Evaluation of Doctor-patient communication outcomes in two public hospitals in Enugu and Ebonyi States, Nigeria

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Abstract

Background: Patient-doctor communication is a critical success factor in ensuring accurate diagnosis and treatment. A patient's satisfaction with such interaction can have positive impact on health outcomes. This study evaluated patient-doctor communication in two tertiary hospitals in two states in southeast Nigeria.

Data Source & Methods: Data were collected with a structured questionnaire from 300 patients in two teaching hospitals. Data were analysed using simple percentages, chi-square test of independence, binary logistic regression and factor analysis.

Results: Results indicated low level of satisfaction of patients with the quality of communication with their doctors, the main contributor to their dissatisfaction being 'doctors' authoritarian communication style'. Factors that positively predicted patients' satisfaction were 'doctors' communication skills' (p=.000), 'patients' religious, cultural and language anxiety influence on communication' (p=.000), and 'democratic communication' (p=.009). Doctors adopted the paternalistic approach in interacting with patients.

Conclusion: Patients reported low level of satisfaction with their doctors' communicative behaviour. This would necessitate a shift from the paternalistic to the patient-centred communication approach in the two hospitals.

Keywords: Communication, patient satisfaction, health outcomes, hospitals, doctors

Introduction

Ordinarily, immediately preceding the onset of an illness should be consultation with a physician or health expert for possible cure. On the contrary, many sick people make prior consultations with friends, family, acquaintances, herbal healers, and spiritual doctors. The medical doctor can become the last option, and in many cases, Nigerians believe it is out-of-hand cases that should go to the doctor (Anker, Reinhart, and Feeley, 2011).

Similarly, many patients see doctors as super humans, and some form of trepidation attends consultation with doctors. Some sick people are only satisfied with seeing a doctor. They neither truly express themselves nor understand the doctor (Baker, 2010). When patients complain about the persistence of an illness even after going to hospital, the problem may lie with communication. Patients' worries also heighten because of certain hospital processes, which many patients consider unsettling, including the involvement of many other medical personnel (nurses, relatives, administrative staff, etc.) before a patient finally sees the doctor (Abiola,Udofia

and Abdullahi, 2014). It is for this reason that patient-doctor communications have continued to attract the attention of research in health communication.

This study attempts to ascertain the influence of patient-doctor communication on patient satisfaction leading to health outcomes; approaches employed to guide such communication and the intervening variables that impinge on the quality and outcome of such communication. In the Nigerian setting, particularly, there are many intervening variables that impinge on healthcare delivery, which studies have yet to consider in the context of patient-doctor communication outcomes. Some of them are stereotypes about doctors, wilful non-disclosure due to fear of cost of treatment, differences in communication settings in private and public hospitals, notions received from self-diagnosis, influences of friends and family and information from alternative sources of healthcare such as herbal healers.

Some studies have used these variables on their own or in general assessment of patient evaluation of healthcare, but not on patient-doctor communication outcomes (Abiola, Udofia and Abdullahi, 2014;

Mohammed, Idowu, Kuyinu, 2010). It should be noted that Agenda 2063 of the African Union, in articles 53 and 57, shows commitment in removing all barriers to quality health services to citizens.

Additionally, Nigerian hospitals are noted for facility problems, which may be a starting point of patient evaluations and expectations. A study on primary health care in rural Lagos indicated that 78% of health centres had inadequate supply of water, electricity and poor toilet facilities; there were deficiencies in basic equipment, ambulance services, and physical access to facilities (Mohammed, Idowu, and Kuyinu, 2010; Ogaji, Giles, Daker-White and Bower, 2016). In line with the views of Juran and Gryna (1993), the level of congruency in the expectations of patients and processes in healthcare as well as hospital staff attitudes prior to seeing the doctor often have significant impacts on healthcare outcomes. Similarly, patients' socio-demographic attributes and system attributes greatly influence patient-reported experiences on health care (Lewis, 1994, cited in Ogaji, Giles, Daker-White and Bower, 2016).

Literature review
Patient satisfaction and health outcomes
Usually, the initial influence of doctor's interaction with a patient is the assurance in the patient that recovery may or may not be imminent. Such communication can therefore become the first therapy towards full recovery and psychological balance. As noted by Iedema and Manidis (2013), effective communication heals, while sub-standard communication may have negative effects. Researchers are agreed that patient-doctor communications can have significant therapeutic effects (Travaline, Ruchinskas and D'Alonzo 2005; Fong &Longnecker 2010,Brédart, Bouleuc&Dolbeault 2005, Moore, Vargas, Núñez&Macchiavello 2011, Anthony, Berman, Darry &Chutka 2016).

Patient-doctor communication can also build a relationship that helps patients to live better life after recovery (Brédart, Bouleuc and Dolbeault, 2005). When such interactions go wrong, they can lead to misdiagnosis and wrong treatments, and can become issues in medical malpractice lawsuits (Moore, Vargas, Núñez and Macchiavello, 2011).

