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A systemic functional analysis of doctor-patient verbal discourse

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Abstract
Doctor-patient verbal discourse is plagued by some communication challenges owing to the sensitive nature of communication in medical settings. Several discourse-analytic researches have been done on doctor-patient verbal discourse but with little attention paid to systemic functional analysis of the discourse to lay bare the lexico-grammatical choices made by the interlocutors and the functions they perform in making the discourse cohesive. Consequently, this study investigates language use in doctor-patient verbal discourse with sole aim of revealing the actual lexico-grammatical choices deployed and their functions in relation to enhancing diagnostic communication at the State Hospital, Ijaye, Abeokuta, Nigeria. The theoretical framework adopted for the study is M.A.K. Halliday's Systemic Functional Grammar. Fifty tape recordings of doctor-patient verbal discourse were made at the State Hospital, Ijaye, Abeokuta, Nigeria. A total of twenty-five interactions were purposively selected because of their strategic content from the data got at the hospital. Thereafter, the data were orthographically transcribed and subjected to qualitative analysis. The various lexico-grammatical choices perform a number of linguistic functions. Collocation connects texts; modal auxiliaries express views, opinions, decisions and expectations; imperatives give orders; interrogatives elicit information; declaratives explain issues, offer counsels, and issue warnings; conjunction join sentences, clauses and words together and; substitution replaces items. A good knowledge of the lexico-grammatical choices made by the interlocutors as well as their linguistic functions is salutary to a better understanding of diagnostic discourse in Nigeria.

Keywords: diagnostic discourse, lexico-grammatical choices, collocation, modal auxiliaries, substitution

1. Introduction
This paper investigates language use in doctor-patient verbal discourse medical in Nigeria from a systemic functional perspective. The main objective is to analyse the lexico-grammatical features and linguistic functions of the elements of grammar deployed by the doctors and patients.
In this paper, I will restrict myself to analysing the various lexico-grammatical choices made by the doctors and patients to reveal how they were able to ensure cohesion in the discourse. The analysis will focus on lexical and grammatical choices.

2. Theoretical Framework
The Systemic Functional Grammar (SFG) is considered apposite for this study in view of its emphasis on semantics and contextual relations. It is a full blown theory of grammar developed by the British linguist - Michael Halliday - in his 1965 work. SFG views language as a behaviour, matches form to function, places premium on context and examines meaning in relation to context (Halliday, 1985). Meaning in relation to context occupies a prime of place in Systemic Functional Grammar.
In consonance with the above, J.R. Firth (1957) [2] opines that meaning is the function of a linguistic item in its context of use. Buttler (1985) [1] validates Firth's assertion by saying that although context of situation is central to SFG, it is just one kind of context in which linguistic units could function. He adds that other contexts are provided by the levels postulated to account for various types of linguistic patterning. SFG thus offers us a medium to observe, analyze and account for intra-textual lexical relations. Leech (1985) asserts that examples of such relations are: antonyms, synonyms, hyponyms etc. They all account for contextual meanings. Conversely, referential meaning can be accounted for through endophoric and exophoric references (Lyons, 1979) [7].
Unit, structure, class and system are the four grammatical categories set up by the SFG that demonstrate how relationships between linguistic items can be consistently handled. Unit accounts for stretches that carry grammatical patterns, while structure depicts an arrangement of elements ordered in places and examines the similarities between successive events.
Deducible from the above is that linguistic units occur purposely in texts to perform certain functions. Language performs three basic functions in texts. One, the ideational function is the expression of context i.e. the expression of the speaker's view of the real world and the inner world of his own. Two, the interpersonal function establishes and maintains interpersonal relations that language serves. Three, the textual function shows how language provides a link between itself and the features of the situation in which it is used (Halliday 1970) [3].
Moreover, Halliday's systemic theory underlies his functional grammar that views grammar as constantly meaningful. Consequently, SFG is a theory of 'meaning as choice' (Halliday, 1985). It is premised on the vista that language plays a certain role for its users as a social group, thus endowing it with a sociolinguistic nature. Halliday (1985) consequently focuses absolutely on the functional part of grammar which is the interpretation of the grammatical patterns in terms of configuration and function. He asserts this is appropriate for the analysis of both spoken and written texts. Then, language in use and how language is used are the focus. The context of situation and context of culture by which means the meaning of the text is derived exhibit these.

