The Influence That Doctors and Medical Insurance Providers Have On Patients' Perception of Quality

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Abstract*:Hospital quality comprises of technical and functional components. What is in the purview of the patient is the functional quality. The patient makes a choice of hospital depending on this functional quality. On the other hand, doctors and Medical Insurance Providers have access to data on technical (clinical) quality. Doctors and Medical Insurance Providers have close interactions with the patients.*
Data was collected from patients, the doctors who admitted the patients and the Medical Insurance Providers who provided cover for these patients in eligible private hospitals across Kenya using a modified SERVQUAL tool that is based on the identification of the expectation-experience gap.
Descriptive and inferential analyses were done. Four dimensions(Interpersonal, Environment of Care, Administrative and Access) were regressed against future behavioral intention (intention to return should the need arise as well as intention to refer others favorably) for patients, doctors and Medical Insurance Providers. The influence of the doctor and Medical Insurance Provider were then discerned.
Doctors and Medical Insurance Providers significantly influence patients' perception of quality. This is in the background that there is incongruity between Doctors and Medical Insurance Providers understanding of patients' expectation and experience from actual patients' expectation and experience.

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I. Introduction

The level of the actual healthcare the patient receives is technical quality. This is the reason why patients seeks healthcare. However, the patient is not only interested in what he or she receives as an outcome of the process, but in the process of delivery of healthcare itself [1]. This quality dimension is called functional quality. From the patients' perspective, this (the process of delivery) may be what they consider as the entirety of the service they have received. When this perceived service is compared with the expected service, then one gets the perceived service quality (Grönroos, 1984). The functional dimension is perceived in a very subjective way. In the context of healthcare, perception of quality is thus a function of both process and outcome (González, Quesada, Mack, &Urrutia, 2005). The ultimate decision maker is the patient himself or herself. Patients considered referral by physician to be important while making their choice of hospitals[2]. Patients may be referred to the hospital by their doctor, friends and relatives, self referral or through third party payers which are usually Medical Insurance Providers (MIP). Thus, doctors and third party payers have a significant influence on which hospital the patient attends.

Options availed to physicians and MIP introduces an agency problem [3]. Decisions made by the doctor or MIP are usually not in the interest of the patient or hospital but in their own (Doctors ad MIPs) interest. Doctors choose a hospital not only because of patients' preferences for a hospital or provider but also due to quality of care, patient's travel distance to a hospital or provider, doctor's personal contact with a specialist, waiting list, specific treatment or techniques and experiences of other patients in order of importance. Doctors did not use comparative performance information when it was available [4]. Even where there is legislation guiding doctors, majority of patients had no role on which institution they were referred to. Their doctors made the choice for them. This choice was made by the doctor without giving option or reason for the preference [5]. 70% of Dutch healthcare consumers rely on their doctors to refer to a hospital for admission. Physician reputation is a determinant of patients patronizing the hospital. [6].

In a cross-sectional study in Ethiopia, physician-patient interaction was found to be an important determinant of patient satisfaction which in turn is influenced by communication, both verbal and non-verbal. Related to this, the consultation adequacy and duration was also found to be an important factor [7].

Information on price and benefits package is more available to patients than information about satisfaction or quality. Even less available is information on clinical performance and medical outcomes. When data is more available, it is not always easy for patients to interpret and use it to make decisions. And even when patients demand for data, there is no guarantee that they will use it. Patients seem to use more information from family, friends and practitioner [6]. Patients rely on others prior experience more than published information in making a choice between hospitals, and in doing so, patients rely more on information on practitioner expertise and communication [8].

Physicians do not always make decisions only on the basis of hospital quality. In a quasi-experimental study that looked at change in behavior before and after changes in re-imbursement policy and practice, physicians' choice of medication was influenced by expected financial benefit (agency theory) [9]. Source of payment (insured or on-insured) significantly changed clinical practice. In obstetric care, more insured patient had caesarean section than non-insured[10]. This not only impacts overall patient's perception of quality and satisfaction, but illustrates that other conditions or circumstances influence referral choice. Doctors may manipulate the system for social benefit and be advocates for the patients without the alignment to employer or payers, as opposed to perverse incentive that benefits the doctors financially which happens in some instances [11]. Doctors overrule their patients' choice if they feel that there is a case for promoting medical benefit, preventing harm or enhancing doctor's-patient relationship [12].

