



## **Impact of Aphasia on Grammatical Pragmatic Communication Competence of Aphasics at Moi Teaching and Referral Facility in Eldoret, Kenya**

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### **Abstract**

*Aphasia encompasses myriads of syndromes of language deficits. Aphasics have difficulties in communicating due to profoundly brain centre damage. The purpose of the study was to evaluate the relationship between Aphasia and Grammatical Pragmatic Communication Competence of the aphasics at Moi Teaching and Referral facility in Eldoret, Kenya. The research objective for the study was to assess the impact of Aphasia on lexical pragmatic competence of aphasics at Moi Teaching and Referral facility in Eldoret. The survey adopted Krashen's monitor model and Communication Accommodation Theory. The study adopted a case study research design upon which the target population was 116 derived from Moi Teaching and Referral facility. The sample size of the study was 36 respondents selected using a sample size of 30%. The study used non probability sampling techniques (purposive and convenient sampling methods) were incorporated in selecting the 116 respondents. The survey also employed qualitative and quantitative mixed methodology approaches. The main research instruments for the study were interview schedule, discourse completion tasks (DCT), and questionnaire. Qualitative and Quantitative data were manipulated using descriptive and inferential statistics with the aid of SPSS version 20. The study considered the findings and recommendations as per the objectives. The study findings indicated that there was a statistical significant positive effect of grammatical pragmatic competence on pragmatic communication competence of the aphasics at Moi Teaching and Referral Facility ( $r=0.602$ ;  $p<0.05$ ). The study concluded that the aphasics are unable to observe phonological rules for instance impaired repetition. Meaning, people with non-fluent aphasia would not so much have problems with selecting the right words, but in pronouncing them. The study recommended the use of enactment in conversations with people with aphasia.*

**Keywords:** Aphasia, Grammatical Pragmatic Communication, Competence, Aphasics

## **INTRODUCTION**

### **Background of the Study**

Globally, speech is closely synchronized by the gestures connected with the hands and arms by typical speakers (Ardila, 2016). After brain injuries, people with Aphasia continuously make gestures with their hands and arms. This form of gestures points at vital aspects of concern which affects their construction, interaction and independent transfer of information (Armstrong et al, 2013). For restorative treatment, goal and compensation are hot spot for the speech language pathology as a result of production gesture (Bara, 2010). Aphasia is the production of long effortless and meaningless utterances and, failure to mention a single word due to impairment caused by communicative numerous syndromes. (Bloom, (1998). It is an acquired brain failure or damage due to impairment of the language. . Generally, removal of brain tumor, traumatic brain injury and cerebral vascular stroke are the major causes of brain

damage. According to Ardilla, (2016), brain damage is linked to several aspects of impairments such as comprehension of verbal auditory, spoken language, difficulty in reading and writing and repetition of sentences and words.

A glimpse at typical speakers of a language, gesturing with arms and hands while talking is closely synchronized with the speech (McNeill, 2001). Fascinatingly, individuals with Aphasia (PWA) proceed with arm and hand gestures after brain damage and for majority, gesturing is a critical component in co-constructed sharing of information (Armstrong et al, 2013). Gesturing aspects may be manifested in spoken language pathology mediation for both compensatory and resilient therapy goals ((Bara, 2010). Pragmatic efficacy in Aphasia, from the neuro-linguistic perspective, is one of the acquired Neuro-genic language disorder with combined receptive and expressive challenges in communicative pragmatic; the social use of language attributed to brain damage. Incidentally, Kimberly (2014) in his article –Pragmatic Performance and Functional Communication in Adults with Aphasia also notes the same.

According to Bloom (1998), Aphasia encompasses myriads of syndromes of language-deficit–aphasics, where some of them labour to utter a word whilst others effortlessly make meaningless speeches. Aphasia is a language deficit phenomenon resulting from brain interference. The primary causal factor in Aphasics is brain injury related to cerebral vascular stroke or tumour. This is manifested in impairment in speech linguistics, word and sentence repetition. Verbal auditory understanding may impact negatively on the literacy aspect also (Kasper & Rose, 2002).