Al-Abri and Al-Balushi (2014) define patient satisfaction as the level of agreement between patients' notions about ideal care and their perceptions of the care received. The authors believe that future communication and health behaviours towards doctors and doctors' prescriptions depend significantly on patient satisfaction. Therefore, when patients have a favourable perception of healthcare provision, there is said to be patient satisfaction.

Patients need to be satisfied with the clinical procedure because such satisfaction is in itself a central variable in measuring healthcare delivery and health outcomes (Powell, 2011; Murante, 2010; Al-Abri& Al-Balushi, 2014; Andrabi, Hamid, Rohul&Anjum, 2012).

Patient satisfaction is often attended by positive health outcomes, which entails deducible changes in health after medical attention (King and Hoppe, 2013). Flocke, Miller and Crabtree (2002) did a cross sectional study looking at 2881 patient visits of 138 family doctors and categorised physicians' interaction styles into four categories: person-focused, biopsychosocial, biomedical and high physician control by the use of a primary care instrument. The study indicated that physicians with a person-focused interaction style with patients were associated with the highest reported quality of care by patients, while physicians with high control styles were associated with the lowest reported quality of care. Similarly, Kelley, Kraft-Todd, Schapira, Kossowsky and Riess, (2014) demonstrated that patient-clinician relationship has a small, but statistically significant effect on healthcare outcomes.

Approaches and models of patient-doctor communication
Doctors use different approaches in discussing with patients. This study considers two broad approaches, namely, patient-centred approach and paternalistic approach. Roter (2010) defines patient-centeredness as a biopsychosocial approach to medical treatment that upholds patients' preferences, experiences and expectations, with the patient having ample opportunity to contribute in the healthcare they receive in a mode that promotes partnership and understanding.

Researchers have attested to the potency of the patient-centred approach in health service delivery (Wynia and Matiasek, 2006); Frosch, May, Rendle, TietbohlElwyn, 2012; Frampton, Charmel, Guastello, 2013 &Guastello, 2014; Roter 2010). King and Hoppe (2013), for instance, found that good patient-centred communication is associated with patient recall, patient understanding and patient adherence to therapy.

In patient-centred approach, the major goal is to get care givers to expand upon the biomedical approach to communicate with the patient. This approach, which is based on moral philosophy, implies (1) helping patients feel understood through inquiry into patients' needs, perspectives and expectations; (2) attending to the psychosocial context; and (3) expanding patients' involvement in understanding their illnesses and in decisions that affect their health (Epstein, Franks, Shields, Meldrum,

Miller, Campbell, and Kevin, 2005; LeBlan, 2015; The paternalistic approach is basically doctor-centred. The approach puts the entire burden of communication and health decisions on the doctor in much the same way parents dictate to their children in key decisions (Roter, 2010; Hellin, 2002). The paternalistic approach is seen as hard-line approach where the doctor has the autonomy of decisions and expects submissiveness from the patient (Kapa and Sooriakumaran, 2007; Murgic, Hébert Sovic, and Pavlekovic, 2015).

Roter (2010) looks at the relationship as a therapeutic visit whose procedure and outcome depend on the approach used. The model talks about the goals of the visit, patient values and physician roles. When the approach is paternalistic, the doctor determines the goal of the visit, presumes patient values and takes the role of a guardian. The process can also be based on mutuality in which goals of the visit are negotiated, patient values are explored and the doctor becomes an advisor. If it is based on consumerism, the visit yields technical information, patient values are unexamined and the doctor becomes a consultant.

Citing Chanin (nd), Wilkins (2014) warns doctors against thinking only in terms of what the patient needs, and also consider how the patient will consider what the doctor is prescribing. Wilkins believes that there is nothing doctors can do and that prescriptions will be of no effect if the patient refuses to adhere to them. Therefore, the ultimate aim should be to assure patient satisfaction and accession to doctor's prescriptions.

Intervening variables in doctor-patient communication

It is not enough to simply outline the benefits of patient-doctor communication and the approaches to it. Research evidence suggests that there are intervening variables that influence the outcomes of patient-doctor communications such as culture, education, gender, economic status and religion. (Ademola and Okunola, 2013; Maraña 2010; Zadeh and Mozaffari, 2014).

A study in Egypt found that gender was a factor in whether women would discuss sexual matters with male doctors (Eltony, Saboula and Hussein, 2013). Taylor, Nicolle and Maguire (2013) reported in a study in the United Kingdom that access to healthcare could be lost when some, particularly Muslims, refuse to allow a female patient to be examined by a male doctor and even a son would not discuss his mother's condition with a female doctor. Bertakis, Franks and Epstein (2009) in a study of 100 family physicians and internists with clinical practices in the Rochester, New York area, reported that

Dean and Street 2014). patients' gender can affect the interactions between physicians and patients. Religion also plays a vital role in what patients tell their doctors and is seen as an aspect of wellbeing (Bradshaw and Ellison, 2010; Pargament and Saunders, 2007).

