction include consumer perception, attitudes, expectations and experiences; their physical and psychological health; personal and societal values; and consumer knowledge of and exposure to health services (Hordacre *et al.* 2005; Carr-Hill, 1992). In order to appreciate consumer satisfaction with various aspects of health delivery, it is recommended that future research in the areas of childhood health seeking in Ghana examine specific attributes such as the friendliness of medical personnel, waiting time and professionalism *inter alia*.

5. Conclusion

The paper has investigated the empirical relationship between health care providers and satisfaction with health care. We found that users of private and public health facilities are more likely to be very satisfied with health services than their counterparts who seek health care from traditional healers, pharmacies/over the counter-drugs. However, Consumers of private health services are approximately 12 percentage points more likely to be satisfied than subscribers of public health care. This confirms the notion in Ghana and elsewhere that private health delivery is synonymous with quality care (Boller *et al.* 2003; Jofre-Bonet, 2001; Walker *et al.* 2001; Aljunid, 1995). This implies that the public health system needs some quality adjustments to bring it at par with private health care. In addition, as the quality of modern health care (be it private or public) improves, the demand for unorthodox health care such as traditional medicine and self treatment will reduce in favour of modern health care. Furthermore, we found that distance, waiting time, maternal education and gender of child *inter alia* are significant predictors of health care satisfaction.

Finally, while parents have the right to choose the type of treatment option for their children, the children also have a fundamental right to appropriate health care. In many instances, parents who subscribe to self treatment and other unorthodox treatment options, refer their children to appropriate health care only when their conditions have already deteriorated. It will be imperative if public health policy could address such anomaly by making appropriate health care an inalienable right of children.

Acknowledgment

The authors would like to thank the Center for Development Research, University of Bonn, Germany for funding the field research and two anonymous referees for their very helpful comments. However, the usual disclaimer applies.