In Africa, aphasics who are impaired in the conceptual level produce unrelated words instead of the target word (such as "car" for "apple"), and make semantic errors. Sometimes they even produce non-existing words (neologisms) (Ishihara & Cohen, 2010). This kind of impairment is typical of individuals who are diagnosed with the traditional label of "Wernicke's Aphasia". Because the deficit is at the conceptual stage, it is not limited to spoken lexical retrieval. Such aphasics also fail to understand the function of objects, and to understand pictures even when no verbal stimuli are involved. Patients who are impaired in the *semantic lexicon* make semantic substitution errors (semantic par-aphasias) such as saying "apple" instead of "pear"(Ardila, 2016). Because the semantic lexicon is shared by comprehension and production, they also fail to understand spoken and written words, although they show preserved ability with pictures and objects.

In East Africa, despite the advancing knowledge towards understanding the cause of brain disorders due to aphasia related incidences among the patients (Ishihara & Cohen, 2010) it is imperative to understand the core basic types of aphasia that lead to language and brain damage among the patients. In Kenya, the cases of brain damage and language difficulty are common among patients, though few studies have critically analyzed the causes of the impairment on the language and brain damage. Research conducted by Mazaux et al. (2013) reveals that there is positive correlation between aphasia and communication ability due to the aspects that are affected by aphasia among patients. In reference to majority of people, language communication is centered in the left hemisphere of the head. Aphasia results due to lesions in the left side of the head. Damages in different areas of the left hemisphere affect different language components and hence give rise to different patterns of Aphasia (Aviah & Naama 2012) which provides the motivation for this survey to evaluate the relationship of Aphasia with Grammatical Pragmatic Communication Competence of the Aphasic Patients at Moi Teaching and Referral Hospital (MTRH) in Eldoret.

The medical records in MTRH in 2018 reveal that patients report on symptoms associated with failure to communicate appropriately, sentence construction and communication increased. The report also clearly indicated that majority of the respondents were not able to access and detect the anomaly. The study clearly explains how, many aspects of Aphasia can cause to the communication office and there is need to investigate. Consequently, it is against this position that the study investigated the relationship between aphasia and the ability of aphasic such as aphasia on lexical pragmatic competence, grammatical pragmatic competence of aphasics. It is against this background that the study investigates the relationship between aphasia and communication ability of the aphasics at Moi Teaching and Referral Hospital (MTRH) Eldoret, Kenya.

### **Statement of the problem**

Globally, it is indicated statistically that aphasia co-relates are on the increase in many parts of the world afflicting people of all ages ranging from children, youth and the elderly; Aphasia affects about 2 million people in the US; 250,000 individuals in Great Britain and approximately 180,000 individuals get the disorder per annum all-over the world. In Kenya there are two parastatal referral facilities viz: Kenyatta National Hospital and MTRH, they receive several referral cases of Aphasia compared to County referrals. The reason being that many health facilities lack the capacity to handle such cases and as such the regional referral hospital like MTRH receive many patients from Western Kenya region and Eastern Uganda for further management. With this, records at MTRH show that the facility has handled over 20,050 aphasic cases in the last five years. However, over the said period, little or no linguistic related study had been done leave alone investigating the Relationship of Aphasia on Grammatical Pragmatic Communication Competence of the Aphasics at the facility which concurs with Carlomagno (2009) that linguistic pragmatic oriented research was scarce on aphasia allover.

A survey would assist in establishment of the extent of impact posed by damage on speech and language centers' of Aphasia based on Grammatical Pragmatic Communication Competence of the Aphasics at Moi Teaching and Referral facility in Eldoret. Moreover, investigate the relationship of Aphasia on Grammatical Pragmatic Communication Competence of the Aphasics at MTRH, Eldoret, Kenya hence bridges the gap not only at the study locale but also for the variables cited.

### **Objective of the study**

- To assess the impact of Aphasia on Grammatical Pragmatic Communication Competence of the Aphasics at Moi Teaching and Referral facility in Eldoret, Kenya

### **Research Question**

- What is the impact of Aphasia on Grammatical Pragmatic Communication Competence of the Aphasics at Moi Teaching and Referral facility in Eldoret, Kenya?