On economic status, Gao, Burke, Somkin and Pasick (2009) developed what they called power distance in cultural and social relations. They used terms such as low power distance and high power distance, in which emphasis is placed on how people of various statuses relate. When one party in a relationship considers another party as highly-rated, there is said to be high power distance. In Nigeria (where there is high power distance) the average patient sees the doctor as all-knowing, and this usually affects patient confidence level, the quality and extent of communication due to cultures of inequality, coercive power and dependent relationships of subordinates on superiors.

In the US, Canada, and the UK, where there is low power distance, emphasis is placed on equality, legitimate power and interdependent relationships between superiors and subordinates (Gao, et al, 2009). In a study on determinants of postnatal care use in Kenya, Akunga, Menya and Kabue (2014) found that only 40% of the women had been informed of the signs of pregnancy complications during antenatal care visits. Majority of the women (about 90%) had at least primary education. This suggests that there might have been high power distance between the women and the midwives, and this may have accounted for the communication gap.

Closely related to this is education and health literacy. Patients with high education and high health literacy are more likely to have more satisfactory communication with their doctors than otherwise (Kai, Beavan and Faull, 2011, cited in Cerimagic, 2013). Kilbridge, Fraser, Krahn, Nelson, Conaway, and Bashore (2009) studied African-American patients who used low-income clinics in the US. They found that fewer than 50% of patients understood the terms "erection" or "impotent." Only 5% of patients understood the term "incontinence" and 25% understood the term "bowel habits." More patients recognized word roots than related terms or compound words (eg, "rectum" vs "rectal urgency," "intercourse" vs "vaginal intercourse").

In the present study, personal interaction with patients during the pre-testing of the questionnaire revealed further contexts within which doctor-patient interactions can be examined, but which have not been taken into account in several studies. Such contexts include the influences of alternative sources of health information (friends for instance), patient's own self-diagnosis, type of hospital and fear of being

diagnosed with terminal illness. These were incorporated into the study.

Data and methods

Data for the study were collected from 300 out-patients in two federal tertiary hospitals: The Federal Teaching Hospital, Abakaliki, Ebonyi State and The University of Nigeria Teaching Hospital (UNTH), Enugu. Since the study involved an infinite population, the sample size of 300 was arrived at through Comrey and Lee's (1992, cited in Wimmer and Dominick, 2011:103) formula: 50=very poor; 100=poor; 200=fair; 300=good; 500=very good; 1000=excellent.

The teaching hospitals are assumed to be the best equipped and staffed in the country, and while located in the cities, they cater to both urban and rural residents as well as those in the upper, middle and lower income quintiles. In addition, other hospitals usually refer patients to the teaching hospitals for more serious diseases.

After approvals by the hospital ethics committees, participants were approached at the out-patient units of the hospitals and their consent to participate in the study secured. Patients were considered eligible for the study if they had attended appointments with their doctor at least two times in the last three months prior to the study. This was to make sure that participants could evaluate communication with physicians from a position of knowledge.

The content of communication between the patient and doctor, which is of interest to the study includes statements and questions from the doctor and responses from the patient on the health condition of the patient. This normally includes exchange of pleasantries, initial questions about what the patient suffers from, responses from the patient, follow-up questions from the doctor, doctor's gesticulations, ways of cutting into responses from the patient, assurances from the doctor about cure, and patient feelings about communication experience.

The instrument used for data collection was a 28-item, five point Likert scale questionnaire, which addressed two independent variables: doctors' communication behaviour and factors that impinge on doctor-patient communication. The dependent/outcome variable was patients' level of satisfaction. The doctors' communication behaviour was used to assess the dominant communication approach (paternalistic or patient-centred model)

adopted by the doctors in their interactions with patients. The participants' responses were grouped into 'to a very low extent,' 'to a low extent,' 'to a moderate extent,' 'to a large extent,' and 'to a very large extent.'

Socio-demographic explanatory variables used included age (18-30; 31-40; 41-50; 51 and above); gender (male and female); marital status (never married, married, divorced and widowed); education (no academic qualification, primary, secondary and tertiary); income level (below 18,000; 18,000-30,000; 31,000-45,000 46,000-60,000; 61,000-70,000 and above 71,000); denomination (Catholic, non-Catholic, non-Christian) and hospital (Federal Teaching Hospital, Abakaliki and University of Nigeria Teaching Hospital, Enugu.).

Descriptive and inferential statistics were used in the analysis of data for this study. Among the descriptive statistics, simple percentages and frequency counts were used, while among the inferential statistics, chi-square test of independence and factor analysis were used. All analyses were done with the use of the Statistical Package for the Social Sciences (SPSS) version 23.