Halliday (1961), therefore, explains the three different levels at which linguistic levels should be accounted for in textual analysis. These are: substance, form and context. Substance refers to the materials of language, that is, phonic (audible noise) or graphics, which are visible marks. Form is the arrangement of these audible noises and materials into meaningful events, while context accounts for the relation of the form to the non-linguistic features of the situation where language is used.

Form relates at two levels: lexical and grammatical levels. Therefore, the SFG is organized in a manner that the meaning of a linguistic event derives from a combination of its formal meaning and contextual meaning (Malmkjaer, 2002) [8]. The contextual meaning is accounted for in its relation to external factors and the formal by its operation in the network of formal relations. Situational variables and appropriate language use are accounted for at the contextual level, while linguistic features are accounted for at the formal level. Consequently, there is an interface between form and function for meaning generation in texts.

Going by the above, the Systemic Functional Grammar (SFG) is considered apt for the analyses intended in this study. Accordingly, we will examine language use in doctor-patient verbal interactions from the point of view of the SFG.

2.1 Co-text

According to Odebunmi (2001), co-text refers to the view that the meaning of lexical items in an utterance or statement is largely constrained by the preceding text. He observes that the lexical items surrounding a particular word in a text determine to a large extent its meaning. Essentially, lexical items in a text exhibit some form of symbiotic relationship in meaning generation. Therefore, co-text as a discourse feature is discussed in the next section in terms of how the text is woven into a cohesive unit, and how makes sense as a discourse. Both cohesion and coherence are subsumed in co-text, but we shall restrict ourselves to a discussion of cohesion in view of its relevance to the study.

2.1.1 Cohesion

Cohesion remains one of the ways of creating texts in doctor-patient discourse. The textual component of language in Halliday's functional classification of language is concerned with texts creation. In doctor-patient verbal discourse, cohesion deals with how sentences and words are strung together to form a unified text. Thus, this unity makes it a meaningful discourse, functioning as a single unit. In our data, cohesion is achieved through cohesive devices like lexical and grammatical devices, specifically collocation, substitution, conjunction, imperatives, interrogatives and declaratives.

3. Methodology

The theoretical framework adopted for the study is M.A.K. Halliday's systemic functional grammar (1985). Fifty tape recordings of doctor-patient verbal interactions were made at the State Hospital, Ijaye, Abeokuta, Nigeria. Twenty-five of them were purposively sampled based on their strategic content. The texts were orthographically transcribed. The various lexical and grammatical devices in the data were identified, and the discourse function of each was also pinpointed. The data were subjected to discourse and systemic functional analysis.

4. Data Analysis and Discussion

4.1 Lexical devices in doctor-patient verbal discourse and communicative functions – collocation: connecting texts

This section considered the lexical analysis and description of the discourse devices deployed in the text. This is premised on the fact that a text functions based on the frequency of occurrence of the lexical features in it, and also because such lexical features in a text often say much more about the text than is obvious. This suggests that meaning is expressed in the choice of items. Thus, our focus here was to examine the various ways in which the deliberate use of particular lexical items realized meaning in the interactions under investigation. The investigation of the aspects of the lexical features reflected how the devices were used, how they contributed to the process of diagnosis and treatment, and how they enhanced meaning. These were done under the following heading:

In this study, lexical cohesion was achieved through collocation. Lexical cohesion deals with how some words appear to move very closely together in a discourse. The mention of one word brings to mind the other or other members of the group. Such words are known as collocates, and they relate as natural companions. Therefore, they account for the connectivity of texts and provide collocative meaning. In other words, they express meaning within the text in relation to another. Consequently, certain lexical items followed each other consecutively in our data. The findings revealed that they were aptly used as they created cohesion, reinforced meaning and targeted a meaningful interpretation of the interactions.