References

- Agha, S., & Do M. (2009). The quality of family planning services and client satisfaction in the public and private sectors in Kenya. *International Journal for Quality in Health Care*, 21(2), 87-96.
- Agyepong, I. A., Anafi, P., Asiamah, E., Ansah, E. K., Ashon, D. A., & Narh-Dometey C. (2004). Health worker (internal customer) satisfaction and motivation in the public sector health care providers. *International Journal of Health Planning and Management*, 19(4), 319-36.
- Akazili J., Adjuik, M., Jehu-Appiah, C., & Zere E. (2008). Using data envelopment analysis to measure the extent of technical efficiency of public health centres in Ghana. *BMC International Health and Human Rights*. 8:11.
- Aljunid, S. (1995). The role of private medical practitioners and their interactions with public health services in Asian countries. *Health policy and Planning*, 10, 333-49.
- Anaman, K. A. (2003). *Research Methods in Applied Economics and Other Social Sciences*, Brunei Press Sendirian Berhad, Brunei Darussalam.
- Baltussen, R. M. P. M., Ye, Y., Haddad, S., & Sauerborn R. S. (2002). Perceived quality of care of primary health care services in Burkina Faso. *Health Policy and Planning*; 17(1), 42-48.
- Bara A. C., van den Heuvel, W. J. A., Maarse, J. A. M., & van Dijk J P. (2002). Users' satisfaction with the Romanian health care system: and evaluation of recent health care reforms. *European Journal of Public Health*(Supplement), 12(4), 39-40.
- Bazant, E. S., & Koenig M. A. (2009). Women's satisfaction with delivery care in Nairobi's informal settlements. *International Journal for Quality in Health Care*, 21(2), 79-86.
- Boller, C., Wyss, K., Mtasiwa, D., & Tanner M. (2003). Quality and comparison of antenatal care in public and private providers in the United Republic of Tanzania. *Bulletin of the World Health Organization*, 81(2).
- Calnan, M. (1997). Citizens, users and health care. *European Journal of Public Health*. 7(1):1- 2(editorial).
- Cambell, S., Roland, M., & Buetow S. (2000). Defining quality of care. *Social Science and Medicine*. 51, 1611-1625.
- Carr-Hill, R. (1992). The measurement of patient satisfaction. *Journal of Public Health Medicine*. 14(3), 236-249.
- Chahal, H., Sharma, R. D., & Gupta M. (2004). Patient satisfaction in public outpatient health care services. *Journal of Health Management*, 6(1), 23-45.
- Chu-Weininger, M. Y. L., & Balkrishnan R. (2006). Consumer satisfaction with primary care provider choice and associated trust. *BMC Health Services Research*. 6:139.
- Cochran, W. G. (1977). *Sampling Techniques*, 3rd Edition, John Wiley:75.
- Cohen, G. (1996). Age and health status in a patient satisfaction survey. *Social Science and Medicine*, 42(7), 1085-1093.
- Collins, K., & O'Cathain A. (2003). The continuum of patient satisfaction-from satisfied to very satisfied. *Social Science and Medicine*, 57, 2465-2470.
- Connor, S. J., Da Silva J., & Katikiti S. (2007). Malaria Control in Southern Africa. In M. E. Hellmuth, A. Moorhead, M. Thompson & J. Williams (Eds), *Climate Risk Management in Africa: Learning from Practice*, Climate and Society No. 1.
- Derose K. P., Hays R. D., McCaffrey, D. F., & Baker D. W. (2001). Does physician gender affect satisfaction of men and women visiting the emergency department? *Journal of General Internal Medicine*, 16, 218-226.
- Donabedian, A. (1992). Quality assurance in health care: consumers' role. *Qual Health Care*, 1, 247-251.
- Fitzpatrick, R. (1991). Surveys of patient satisfaction: important general consideration. *British Medical Journal*, 302, 887-889.
- Fredrik, C., & Jostein G. (2000). Consumer satisfaction and supplier induced demand. *Journal of Health Economics*, 19:731-753.
- Ghana Health Service. (2005). Annual report. Ministry of health, Accra.
- Ghana Health Service. (2007). Annual report. Ministry of health, Accra.
- Ghana Statistical Service. (1997). Ghana core welfare indicators questionnaire (CWIQ) survey 1997/98. GSS, Accra. Ghana
- Ghana Statistical Service. (2003). Ghana core welfare indicators questionnaire (CWIQ) survey. GSS, Accra. Ghana.
- Hadorn, D. (1991). The role of public values in setting health care priorities. *Social Science and Medicine*, 32, 773-781.