Factor analysis also was used to assess factors affecting patient-doctor communication in the two hospitals. This was achieved in three steps (assessment of data, factor extraction and factor rotation). First, we investigated the correlation matrix for coefficients of .3 and above, and calculating the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity. The second step involved determining how many underlying factors could be found in the set of variables under investigation. Eigen value greater-than-one criterion, scree plot interpretation and interpretability of the factor structure were employed to find the most suitable components for the variables that were investigated. Finally, Varimax rotation and Oblimin rotation were further used to determine how strongly inter-correlated the factors were.

The specific objectives of the study were to:

a. Ascertain the level of patient satisfaction after communication with the doctor

b. Examine the influence of demographic factors on patient-doctor communication outcomes.

c. Identify a set of factors that represents the underlying relationships among a group of variables which affects patient-doctor communication in two hospitals.

Results

Table 1: Socio-demographic Attributes of Respondents

Variables	Frequency	Percentage
Sex		
Female	123	47
Male	137	53
Age		
18-30	25	10
31-40	117	45
41-50	42	16
51 and above	76	29
Marital Status		
Never married	41	16
Married	185	71
Divorced	16	6
Widowed	18	7
Educational Level		
No formal education	19	7
Primary Education	17	7
Secondary Education	75	29
Tertiary Education	149	57
Income Level		
₦18,000-30,000	113	44
31,000-45,000	37	14
46,000-60,000	26	10
61,000-70,000	60	23
71,000 and above	24	9
Religious Affiliation		
Catholic	162	62
Non Catholic	35	14
Non Christian	63	24

Out of the 300 respondents, a total of 260 copies of the questionnaire (122 and 138 for FETHA and UNTH respectively) were retrieved and used for analysis. The result from Table 1 showed that there were slightly more male respondents than female respondents. Most of the respondents were within the age range of 31-40 years and most of them were married. In particular, the number of married respondents was more than half of the overall sample. More than half of the respondents reported having tertiary education. Most of the respondents reported an income level of 61-70,000 per month.

Level of patient satisfaction after communication with the doctor

Table 2: Patient Satisfaction

			HOSPITAL		
			UNTH	FTHA	Total
I felt satisfied after talking with the doctor	To a very low extent	Count	26ₐ	74ₐ	100
		% within hospital	34.7%	38.7%	37.6%
	To a low extent	Count	29ₐ	57	86
		% within hospital	38.7%	29.8%	32.3%
	To a moderate extent	Count	17ₐ	31ₐ	48
		% within hospital	22.7%	19.4%	20.3%
	To a large extent	Count	2ₐ	18ₐ	20
		% within hospital	2.7%	9.4%	7.5%
	To a very large extent	Count	1ₐ	5ₐ	6
		% within hospital	1.3%	2.6%	2.3%
Total		Count	75	185	260
		% within hospital	100.0%	100%	100%

Each subscript letter denotes a subset of hospital categories whose column proportions do not differ significantly from each other at the .05 level.

Patient assessment of communication outcomes with the doctor

Majority of the patients reported low extent of satisfaction after communicating with the doctor. More patients reported moderate satisfaction relative to those who reported that they were satisfied to a large extent.

Table 3: Indices of Patient Satisfaction

Communication Factor	Very low extent (%)	Low extent	Moderate extent	Large extent	To a very large extent
The doctor allowed me to explain myself adequately n=260	73(28.1%)	113(43.5%)	31(2%)	15(5.7%)	28(10.7%)
I would recommend the same doctor to my friends n=260	84(32.35)	110(42.3%)	40(15.3%)	12(4.6%)	14(5.3%)
The doctor clearly told me the nature of my illness n=260	79(30.4%)	108(41.5%)	49(18.8%)	13(5.0%)	11(4.2%)
I felt the doctor was listening as I talked n=260	85(32.6%)	91(35%)	55(21.1%)	22(8.4%)	7(2.7%)
My questions were adequately answered n=260	104(40.%)	96(37.1%)	40(15.4%)	15(5.8%)	4(1.5%)
The doctor interrupted me before I finished n=259	28(10.8%)	24(9.3%)	50(19.3%)	102(39%)	55(25.2%)
I felt the doctor understood me fully n=260	91(35%)	90(34.6%)	46(17.6%)	27(10.3%)	6(2.3%)
I felt relaxed in the doctor's presence n=260	94(36.1%)	102(39.2%)	27(10.3%)	16(6.1%)	21(8.0%)
The doctor appeared impatient n=256	32(12.5%)	44(17.2%)	38(14.8%)	87(34.0%)	55(21.5%)
The doctor treated me with respect n=260	111(42.7%)	80(30.8%)	37(14.2%)	25(9.6%)	7(2.7%)
The doctor frightened me more about my illness n=249	22(8.8%)	21(8.4%)	64(25.7%)	86(34.5%)	56(22.5%)

In line with the general level of satisfaction reported by patients, low extent of satisfaction was reported on all the indices expressing assessment of communication with the doctor. This indicated that patients did not feel that communication approach used was in their favour. There was very low likelihood that it was patient-centred.