Our data presented some examples of collocations whose meanings and structures are fixed. There were also a few instances of phrasal verbs in the data. The following instances were considered:

Extract 1 (Interaction 26)

Doc.: Is this the first time you have come to this hospital?
Pt.: Yes.
Doc.: Were you ever diagnosed with diabetes or hypertension?
Pt.: Diabetes.
Doc.: Where do you treat it and what drugs are you taking to cure it?

Extract 2 (Interaction 32)

Doc.: And he doesn't fall sick from time to time.
Pt. Rel.: At all.
Doc.: Has he ever been admitted in a hospital before?
Pt. Rel.: No.
Doc.: Does he react to any drug?

Extract 3 (Interaction 35)

Doc.: Don't you have a high temperature?
Pt.: I do because when my body temperature rises, I feel a burning sensation all over my body.
Doc.: Okay. Don't you have a headache?

Each of the emboldened expressions in Extracts 1 and 2 above comprised a verb and a particle (come to, diagnosed with, to cure, admitted in, react to), which expressed meaning in relation to each other to make the text cohesive. Instances of word collocation were also observable in Extracts 1, 2 and 3. They involved words that went together in the discussion

of diseases, hospital visit or admission, drugs, diagnosis, treatment etc. Such collocations include: come to / hospital, diagnosed with hypertension or diabetes, drugs / cure, fall sick, admitted / hospital react to drugs, a high temperature, and a burning sensation etc. Therefore, collocation helped to make the texts cohesive individually and collectively.

Our data were also replete with instances of unfixed collocation, and they were classified according to the functions they performed. They are adjective/noun, verb/adjective/noun, verb/preposition collocates etc. Some examples of adjective/noun collocates showed that certain adjectives preceded certain nouns to premodify them. Some examples observable in our data are: your mouth, blue card, several tests, systemic illnesses, burning sensation, two months, abdominal pain, more insulin, frequent urination, malarial drug, good morning etc. There were also instances of noun/noun collocates in the data: blood pressure, blood circulation etc. The first occurring word in each phrase premodifier the latter.

Emerging from the discussion of word collocations above is that collocations functioned variously to account for cohesion in our data by demonstrating interconnectivity in the sense of the lexical items. Put differently, they accounted for how the interlocutors in the doctor-patient discourse employed lexical items to create collocative cohesion in the discourse.

4.2 Grammatical devices in doctor-patient verbal discourse and communicative functions

This section considered the grammatical analysis and description of the language used in the texts. This is premised on the fact that a text functions based on the frequency of occurrence of grammatical features in it, and also because such grammatical features in a text often say much more about the text than is obvious. This suggests that meaning is expressed in the choice of items. Thus, our focus here was to examine the various ways in which the deliberate use of particular grammatical items realized meaning in the interactions under investigation. The investigation of aspects of grammatical features in the interactions revealed how they reflected the devices were used, how they contributed to the process of diagnosis and treatment, and how they enhanced meaning. This was done by examining the deployment of the various forms of modal auxiliaries and imperative sentences.

4.2.1 Modal Auxiliaries: expression of views, opinions, decisions and expectations

As helping verbs, modal auxiliaries were employed in the interactions. They assisted both the doctors and patients in expressing their views, opinions, decisions and expectations. The following extracts were considered:

Extract 4 (Interaction 32)

Doc.: I should remove the milk teeth.

Extract 5 (Interaction 33)

Doc.: Let me have them. How many types of drug are you taking?
Pt.: Two.
Doc.: But I can see three types here.

Extract 6 (Interaction 33)

Doc.: I have added a particular type of small tablet to your drugs. It is highly beneficial to the heart. It aids blood circulation very well. So, it's important you take it especially as you don't have ulcer.
Pt.: I had it before but it was treated here.
Doc.: Since you had it before, it is not advisable you take the drug as it could cause a recurrence.