- Hall, J., & Dornan M. (1998). Meta-analysis of satisfaction with medical care: description of research domain and analysis of overall satisfaction levels. *Social Science and Medicine*, 27, 637-644.
- Hoerger, T. J., Finkelstein, E. A. & Bernard S. L. (2001). Medical satisfaction with durable medical equipment supplies. *Health Care Financing Review*, 23(1), 123-136.
- Hordacre, A-L., Taylor, A., Pirone, C., & Adams R. (2005). Assessing patient satisfaction: implications for South Australian public hospitals. *Australian Health Review*, 29, 439-446.
- Jofre-Bonnet, M. (2000). Health care: private and/or public provision. *European Journal of Political Economy*, 16(3), 469-489.
- Lapsley, H. (2000). *Quality measures in Australian health Care*. In: health reform in Australia and New Zealand. Bloom, A. (Eds.). Melbourne, Vic: Oxford University Press, 282-292.
- Margolis, S. A., Al-Marzouqi, S., Revel, T., & Reed R. L. (2003). Patient satisfaction with primary health care services in the United Arab Emirates. *International Journal for Quality in Health Care*, 15, 241-249.
- Maxwell, R. J. (1984). Quality assessment in health. *British Medical Journal*, 288, 1470-1472.
- Qatari, G. A. L., & Haran D. (1999). Determinants of users' satisfaction with primary health care settings and services in Saudi Arabia. *International Journal for Quality in Health Care*, 11(6), 523-531.
- Rakin, S., Hughes-Anderson, W., House, J., Aitken J, et al. (2002). Rural residents' utilization of health and visiting specialist health services. *Rural and Remote Health*, 2. [Online] Available: www.rrh.org.au (Assessed 20 December 2008).
- Sitzia, J., & Wood N. (1997). Patient satisfaction: a review of issues and concepts: *Social Science and Medicine*, 45, 1829-1843.
- Smith, K. B., Humphreys, J. S., & Jones J. A. (2006). Essential tips for measuring levels of consumer satisfaction with rural health service quality. *Rural and Remote Health*, 6, 594. [Online] Available: www.rrh.org.au (Accessed 10 January, 2009).
- StataCorp. (2007). *Stata Statistical Software: Release 10*. College Station, TX: StataCorp LP.
- The state of the Ghanaian economy annual report. (2003). Institute of statistical, social and economic research, University of Ghana, Legon, Accra.
- The state of the Ghanaian economy annual report. (2006). Institute of statistical, social and economic research. University of Ghana, Legon, Accra.
- Van Beek, K. W. H., Koopmans, C. C., & Van Praag B. M. S. (1997). Shopping at the labour market: a real tale of fiction. *European Economic Review*, 41, 295-317.
- Verbeek J., van Dijk, F., Rasanen, K., Piirainen, H., Kankaanpaa, E. & Hulshog C. (2001). Consumer satisfaction with occupational health services. should it be measured? *Occupational and Environmental Medicine*, 58, 272-278.
- Walker, D., Muyinda, H., Foster, S., Kengeya-Kayondo, J., & Whitworth, J. (2001). The quality of care by private practitioners for sexually transmitted diseases in Uganda. *Health Policy and Planning*, 16, 35-40.
- Williams, S., & Calnan M. (1991). Convergence and divergence: assessing criteria of consumer satisfaction across general practice, dental and hospital care settings: *Social Science and Medicine* 1991, 33, 707-716.

Endnotes

1. Strategies adopted to improve quality of care included: provision of more resources for health care; improved and expanded human resource development; strengthening of health care management and introduction of quality assurance (QA) programmes (GHS, 2007).
2. This is in international prices (Purchasing Power Parity). <http://afro.who.int/ome/countryprofiles.html>
3. Using the GDHS (2003), $p = 0.21$ (in the Upper West Region: Lawra/Nandom), $p = 0.12$ (in the Ashanti Region: Ejisu-Juaben) and $p = 0.08$ (in the Greater Accra Region: Dodowa District). Given that there has been a significant improvement in health care between 2003 and 2007, the mortality cases are expected to be lower than the proportions experienced in 2003.

Table 1. Public Health Spending

year	Exchange Rate (¢/\$)	Population	Per capita Public Health Exp(US\$)
2000	5,455.06	19.87	5.85
2001	7,170.76	20.31	6.22
2002	7,932.70	20.76	8.20
2003	8,677.37	21.21	10.50
2004	9,004.63	21.66	13.82
2005	9,072.54	22.11	17.40
2006	9,174.38	22.57	22.78

Source: Computed from Ministry of Health data (2007). Population and Exchange rate data were collated from IMF's International Financial Statistics (2007)

Table 2. Level of satisfaction by Provider Choice

Health Facility	Very Satisfied	Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied
Private	12(33.4%)	13(37.1%)	9(25.7%)	1(2.9%)	0(0.0%)
Public	29(21.2%)	68 (49.6%)	29(21.2%)	7(5.1%)	4(2.9%)
Faith Healing	8(34.8%)	6(26.1%)	6(26.1%)	2(8.7%)	1(4.3%)
Pharmacy	16(25.85%)	24(38.7%)	15(24.2%)	3(4.8%)	4(6.5%)
Self Treatment	7(11.7%)	18(30.0%)	22(36.7%)	2(20.0%)	1(1.7%)
Total	72 (22.7%)	129 (40.7%)	81 (25.6%)	25(7.9%)	10 (3.2%)