Influence of socio-demographic factors on the patients' level of satisfaction

The influence of demographic factors on the patients' level of satisfaction was ascertained using binary logistic regression. The level of satisfaction variable was transformed into two categories of 'satisfied' and 'not satisfied'. This was done by first obtaining the average response of each respondent on the variable. Any average response less than 3.0 is considered 'not satisfied' while any average response from 3.0 and above is considered 'satisfied. Then, 'not satisfied' was coded '0' (zero) while 'satisfied was coded '1' (one) to convert the variable to binary. The demographic variables which are the predictor variables include age, gender, marital status, educational level, income level and religious denomination. The outcomes of the logistic regression analysis are summarized in Table 4.

Table 4: Demographic Predictors of Patients' Level of Satisfaction

DEMOGRAPHIC PREDICTORS	B	S.E.	Wald	df	Sig.
Age	1.196	.316	14.330	1	.000
Gender	1.400	.618	5.135	1	.023
Marital Status	-687	.340	4.095	1	.043
Educational Level	-136	.289	.221	1	.638
Level of Income	1.136	.406	7.816	1	.005
Religious Affiliation	.442	.499	.786	1	.375
Constant	-8.324	1.586	27.544	1	.000

A multiple regression was calculated to predict the level of satisfaction of the patients at both hospitals. The results of the regression indicated that the model explained 49.0% of the variance $F_{(6,263)}= 12.17$, (p=.000). While patients' age (p=0.000), gender (p=0.023), marital status (p=0.43) and level of income (p=0.005) contributed significantly to the model, educational level (p=0.638) and religious denomination (p=0.375) did not make any significant contribution. Specifically, age (b=1.196) positively predicted patients' level of satisfaction, suggesting that the higher the age category of respondents, the more likely they were to be satisfied in their patient-doctor communication. In other words, respondents who were from 50 years and above were likely to have the highest scores on patients' level of satisfaction. Gender (b=1.400) was also found to have positively predicted patients' level of satisfaction. Further observation of the data suggests that high scores on patients' level of satisfaction were found among males than females. Patients' income level (b=1.136) also positively influenced their level of satisfaction, with patients who have high income having higher levels of satisfaction. However, marital status (b=-.687) negatively predicted patients' level of satisfaction. Further observation of the data showed that there were more married patients who scored lowest in their level of satisfaction than patients who were never married, divorced and widowed.

Table 5: Communication Outcomes based on Individual-level Attributes

Communication Factor	Very low extent(%)	Low extent	Moderate extent	Large Extent	To a very large extent
I prefer being examined by male doctor n=249	59 (23.6)	22(8.4%)	36(14.5)	83(33.3%)	22(8.8)
I prefer being examined by female doctor n=260	43(16.5%)	54(20.7%)	64(24.6%)	73(28%)	26(10%)
I am uncomfortable when being examined by a doctor n=260	41(15.7%)	43(16.5%)	66(25.3%)	59(22.6)	51(19.6%)
I feel less free to discuss my health with doctors of the opposite sex n=	25(9.6%)	24(9.2%)	33(12.6%)	88(33.8%)	90(34.6%)
My religion forbids me from being touched by doctors of the opposite sex n=260	20(7.6%)	19(7.3%)	46(17.6%)	73(28.0%)	102(39.2%)
My culture forbids me from being touched by doctors of the opposite sex n=260	23(8.8%)	20(7.6%)	48(18.4%)	67(35.7%)	102(39.2%)
I prefer using my local language to English when interacting with the doctor n=260	33(12.6%)	53(20.3%)	50(19.2%)	62(23.8%)	62(23.8%)
I prefer using English while interacting with the doctor n=251	67(25.7%)	43(16.5%)	69(26.5%)	44(16.9%)	28(10.7%)
Did your doctor speak in a language you understood n=254	105(41.3	63(24.8%)	53(20.8%)	20(7.9%)	13(5.1%)
Fear of threatening diagnosis made me hide some information n=259	34(13.1%)	37(14.2%)	57(22.0%)	71(27.4%)	60(23.1%)
The doctor frightened me more about my illness n=260	22(8.4%)	21(8.0%)	69(26.5%)	92(35.3%)	56(21.5%)

Majority of the respondents preferred being treated by a male doctor. A far greater number would want a male doctor to a moderate or high extent. This indicated that male and female respondents would prefer a male doctor to a female doctor. Preference of doctors did not coincide with level of comfort when being examined by a doctor. Majority of respondents reported being uncomfortable, to a moderate or high extent, when being examined by a doctor.