Extract 7 (Interaction 40)

Doc: I am asking this question because if we are not careful, we may not really know where the blood comes from.
Pt.: I don't know.
Doc.: It looks like it is coming from that place but we have to be sure so that we don't use constricting thing. Unh? How many pampers do you use daily for him?
Pt.: Three.
Doc.: Three might be small for a child like this. So, what you have to do is let air blow on the place when you are at home. So, stop using pampers for him at home. It seems the problem emanated from enough air not blowing on the place.

Extract 8 (Interaction 38)

Doc.: If you come tomorrow, we can now look at the result and the drug you are taking, and compared them. There might be the need to just continue as you are taking the drugs and there may be need to increase the dose, depending on what the result says.

Extract 9 (Interaction 40)

Doc.: So, if I am getting you right, you have been have been having recurring body pain. I will treat you for malaria. Usually, when you are treated for malaria, does the pain go?

In Extract 4, the doctor deployed the modal auxiliary should to express the patient's expected treatment. In Extract 5, the doctor used can to express his view of the number of drugs the patient had brought to the hospital. In Extracts 6 and 7, the doctors deployed could and might to express possibility. In Extract 6, the doctor used could to warn the patient against the possibility of recurrence of ulcer if she took a drug that causes ulcer. Similarly, in Extract 7, the doctor employed might to inform the patient's mother of the possible inadequacy of using only three pampers for her baby daily. In Extract 8, the doctor used can to express his ability to examine the patient and his drugs during the next visit. He also used may and might to inform the patient about the need to comply with the prescriptions till a test was conducted to know the next line of action. Lastly, in Extract 9, the doctor employed will to reveal his decision to treat the patient for malaria.

A perusal of the extracts above revealed that the use of the modal auxiliaries enabled the doctors and patients to express opinions, decisions, expectations, possibility, ability, permission and obligation in relation to the patients' health challenges.

4.2.2 Imperatives: Giving orders

As a sentence type, imperatives were also deployed in the interactions. Mainly employed by the doctors, they assisted them in issuing appropriate directives for the purposes of restoring or enhancing the patients' health. The following extracts were considered:

Extract 10 (Interaction 35)
Doc.: Madam, go take the drugs I have recommended. They will take care of all your complaints: Don't you see a white discharge in your private parts.

Extract 11 (Interaction 38)
Doc.: So, go and take the test and bring the result.

Extract 12 (Interaction 40)
Doc.: Don't use anything. It is just an allergy that might have resulted from the various strong creams you have used on him. So, all those rashes will disappear in due course. Just take to my advice.

Extract 13 (Interaction 27)
Doc.: Just continue taking it. You have to take all the drugs.]Your urinalysis is normal. You have malaria only. Take your drugs well, eat well and also rest well. You will be alright in three days' time. What's your occupation?

As can be seen in the extracts above, the doctors employed imperatives for various medical reasons. In Extract 10, the doctor deployed the imperative "Madam, go take the drugs I have recommended" to tell the patient the solution to her health challenges. In Extract 11, the doctor used the imperative: "So, go and take the test and bring the result" to tell the patient the steps to take to enable him diagnose his ailment appropriately. In Extract 12, the doctor employed the emboldened imperative "Don't use anything. It is just an allergy that might have resulted from the various strong creams you have used on him" to order the patient to stay away from applying any more cream on her baby's body as the health challenge the patient's baby faced was just a reaction to some strong creams the patient's mother had administered on the patient. Similarly, in Extract 13, the doctor deployed an imperative "Just continue taking it. You have to take all the drugs" to guide the patient aright on medication. In essence, the deployment of the various imperatives enabled the doctors to offer useful guidance to stabilize the patients' health.