Many doctors refer patients without involving them in the referral choice. The doctors distrust the information available to them and do not use it to advice on choice of hospital[13]. Indeed in a study where older patients felt it was important for them to have information on hospitals to make informed choices, doctors felt it was the younger patients who needed to have this information. This illustrates that occasionally, doctors get it wrong [1]. Patients do listen to their doctors and follow their advice. In an interesting experimental design study, patients' changed their preferred choice of medication to that recommended by a physician even if they thought that the physician was wrong [14].

In a study based in Iran, insurance type and lack of acceptable insurance significantly affected choice of hospital. Interestingly a hospital of academic status was viewed more favourably because of reputation of its doctors [15].

II.   Objectives And Hypotheses
The objectives of this study were to determine the influence that doctors and Medical Insurance Providers have on patients' perception of quality and to determine Doctors' and Medical Insurance Providers' understanding of patients' perception of quality. The study tested the hypotheses that Doctors and Medical Insurance Providers do not have significant influence on patients' perception of quality and also that Doctors and Medical Insurance Providers have no understanding of patients' perception of quality

III.   Methodology And Results
Healthcare in Kenya is provided by either the public or the private sector. The hospitals are organized in to six levels by the registering authority, The Kenya Medical Practitioner and Dentists Board. Level one is the community health center practicing predominantly primary healthcare, level two hospitals continue with promotive and preventive healthcare but begin to undertake curative care of common ailments, mainly on an outpatient basis. By level three, hospitals offer maternity and nursing services. Level four hospitals are secondary care hospitals offering in-patient, outpatient and theatre services. Level five hospitals are regional referral hospital and have the ability to treat acute life threatening illness as well as manage chronic illnesses. Level six are national referral hospital. These have the ability to treat complex illnesses [16]. At the time of the study there were 2884 registered private health facilities in the country of which 702 admit inpatient. Of these,15werelevel five and level six hospitals[17]. A multi-stage sampling method was used from January 2016 to December 2016. The first stage was a census of all level five and six private hospitals in Kenya. One hospital, even though officially classified as a level five hospital, did not meet the criteria for a level five hospital and was therefore excluded from the study. Of the 14 eligible hospital, 12 (86%) participated in the study.

The second stage sampling was that of the discharged patients in each hospital who were sequentially sampled until the sample size was reached for each hospital. All patients that were on the discharge list for the day were recruited down the list without omitting or skipping any. Parents or guardians participated on behalf of patients in the Pediatric wards or those who were less than eighteen years old.

The third stage was that of sampling of doctors. The country had 9,734 registered doctors as at the time of study. Many institutions had a mixed doctor population – those employed and those with visiting privileges. Visiting doctors usually have privileges in multiple hospital and make a conscious choice of where to admit patients. This study excludes employee doctors who only work and admit patients in a single institution. All the doctors (840) whose patients had been recruited were approached to enlist in the study. The

response of rate of doctors was 10%. Each doctor-respondent completed in one questionnaire for each participating hospital that their patients had been discharged from irrespective of the number of patients discharged by that doctor. This implies that each doctor filled one questionnaire per hospital.

The fourth stage was that of sampling of Medical Insurance Providers. Insurance penetration in Kenya in general was low at 1.8% at the time of the study. There were 22 Medical Insurance Providers registered in Kenya [18]. There were 15 Medical Insurance Providers of the patients participating in the study which constituted 68% of the target population. Each MIP-respondent who participated completed one questionnaire for each participating hospital that their patients had been discharged from irrespective of the number of patients discharged from that particular hospital. This implies that each MIP-respondent completed a maximum of one questionnaire per hospital. Data was coded and entered in a Microsoft Excel® data sheet at the end of each day and then transferred to the IBM SPSS® version 24, 2016 data analytics software for processing.