Factors underlying relationships among a group of variables which affects patient-doctor communication in two hospitals
We used a multivariate technique, Exploratory Factor Analysis (EFA) to identify a set of factors that represents the underlying relationships among a group of variables which affects patient-doctor communication in two hospitals. Furthermore, we subjected the 28 items of the variables affecting

patient-doctor communication to principal component analysis (PCA) using SPSS 23. A careful look at the correlation matrix
showed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Olkin value was .66 (see Table 6) surpassing the value recommended (.6) by Kaiser (1970, 1974) and the Bartlett's Test of Sphericity (1954) reached statistical significance (p<.001), supporting the factorability of the correlation matrix. According to eigen-value-greater-than-one criterion, a nine factor solution explaining 17.417 per cent, 11.128 per cent, 6.579 per cent, 6.331 per cent, 5.979 per cent, 5.220 per cent, 4.829 per cent, 4.186 per cent, and 3.883 per cent appeared to represent most suitably the response structure on the factors influencing patient-doctor communication among patients sampled in the study. The nine factors were: Confidence in doctor's communication skills; patients' religious, cultural and language anxiety influence on communication;

democratic communication; language barrier to communication and respect; unattractive hospital environment and exhaustion while waiting for the doctor; patients' subjective perception of doctors and information sharing with friends.

Table 6: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.659
Bartlett's Test of Sphericity	Approx. Chi-Square	2590.702
	Df	378
	Sig.	.000

Table 7: Comparison of eigenvalues from principal component analysis (PCA) and the corresponding criterion values obtained from parallel analysis

Component number	Actual eigenvalue from PCA	Criterion value from parallel analysis	Decision
1	4.877	1.6427	Accept
2	3.116	1.5544	Accept
3	1.842	1.4867	Accept
4	1.773	1.4202	Accept
5	1.674	1.3637	Accept
6	1.462	1.3166	Accept
7	1.352	1.2664	Accept
8	1.172	1.2220	Reject
9	1.087	1.1796	Reject

However, we determined the actual number of factors to retain using parallel analysis developed by Watkins (2000). The result of parallel analysis supports our decision from the scree plot to retain only seven components out of the nine, with eigenvalue exceeding the corresponding criterion values for a randomly generated data matrix of the same size (28 variables x 260 respondents x 100 number of replications). The retained factors were further investigated. In doing this, the seven factors retained were 'rotated' using Varimax rotation and Oblimin rotation, which presented the pattern of loadings in a manner that is easier to interpret. The rotated solution revealed the presence of simple structure (Thurstone, 1947), with the seven components showing a number of strong loadings and all variable loading substantially on six components. The seven component solution explained a total of 57.48 per cent of the variance, with the components 1, 2, 3, 4, 5, 6 and 7 contributing 14.37 per cent, 9.53 per cent, 7.88 per cent, 6.86 per cent, 6.65 per cent, 6.57 per cent and 5.62 per cent respectively.

According to information contained in Table 8, factor loadings of the first extracted factor ('patients'confidence in doctor communication skill') revealed an underlying common factors of items related to patients' view of the doctor as a listener and excellent communicator with regards to the reality of what was diagnosed and other medical

information. The second factor ('patients' religious, cultural and language anxiety influence on communication') had high loadings on all items that

specifically involves the influence of religion, culture and language on patients' fear, which subsequently create a gap in doctor-patients communication.

Table 8: Rotated factor solution for factors affecting patient-doctor communication in the two hospitals

	Components						
	1	2	3	4	5	6	7
The doctor clearly told me the nature of my illness	.836						
I would recommend the same doctor to my friends	.831						
My questions were adequately answered	.801						
I felt that the doctor understood me fully	.678			.327			
I felt satisfied with the doctor's explanations	.646		.306	-.311			
I felt that the doctor was listening as I talked	.656			.359			-.367
I felt relaxed in the doctor's presence	.625		.495				
My culture forbids me from being touched by the opposite sex		.720					
My religion forbids me from being touched by the opposite sex		.656					
Fear of threatening diagnosis made me hide some Information		.655				.423	
The doctor frightened me more about the nature of my sickness		.613					
I prefer using my local language to English while interacting with my doctor		.497			-.410		
The doctor allowed me to explain myself Adequately			.723				
My friends advised me on what to tell the doctor			.645				
I prefer being examined by a female doctor			.763				
The doctor interrupted me before I finished				.628			
I feel less free to discuss my health with doctors of the opposite sex	.302			.573			
The doctor appeared impatient		.445		.545			
I feel uncomfortable when I am being examined by a doctor			.462	.510			
Did your doctor speak in a language you understand?				.743			

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
I prefer using English while interacting with my Doctor					.617		
The doctor treated me with respect					.587		
My concentration level was affected by the hassles I received from hospital process before I met the Doctor			.348			.633	
My views about the hospital environment affected my thinking about the capacity of the hospital doctors						.624	
The nature of the doctor's office influenced the flow of our discussion						.587	
What I suspected about my ill health before going to the doctor influenced what I told the doctor mainly						.581	
I see doctors as highly placed persons							.785
I prefer being examined by a male doctor		.382					.497
% of variance explained	14.37	9.53	7.88	6.86	6.65	6.57	5.62

Note. Factors labels are (1) Confidence in doctor communication skills, (2) Patients' religious, cultural and language anxiety influence on communication, (3) democratic communication, (4) Doctors' Authoritarian communication style, (5) Language barrier to communication and respect, (6) unattractive hospital environment and exhaustion in the process of awaiting the doctor, (7) patients' subjective perception of doctors.