4.2.3 Interrogatives: Elicitation of information
Our data also exhibited several instances of the deployment of interrogatives. Mostly deployed by doctors, they were used to obtain medical information to make diagnoses. In all the instances observable, they were realized by WH-elements. The following extracts may be considered:

Extract 14 (Interaction 6)
Doc.: What time does the temperature go up?
Pt. Rel.: The high temperature starts anytime.
Doc.: Does she cough?
Pt. Re.: Yes.
Doc.: Does she have a headache?
Pt. Rel: Yes.

Extract 15 (Interaction 11)
Doc.: What is your complaint?
Pt.: I have a cough.
Doc.: Since when?
Pt.: About three weeks.
Doc.: What do you spit out when you cough?
Pt.: It has blood stains.
Doc.: Do you sweat at night?

Extract 16 (Interaction 3)
Doc.: The test result says he is HIV positive.
Pt. Rel.: Hmnnn
Doc.: Is that why you came?
Pt. Rel.: Yes.
Doc.: Does he have any other complaints?
Pt. Rel.: I only came to know what I can do about it.

In Extract 14 -16, Docs. Employed interrogatives in all the emboldened contributions to elicit information from the patients to make diagnoses. In interaction 14, Doc. employed interrogatives to inquire from Pt. Rel. when pt.'s temperature usually went up, whether he coughed or had a headache. In Extract 15, Doc. employed interrogatives to know the health challenge suffered by pt., which was a cough, when the cough began, the colour of the sputum pt. produced when he coughed, and whether he coughed at night. Similarly, in Extract 16, Doc. employed interrogatives to inquire from pt.rel. The reason for visiting the hospital having told him pt was HIV-positive, and also asked him whether pt. had any other medical complaint. It can be deduced from the above that interrogatives were the only the only linguistic tool that the doctors employed to diagnose the patients ailments.

4.2.4 Declaratives: Explanation of issues, offer of counsels and issue of warnings
In our data, these were used by both the doctors and patients alike. Realised by statements, they were deployed to express the state of affair, give pieces of medical advice and prescription. Let's consider these extracts:

Extract 17 (Interaction 17)
Doc.: What are your complaints?
Pt.: I have swollen feet and pains in the joints. When I am walking, I feel like blood is not flowing to my legs and, at such times, I feel like I am going to fall down.

Extract 18 (Interaction 18)
Doc.: What is wrong with your child?
Pt. Rel.: She is running stool and it's so much.
Doc.: Since when has she been running stool?
Pt. Rel.: Five days ago.
Doc.: What is in the stool?
Pt. Rel.: Nothing; It's just water.

Extract 19 (Interaction 8)
Doc.: What is your complaint?
Pt.: My urine is coloured.
Doc.: What does it look like?
Pt.: It looks like blood.
Doc.: Is it not green in colour?
Pt.: No. I complained to my brother that works at UCH, Ibadan, and he asked me to go for a test.) After the test, I was told I had schistosomiasis.

In Extract 17 – 19, the patients employed declaratives to respond to the doctors' queries in the process of diagnosing the patients' ailments. In Extract 17, Pt. employed a declarative to tell Doc. her health challenges, which were swollen feet, pains in the joints and cramps. In Extract 18, Pt. Rel. employed declaratives to tell Doc. the ailment suffered

by Pt., which was frequent stooling, when the sickness began and the appearance of the stool. In Extract, 19, Pt. employed declaratives to tell Doc. her health challenge, which was coloured urine, the particular colour of the urine and the efforts she had made to get a cure. It is clear from the above discussions that declaratives were the only linguistic tools that the patients used to supply information from which the doctors could use to diagnose the patients' ailments. Sometimes too, doctors employed declaratives to offer pieces of medical advice and also issue warnings to patients where need be.

4.2.5 Conjunction: Joining sentences, clauses and words

Using conjunction to achieve cohesion in doctor-patient verbal discourse entails the use of conjuncts such as the coordinating types "and, or" and the subordinating ones like: "but, because, although, "etc., and the correlating types such as "either…or", "neither…nor." As a cohesive tie, conjunction is an explicit marker that links two successive sentences or clauses together as a unit. The following extracts may be considered:

Extract 20 (Interaction 23)

Doc.: This recommended drug is just meant for prostrate enlargement. So, I advise you come back on time for the surgery. If it becomes an emergency issue, the doctors might say they don't have time for it again. So, take the drug as recommended and come back in a month's time.