Table 3. Maternal Education by overall Satisfaction level

Education	Very Satisfied	Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied
None	16(22.2%)	46(35.6%)	30(37.1%)	5(20.0%)	6(60%)
Primary	11(15.3%)	18 (14.0%)	9(11.1%)	7(28.0%)	0(0%)
Junior High/Mid.	35(48.6%)	44(34.1%)	24(29.6%)	8(32.0%)	4(40%)
Secondary+	10(13.9%)	21 (16.3%)	18(22.2)	5(20.0%)	0(0%)
Total	72	129	81	25	10

Table 4. Results of Provider Choice and Satisfaction Level Based on Ordered Logit

Variable	Coefficient	Robust St. Err	Confidence Interval	
Self Treatment (ref.cat.)	-	-		
Private Healthcare	1.5545***	0.4729	0.63	2.48
Public Healthcare	1.1978***	0.3737	0.47	1.93
Pharmacy	0.7011*	0.3742	-0.03	1.43
Traditional/Faith Healing	1.0201	0.6458	-0.25	2.29
Residence (Rural=1)	-0.4865*	0.2738	-1.02	0.05
Age of Child >1 (Ref. Cat.)	-	-		
Age of Child (1-2)	0.4461	0.3027	-0.15	1.04
Age of Child (2+)	-0.3620	0.2788	-0.91	0.18
Sex of Child (Girl=1)	-0.4518**	0.2263	-0.90	-0.01
Birth order	-0.1427	0.0944	-0.33	0.04
Price of Treatment	0.0159	0.0206	-0.02	0.06
Price of treatment Squared	-0.0001	0.0001	-0.0002	0.00007
Log of household income	0.2655	0.2311	-0.19	0.72
Marital Status (1=Married)	0.6789**	0.2960	0.10	1.26
Mother's Age ≥19 (ref. Cat)	-	-		
Mother's Age (20-24)	0.7813**	0.3457	-1.46	-0.10
Mother's Age (25-29)	-0.0293	0.3675	-0.74	0.69
Mother's Age 30-34)	0.4816	0.4250	-1.31	0.35
Mother's Age (35-39)	-0.9755	0.7664	-2.48	0.53
Mother's Age (40+)	-1.0941	0.8251	-2.71	0.52
No education (ref. Cat.)	-	-		
Primary Education	-0.2928	0.3950	-1.10	0.48
Junior High/Middle	-0.094	0.3095	-0.70	0.51
Secondary+	-0.6362*	0.3570	-1.34	0.06
Watches TV (1=Yes)	0.7407***	0.2840	0.18	1.30
Read Newspaper (1=Yes)	0.0806	0.5303	-0.96	1.11
Listens to Radio (1=Yes)	-0.2579	0.2928	-0.83	0.32
Distance	-0.0351*	0.0197	-0.07	0.004
Waiting Time	-0.0035**	0.0014	-0.006	-0.0001
Malaria (1=Yes)	-0.2224	0.3146	-0.84	0.39
Diarrhoea (1=Yes)	-0.4142	0.4069	-1.21	0.38
Threshold 1	-2.8430*	1.6270	-6.03	0.35
Threshold 2	-1.3977	1.6006	-4.53	1.74
Threshold 3	0.4105	1.6131	-2.75	3.57
Threshold 4	2.6027*	1.6246	-0.58	5.79
Number of Observations	= 317			
Pseudo R-square	= 0.11			
Log Pseudolikelihood	= - 385.40			
Wald chi-square (28)	= 120.42			
Prob > chi-square	= 0.0000			

*** = (sig. at 1%), **=(sig. at 5%) and *(sig. at 10%).

Table 5. Results of Provider Choice and Satisfaction Level Based on Ordered Logit (Reporting Marginal Effects)