The third factor ('democratic communication') included three high factor loadings that were related to the liberty patients have to communicate freely and make requests on the preferred doctor or physician to communicate with. As to the fourth factor ('doctors' authoritarian communication style), three items referred to the asymmetrical communication between patients and especially male doctors who appear impatient and often interrupt patients during conversations.

The fifth factor ('language barrier to communication and respect') had high loadings on items related to the preferred language spoken by both the doctor and patients as well as how doctors regard the patients. Items relating to the hospital environment, long waiting hours, the doctor's office and fear of a possible diagnosis had the highest loading on the sixth factor ('unattractive hospital environment and exhaustion in the process of awaiting the doctor'). Finally, two items contributed to the seventh factor ('patients' subjective perception of doctors), which related to patients viewing doctors as highly placed and preferring male doctors during examination. In addition, result of an oblique rotation indicated correlations between factors, ranging from rs = −0.28 to rs = −0.43, indicating an interrelatedness between the components.

Table 9: Summary of a Multiple Regression Analysis for components predicting patients' satisfaction (N=260)

Model	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
	B	Std Error	Beta	T	Sig.	Lower Bound	Upper Bound
1. (Constant)	-.584	.311		1.879	.061	-1.196	.028
Factor 1	.125	.009	.654	13.983	.000	.107	.142
Factor 2	.053	.011	.217	4.659	.000	.031	.076
Factor 3	.057	.021	.125	2.648	.009	.015	.099
Factor 4	.067	.014	-.224	-4.794	.000	-.095	.040
Factor 5	.010	.018	.025	.565	.572	-.026	.046
Factor 6	.011	.014	.035	.815	.416	-.016	.039
Factor 7	.019	.022	.038	.860	.391	-.24	.061
	R^2		.738				
	F		43.477				

a. Dependent Variable: Patients' satisfaction

Multiple regression analysis was used to test if the factors that were retained in the EFA analysis significantly predicted patients' satisfaction with doctors' communication (Table 9). Every component was appropriately named and transformed into a single score each and was used as a set of the predictor variable in the model. The result of regression analysis indicated that the model explained 74% of the patients' satisfaction scores ($F(7,262)=43.477, p<.000$).

A further look at the table showed that while 'confidence in doctor communication skills ($p=.000$); patients' religion and culture ($p=.000$); democratic communication ($p=.009$) and doctors' authoritarian communication style ($p=.000$) significantly predicted patients' satisfaction level, language barrier to communication and respect ($p=.572$), unattractive hospital environment and exhaustion in the process of awaiting the doctor ($p=.416$) and patients' subjective perception of doctors ($p=.391$) did not contribute to the variances in the model.

In addition, while factors 1 to 3 were found to have positively predicted the outcome in the model, factor 4 ('doctor's authoritarian communication style) negatively predicted patients' satisfaction. Nonetheless, factors (5, 6 & 7) such as language barrier to communication and respect, unattractive hospital environment and exhaustion in the process of awaiting the doctor and patients' subjective perception of doctors did not significantly predict the outcome in the model.

Discussion
This study found low level of satisfaction with doctor-patient communication among the respondents. Only

2.3% and 7.5% of the respondents reported being satisfied to a very large extent and to a large extent respectively. The majority (32.3%) and 37.6% reported being satisfied to a very low extent and to a low extent respectively.

Binary logistic regression analysis indicated the influence of demographic factors on patients' level of satisfaction. Age ($p=0.000$) for instance was found to significantly predict patients' satisfaction with the quality of interaction with their doctors. Specifically, older folks (those above 50) were found to be more likely to have the highest scores on patients' level of satisfaction. This finding is in sync with other studies that found older patients more likely to be satisfied with the quality of their interaction with doctors than younger respondents (Devoe, Wallace and Fryer, 2009; Peck, 2011).

Moreover, gender ($p= 0.023$) had significant impact on patients' satisfaction, with men more likely to be satisfied relative to female patients. This finding agrees with Jalil, Zakar, Zakar and Fischer (2017) who found that women were more likely to be dissatisfied with doctor-patient communication than men. Gender however, had no influence on patients' preference for doctors as majority of the respondents (men and women) preferred male doctors. This nonetheless, did not affect their satisfaction with their doctor's communication as the majority generally reported being uncomfortable with doctors. This finding is slightly different from other studies (Alyahya, Almohanna, Alyahya, Aldosari, Mathkour, et al, 2019; Nolen, Moore, Rodgers, Wang and Walter, 2016) who found that though the respondents did not have preference with respect to the physicians' gender, in medical examinations

involving the breasts and genitals, men preferred male doctors and women, female doctors.