The scale items and the six dimensions associated with them were extracted and adapted after reviewing and affinity grouping of multiple studies (Parasuraman, Zeithaml, and Berry, 1985, 1994; Babakus and Mangold, 1992; Cronin Jr and Taylor, 1994; Fogarty, Catts, and Forlin, 2000; Gill and White, 2009; Brahmbhatt, Baser, and Joshi, 2011; Chahal and Kumari, 2012; Kazemi, Ehsani, Abdi, and Bighami, 2013; Ghosh, 2015; Naik, Anand, and Bashir, 2015; Legido-Quigle et al (2008); Andaleeb, 1998; Alhassan, et al., 2015; Chahal and Kumari, 2012; Tokunaga and Imanaka, 2002; González, et al., 2005). The variables from the papers above were affinity grouped, duplicates removed and adapted within the Kenyan cultural context and 32 variables were developed within the six dimensions.

Each respondent answered paired questions, one for experience score and the other for expectation. Each question had options on a five point Likert scale of 1 to 5 where 1 is least likely and 5 most likely. Other nearly identical questionnaires (only adjusted to reflect the respective respondent point of view instead of patient–facing) were also administered for doctors and Medical Insurance Provider. Additional difference in the questionnaires was on introductory and demographic information asked for, for each group of respondents.

Of the 1519 respondents, 168 questionnaires had incomplete or multivariate outliers (using Mahalanobis distance) and were removed from analyses. The remaining 1351 were used for further analysis. Of these 1172 were patient-respondents, 95 were MIP-respondents and 84 doctor-respondents. The Cronbach alpha was 0.906 which indicates a high level of internal consistency. Based on the results of determinant matrix, KMO and Bartlett's Test, the sample for this study met the criterion set for factor analysis and further analysis. The initial communalities after extraction, only two factor scores were below 0.4. The remaining factors indicated good internal consistency of factor loadings of the latent variables. Four latent factors were extracted with the first latent factor "Environmental of Care" dimension explaining 40.1%, followed by "Interpersonal" dimension explaining 8.3%, "Access" dimension explaining 6.7% and "Administrative" dimension explaining 5.2%. Cumulatively the four latent constructs accounted for 60.3% variance of the extraction.

Principal Component Analysis and Varimax rotation with Kaiser Normalization which amplified the factor loadings of the four extracted variables, 22 unobserved or latent or unmeasured factors/constructs were formed using regression scores of each observed variable retained in EFA.The data was subjected to exploratory data analysis to test for Normality, Linearity, Skewness and Kurtosis, multicollinearity (using variance inflation factors – VIF) and correlation (using Pearson correlation coefficients of the latent variables). None was of critical significance.

Almost two out of every three patient-respondents were female. There were 6.6 times more Male doctor-respondents. Three quarters of the patient-respondents were below 45 years old, whereas 70% of the doctor-respondents were above 45 years (indeed this rises to over 90% who were more than 35 years old). The doctors were experienced with majority (about 70%) having being in practice for more than 10 years. Majority of the patients were admitted for the first time and stayed in the general wards (as opposed to private rooms) and majority (88%) of patients stayed less than 6 days.

The predominant payers of the patients-respondent's was Medical Insurance Provider (81%). An additional 4% was paid for by MIP but with contribution from self. The remaining were exclusively self-paying (Out of pocket).The majority of the patient-respondents' were self-referral (62%) with the main source of admission being from the clinics (70%). Doctors referred 31% and MIP 7%. The table below (Table 1) compares by source of referral the regression coefficient and the goodness of fit (R-squared) of the model that included controlling variables for each of the two dependent variables.