Variable	Very Satisfied	Satisfied	Somewhat Satisfied.	Somewhat Dissatisfied
	<i>dy/dx</i>	<i>dy/dx</i>	<i>dy/dx</i>	<i>dy/dx</i>
Self Treatment (ref.cat.)	-	-	-	-
Private Healthcare	0.31326 (0.110)***	-0.05293(0.062)	-0.19211(0.044)***	-0.05071(0.013)***
Public Healthcare	0.18911(0.060)***	0.06457(0.026)***	-0.17299(0.051)***	-0.05909(0.021)***
Pharmacy	0.11927(0.071)*	0.02342(0.014)	-0.10150(0.051)**	-0.03044(0.014)**
Traditional/Faith Healing	0.19389 (0.146)	-0.00695(0.060)	-0.13690(0.070)**	-0.03716(0.017)**
Residence (Rural=1)	-0.07642 (0.045)*	-0.02835(0.015)*	0.07279 (0.040) *	0.02353(0.013)*
Age of Child >1 (Ref. Cat.)	-	-	-	-
Age of Child (1-2)	0.07153(0.051)	0.02336(0.013)*	-0.06645(0.043)	-0.02096(0.013)
Age of Child (2+)	-0.05371 (0.041)	-0.02685(0.022)	0.05492(0.042)	0.01882(0.015)
Sex of Child (Girl=1)	-0.06846 (0.034)**	-0.03087(0.017)*	0.06816(0.033)**	0.02289(0.012)*
Birth order	-0.02136 (0.014)	-0.01028(0.007)	0.02170(0.014)	0.00731(0.004)
Price of Treatment	0.00238(0.003)	0.00115(0.001)	-0.00243(0.003)	-0.00082(0.000)
Price of treatment Squared	-0.00001(0.000)	-0.00005(0.000)	0.00001(0.000)	-0.00004(0.000)
Log of household income	0.09136 (0.034)	0.01914(0.017)	-0.04039(0.035)	-0.01359(0.011)
Marital Status (1=Married)	0.09136 (0.034)***	0.65782(0.039)*	-0.10212(0.043)**	-0.04002(0.021)*
Mother's Age ≥19 (ref. Cat)	-	-	-	-
Mother's Age (20-24)	-0.10520 (0.042)***	-0.07521(0.04)*	0.11687(0.050)**	0.04618(0.024)**
Mother's Age (25-29)	-0.00436 (0.054)	-0.00214(0.027)	0.00445(0.055)	0.00151(0.019)
Mother's Age 30-34)	-0.06497 (0.051)	-0.04674(0.051)	0.07307(0.063)	0.02815(0.028)
Mother's Age (35-39)	-0.11091(0.063)*	-0.12383(0.126)	0.13764(0.085)*	0.06936(0.072)
Mother's Age (40+)	-0.11907 (0.061)**	-0.14494(0.410)	0.14924(0.078)**	0.08144(0.082)
No education (ref. Cat.)	-	-	-	-
Primary Education	-0.04098 (0.051)	-0.02603(0.042)	0.04468(0.060)	0.01633(0.024)
Junior High/Middle	-0.01397 (0.045)	-0.00698(0.023)	0.01432(0.047)	0.00487(0.016)
Secondary+	-0.08296 (0.040)**	-0.06606(0.047)	0.09558(0.052)*	0.03879(0.026)
Watches TV (1=Yes)	0.11300 (0.046)***	0.04861(0.020)***	-0.11047(0.042)***	-0.03752(0.015)***
Read Newspaper (1=Yes)	0.12328 (0.082)	0.00533(0.031)	-0.01220(0.079)	-0.00401(0.025)
Listens to Radio (1=Yes)	-0.04035 (0.048)	-0.01545(0.014)	0.03883(0.043)	0.012550(0.013)
Distance	-0.00526 (0.003)*	-0.00253(0.001)	0.00534(0.003)*	0.00179(0.001)*
Waiting Time	-0.00053 (0.000)***	-0.00025(0.001) **	0.00054(0.000)***	0.00018(0.000)**
Malaria (1=Yes)	-0.03376(0.048)	-0.01519(0.020)	0.03371(0.047)	0.01121(0.015)
Diarrhoea (1=Yes)	-0.05655 (0.050)	-0.03914(0.046)	0.06301(0.061)	0.02383(0.026)