Furthermore, economic status was found to have influenced patients' level of satisfaction as those with higher socioeconomic status (SES) reported higher levels of satisfaction. Other studies equally found associations between SES levels and patients' satisfaction levels. Willems, De Maesschalck, Deveugele, Derese and De Maeseneer (2005) and Verlinde, Laender, Maesschack, Deveugele and Willems (2012) found a link between lower SES and perceptions of being given less socio-emotional talk, more directive and less participatory consulting style and less diagnostic and treatment information. These can all result to patients' dissatisfaction with the physicians' communication. Arpey, Gagliot and Rosenbaum (2017), report that some patients felt that they received poor services from their physicians, and were treated with less respect. They specifically complained of situations in which doctors did not listen to what they were saying or answer their questions because of their socioeconomic status. The ability of people with higher socioeconomic status to enjoy more satisfying interactions with their physicians may be partially explained by the fact that they are likely to be more confident and "communicate more actively and show more effective expressiveness; eliciting more information from their physician"(Willems, et al, 2005).

To further probe the variables that impinge on doctor-patient communication we used Exploratory Factor Analysis to identify a set of seven factors which significantly affect patient-doctor communication in the two hospitals. They include doctors' communication skills; patients' religion and culture; democratic communication; doctors' authoritarian communication style; language barrier to communication and respect; unattractive hospital environment and exhaustion while awaiting the doctor and patients' subjective perception of doctors. The seven factors were further subjected to regression analysis to determine how significantly they predicted patients' satisfaction after interacting with their physicians. The result of the analysis indicated that four factors (confidence in doctor's communication skill; patients' religion and culture; democratic communication and doctor's authoritarian communication style) significantly predicted patients' satisfaction with doctor-patient communication.

Firstly, confidence in the doctor's communication skill (p=.000) was found to positively predict patients' satisfaction. This is consistent with other studies that found a correlation between doctor's communication skills and patients' satisfaction

(Hochman, Itzhak, Mankuta and Vinker, 2008; Rezaei and Askari, 2014; Biglu, Nateq, Ghojazadeh and Asgharzadeh, 2017).

Furthermore, patients' religion and culture (p=.000) also positively predicted patient's satisfaction following interaction with a physician. Culture affects how a patient perceives diseases and their treatment and, has the capacity to define a patient's relationship with a physician while religion moderates many activities including beliefs about treatment (Paternotte, Dulmen, Lee, Scherphier and Scheele, 2015). Studies have shown that culture can be a barrier in the doctor-patient communication, making it hard for the patient to establish rapport with doctors and receive sufficient information about their health (Ferguson and Candib, 2002; Paternotte, et al, 2015; Ahmed, Lee, Shommu, Rumana and Turin, 2017).

In addition, analysis showed that while democratic communication (p=.009) positively predicted patient satisfaction, doctors' authoritarian communication style (p=.000) negatively predicted satisfaction. Democratic communication or patient-centred communication is characterised by an open, non restrictive conversation where the doctor encourages the patients to play an active role; converses with them in an intelligible language, shows consideration for their feelings and listens respectfully to their objections and concerns, encouraging them to participate in decision-making. In contrast, autocratic communication style or paternalism is a doctor-centred communication approach in which the doctor dominates the conversation and does not pay much attention to the feelings and concerns of the patient (Bientzle, Fissler, Cress and Kimmerle, 2016; Naughton, 2018; Hashim, 2017). As in this study, some studies (Keller, et al, 2014; Thomas, Jayakumar and Suyanya, 2017; Levinson, Lesser and Epstein, 2010; Altin and Stock, 2016) in other places have linked patient-centred communication with patients' satisfaction.

Doctor's autocratic communication style (paternalism) was associated with patients' dissatisfaction. The communicative behaviours that respondents expressed displeasure with in this study are consistent with paternalism: The doctor not listening to the patients; not allowing them to express themselves adequately; interrupting them before they could finish, etc. While paternalism is frowned at in western medical practice, doctors may not have adopted it out of disrespect for patients. Nigeria is a high power distance nation where the paternalistic approach may come naturally to doctors. Thomas and Whiffen (2018) in their study found that Latino patients were satisfied with the paternalistic approach due to the peculiarities of their culture. However,

this study shows that patient-centred communication is more likely to produce positive results than paternalistic approach and doctors would do well to put that into consideration.

This study has an inherent weakness, which is the smallness of the sample size used. This weakness limits the generalizability of the results.

Conclusion

As noted, there was low level satisfaction of patients on almost all the indices measured. This implies a fundamental revisit to patient-doctor communication in the two hospitals. Type of communication, doctors' behaviour during interaction with the patient and patient-feedback systems should be subjects of inquiry in future studies on health communication, health policy, hospital communication systems, health advocacy and communication campaigns. This is in view of the reported influences of type of communication and patients' experiences during interactions with the doctor.

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