Extract 21 (Interaction 17)

Pt.: No. I don't think they too had it, but some people say probably it was caused by the fact that I trek a lot.

Extract 22 (Interaction 6)

Doc.: Yes. She was transfused with blood. Her genotype is AS. I know AS and SS patients have malaria; their blood level goes down and we do blood transfusion for them. So, if anyone asks you her genotype, she is AS.

Extract 23 (Interaction 3)

Doc.: Do you have any other complaints?
Pt.: I feel itching all over my body, and I have taken lumartec.
Doc.: You will have to do a blood test.

Extract 20 – 23 revealed that the coordinating conjuncts: and, but and so were used to form cohesive ties among the various sentences here. In Extract 20, the coordinating conjunction "so" was deployed twice to weave the sentences in the extract into a cohesive unit. Its deployment here also stresses the importance of the information it introduces. In Extract 21, the subordinating conjunction "but" was used by Pt. to weave the two clauses in the extract into a cohesive unit, even though it clearly shows the negativity of the second clause in the extract. In Extract 22, the coordinating conjunctions "and" and "so" were used to form cohesion between the various sentences making up the extract. The conjunctions, in addition to ensuring cohesion amongst the various sentences in the extract, also enhanced comprehension. In Extract 23, the coordinating conjunction "and" was also deployed to weave the two clauses in Pt.'s contribution into a cohesive unit. Its deployment enabled Pt. to tell Doc. the effort he had made to cure himself. By and large, the various conjunctions have been effectively deployed to ensure cohesion in all the extracts intrasententially and intersententially.

4.2.6 Substitution: Replacing items

Substitution entails replacing an element with another. It could be a word, group, clause word, etc. in the next clause. This is regularly used in achieving cohesion in doctor-patient discourse. The different kinds of substitution are commonly used to achieve cohesion in the discourse i.e. nominal, verbal, verb and object, and verb and adverbial substitution. When it is deployed, it prevents unnecessary reiteration and makes the text discourse or text cohesive. The accompanying extracts may be considered:

Extract 24 (Interaction 2)

Doc.: Your BP is slightly high, but you can do some exercise to lose some weight and lower it. Do you react to aladin. That's what I am giving you. You can get it at the pharmacy here.

Extract 25 (Interaction 6)

Pt.: She has high temperature.
Doc.: For how long has she had this?

Extract 26 (Interaction 17)

Doc.: Arthritis does not go like that; it is a chronic disease.

In Extract 24 – 26, cohesion was ensured among the various sentences and clauses making them up through substitution to avoid repetition and clumsiness, thereby enhancing comprehension. In Extract 24, "Your BP" and "aladin" were replaced with the third person pronoun "it." In Extract 25, "high temperature" in Doc.'s contribution was replaced with the singular demonstrative pronoun "this" in Pt.'s contribution. Similarly, "Arthritis" was replaced with the third person singular pronoun "it" in the second clause of same contribution. Generally, the deployment of substitution in the extracts above helped ensure cohesion intrasententially and intersetentially, thereby preventing clumsiness and unnecessary repetition.

5. Findings and Conclusions

The study has revealed that the various lexico-grammatical choices made by the doctors and patients enabled them to ensure cohesion in the discourse. The deployment of the grammatical and lexical choices made possible the fusion of the various parts of the discourse into cohesive units. Collocation connects the texts; modal auxiliaries express views, opinions, decisions and expectations; imperatives give orders; interrogatives elicit information; declaratives explain issues, offer counsels, and issue warnings; conjunction join sentences, clauses and words together and; substitution replaces items. A good knowledge of the lexico-grammatical choices made by the doctors and patients as well as their linguistic functions is salutary to a better understanding of diagnostic discourse in Nigeria.

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