Compared to those patients that were self-referral, the regression equations relating to both aspects of future behavioral intentions are very different when compared to regression equation of those referred by doctors or by Medical Insurance Provider. The difference is in the hierarchy of importance, magnitude of influence of the independent variables and the contribution of the explanatory variables in explaining their influence on the dependent variable

Table 1: Comparative regression equations where dependent variable is intention to refer others in the future

Source of referral	Dependent Variable	Independent Variable				R^2 (%)	Model Sig
		Interpersonal	EoC and hospitality	Administrative	Access		
self-referral	Intention to refer or recommend others	0.234***	0.189***	0.147***	0.141***	8.9	0.000
Doctor-referred Patient-respondents		0.326***	0.282***	0.114**	-0.006	16.0	0.000
MIP-referred Patient-respondent		0.205**	0.331***	0.204*	0.242**	19.8	0.002
self-referral	Intention to be re-admitted in the future	0.224***	0.233***	0.152***	0.224***	12.8	0.000
Patient referred by Doctors#		0.245***	0.188***	0.104**	0.030	8.7	0.000
Patient referred by MIP~		0.141	0.271**	0.111	0.290***	8.9	0.003

Note: ***p value < 0.001, ** p value < 0.01 and * p value < 0.05.
EOC is Environment of Care

Hypotheses 1 –The null hypotheses that *Doctors and Medical Insurance Providers do not have significant influence on patients' perception of quality* cannot be accepted.

Doctors' understanding of patients perception of quality
Doctors and Medical Insurance Providers (MIP) were asked to rate what they thought their patients perception of quality was and based on this perception, the doctors and MIP were asked about their (the doctors' and MIP) Future Behavioral Intention (Intention to favorably refer others).

Chi Square test of independence showed that Gender, Doctors' age band and years of practice at 5% level of significance, were not confounders.

The regression model, of the doctors' intention to refer others, none of the explanatory variable were significant at 5% level of significance indicating that none of the dimensions significantly impacted on the decision to refer others to the hospital. Interpersonal dimension approached some marginal significance at a higher level of significance of 0%

Comparing the doctors' understanding of their patients' perception of quality and that of the patients shows a large difference in the regression equation.
Patients' regression equation was as follows;
Future Behavioral Intention (Recommend others) = 0.093 + 0.266 x Interpersonal Dimension + 0.233 x Environment of Care and Hospitality + 0.137 x Administrative processes + 0.102Access – 0.065mode of referral + e.
Doctor-respondents' relationship between the dependent and independent variable only manifested at a higher level of significance (10% level of significance) and the regression equation was follows
Future Behavioral Intention (Recommend others) = 0.064 + 0.093 x Interpersonal Dimension + e

In any case, the model itself is not statistically significant. This implies the dependent variable have no statistically significant relationship with the determinants. Therefore, doctors' intention to refer others is not related to the doctors understanding of patients' perception of quality.

This implies that not only do doctors not have an understanding of patients' perception of quality but do not use any of this information to refer patients to a hospital.

Medical Insurance Providers' understanding of patients perception of quality
The regression model for MIP understanding of patients' perception of quality, the coefficient of determination (R^2) obtained implied that the four response variables explain 7.2% of the variance associated with Medical Insurance Providers referring or recommending the hospital in future. The resultant Fishers test statistics are not significant with a p-value = 0.448. This is an implication that the regression equation is not sufficient for the associated goodness of fit statistics. Even though two explanatory variables were significant with p-values less than 0.05 indicating that Access and Administrative process significantly impacted on future behavioral intention, the regression model itself was not significant at 5% level with a p-value of 0.086.

Thus when comparing patients' and MIP care managers' regression equations, Patients' regression equation;

Future Behavioral Intention (Recommend others) = 0.093 + 0.266 x Interpersonal Dimension + 0.233 x Environment of Care and Hospitality + 0.137 x Administrative processes + 0.102Access – 0.065mode of referral + e.

MIPS regression equation does not have independent variables that were statistically significantly related to the dependent variable.

It is clear that there is a significant difference in the MIPs perception of the service the patients receive and in any case, this does not influence their intention to refer others to the hospital.