*** = (sig. at 1%), **=(sig. at 5%) and *(sig. at 10%). Standard errors in parenthesis

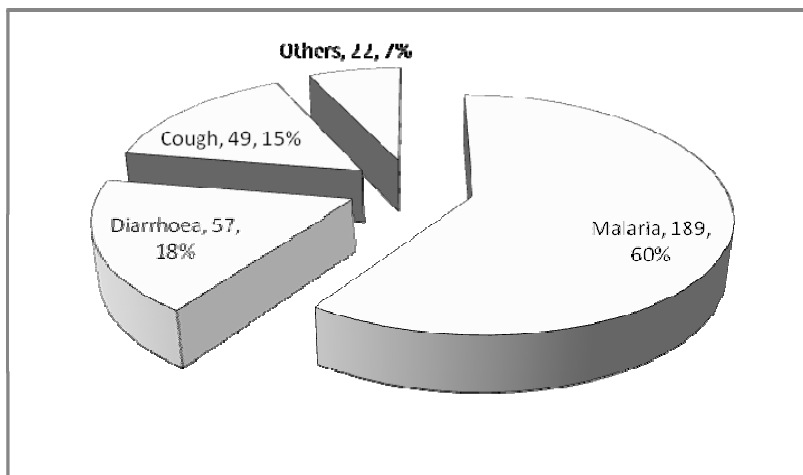


Figure 1. Which Illness did Child Suffer?

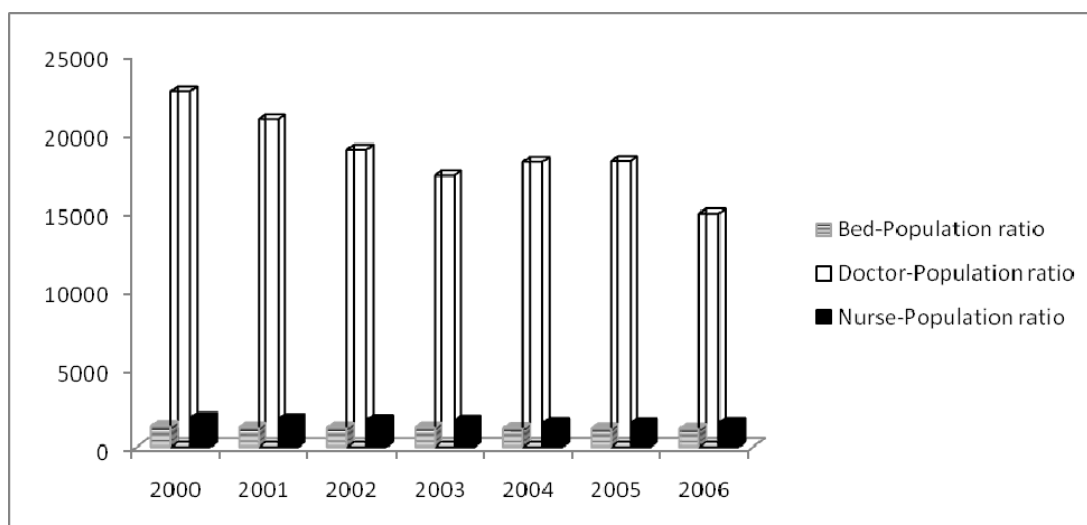


Figure 2. Bed, Doctor and Nurse state statistics
Source: Ghana Health Service- Ministry of Health, 2007