Hypothesis 2 – Doctors and Medical Insurance Providers have no understanding of patients' perception of quality can thus <u>not be rejected</u>**.**

IV. Discussion

Doctors and Medical Insurance Providers (MIPs) appear to have a significant influence on patients, causing asignificantchange in their perception of quality. When patients are referred by a doctor, there was increased emphasis in the interpersonal dimension at the expense of Access dimension which no longer becomes statistically significant. This is not all together surprising. Access constitute financial access (affordability), geographical and in-hospital access. Many of the patients who see private doctors are able to afford the services directly or through high premium insurance cover. Further many patients focus on interpersonal dimension at the expense of clinical information. And even when patients demand for data, there is no guarantee that they will use it. Patients seem to use more information from practitioner.The patients take it that doctor knows best. This is because even less available is information on clinical performance and medical outcomes. When data is more available, it is not always easy for patients to interpret it and use it to make decisions[6].

Patients referred by Medical Insurance Providers have the highest significance in the Environment of Care and Hospitality Dimension. These group of patients also show the highest significance on the Access Dimension. These findings are surprising. Access includes financial access (affordability). It is possible that these patients are concerned about co-payments which is common practice in most Medical Insurance Providers or that the patients are concerned about exhausting their annual limits. The reason why this group scores very high on Environment of Care and Hospitality is not clear. This may be attributed by more demanding patients who may have a sense of entitlement knowing that they have paid high premiums for their insurance cover.

Not only do doctors and MIPs have a significant influence on patients, the current study has shown that they themselves have opinions about perceived quality dimension that are quite different from patients in all the quality dimensions. It therefore behooves hospital leadership to pay attention to these two groups. These findings are in keeping with other similar studies. Brown & Swartz, (1989) showed that there is a significant variation between physician perception of patient experience and patient perception of the same item of service. These may be attributed to information asymetry with the doctor having more technical information but limited functional information.

Contributing to this pervasive influence of doctors on patients is the fact that the current study had 69% of the doctors of more than 45 years of age and 70% have been in practice more than 10 years. The culture in Kenya has a high power distance and strong masculinity in the Hofstede six cultural dimension [19]. This implies Kenyan revere authority and seniority and will defer to the doctors opinion.

Source of payment (insured or uninsured) significantly changed clinical practice. Caesarean section rate is different between insured and non-insured [10]. The commonest comment by Medical Insurance Providers in the open ended questionnaire answers of the study was that of fraud and collusion between patients and doctors, provider and patients and provider and doctors to fit a stated diagnosis to within that covered by insurance even when this was not the case. With rapidly increasing competition among healthcare providers, as well as stand-alone laboratory and pharmacy services in Kenya this agency problem is likely to get even worse and introduce a different dynamic on patient referral to hospital.

V. Conclusions

Patients' perception of quality that affects their decisions to refer others or re-patronize the institution are influenced by the doctors and Medical Insurance Providers. Understanding the doctor and Medical Insurance Providers is key to influencing their referral pattern. MIPs constitute 80% of the payers. The interest of the doctors and MIPs must be taken in to consideration.

Doctors and MIP have a different understanding of patients' expectation and experience and therefore their understanding of what influences patients' intentions to refer others and their intention to return. Indeed

both the doctors and Medical Insurance Providers do not seem to be influenced by their understanding of patients' perception and experience in making a decision to refer others.

With rapidly increasing competition among healthcare providers, as well as stand-alone laboratory and pharmacy services in Kenya the agency problem at the hospital management and governance level is likely to get even worse and introduce different dynamics to patient referral to hospital. This would be an area of further research. It is important to consider major influencers of patients when undertaking research on patients' perception. Most studies have directly looked at patients only. The significant influence of Doctors and Medical Insurance Providers role is crucial to study. This is an area open to further studies considering that the patient perception of quality does not influence these two key players. Clearly this study has not elucidated what doctors and Medical Insurance Providers understanding of quality is. It would be useful to explore the determinants of Quality Perception among doctors and Medical Insurance Providers, starting from a grounded theory approach.

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