## **LITERATURE REVIEW**

### **Aphasia**

According to Chapey (2015) and Bloom (1998), problems that may be experienced from Aphasia involve language or processing of linguistic information; grammatical aspects- (phonology, morphology, lexicology or/ syntax), semantics (meaning) or other aspects of language use (pragmatics) precisely in discourse engagement. The disorder

impairs the expression and understanding of language as well as reading (Alexia) and writing; Agraphia or/ Asemia-wordless writings-severe than Aphasia (Bloom 1998).

Aphasia may co-occur with speech disorders, such as dysarthria which affects pitch and voice quality leading to laboured speech or apraxia of speech manifested in mispronunciation of words, irregularities in tone, rhythm or emphasis/prosody and inability to articulate words besides groping for sounds as well as impacting other forms of language use like para-language (gestures), which also result from brain damage. Ardilla (2016) reckons that difficulties of PWA can emanate from difficulties in selecting words to inability to communicate, comprehend, understand or interpret, with no effect intelligentsia. Expressions and receptive grammar can both be interfered with (Hersh et al., 2016). The salient feature in Aphasics is Anomia which manifests in word finding ability (Ardilla 2016).

Aphasia affects millions and millions of people in the US as well as in Great Britain. Any person whatever age category can manifest in Aphasia. However, people who are middle aged and older are at higher risk of vulnerability to Aphasia. Majority of those individuals' escape the prevalence of stroke caused by Aphasia hence impairing the speech area of the brain with prevalence being the elderly (Ardilla 2016). Anomic patients who are impaired at a later stage of lexical retrieval, the *phonological output lexicon*, have full access to conceptual system to semantic lexicon, but fail to remember the absolute phonological format a word. They show frequent failures to retrieve words, phonological par-aphasias (saying "table" instead of "cable"), retrieve the correct word after a long delay, and produce "don't remember" responses. Their full knowledge of the meaning of the target word is often manifested in their tendency to overcome a failure to retrieve words by defining them instead ("That Australian animal with the pocket..."). Another type of Aphasia, which was traditionally named "conduction Aphasia", results from a deficit in the phonological buffer (Gvion & Friedmann, 2012). This deficit causes inability to repeat and read non words, long words, and sequences of word. It affects the production of morphologically complex words (and hence is very clearly manifested in Hebrew) and numbers (Friedmann et al., 2011, in press; Dotan & Friedmann, 2010), but when the impairment only affects the phonological output buffer, comprehension is preserved. Yet another type of impairment involves the syntactic lexicon. When this component is impaired, patients produce sentences in which the complements of verbs are missing or incorrect, and may show impairments in grammatical gender, prepositions that complement verbs, and the mass-count distinction.

### **Impact of Aphasia on lexical pragmatic competence**

The inability to retrieve and say words is basically what is known as Anomia and symptoms occur in various ways, varying in degree, for instance, the tip-of-the-tongue state (Narasimhan, & Dimroth, 2012). The slight word finding difficulty that comes with normal aging, and the acute naming shortages are among the early signs of dementia encompassing using more words than necessary and hollow speech (Duff, 2010). Broca's Aphasic Patients in Meta cognitive judgment act as a great deal similar to standard speaker; however, Wemicke's Aphasic patients, on the other hand, show serious short-comings when called upon towards identifying semantic associations or semantic characters which language contains within regular by way of example according to (Duff, 2010).

### **Theoretical Framework**

The Communication Accommodation Theory (CAT) was used in the study. It was developed in (1980) by Howard Giles. It deals with the behavioural changes that

individuals construct towards standardizing their approach of speech with colleagues in addition to the scope to which individuals view their communicative partner as correctly improving their speech. The theory's premise is that individuals adjust their style of speech to each other, and as a result, the sender of the message increases approval from the recipient, leading to improved efficacy within the statement amongst both parties, thus assisting the sender to maintain a positive social status, which is actually the reason that the researcher found the theory worthy informative to the independent variable, which in this case is aphasia.

Furthermore, it captures both intergroup and interpersonal aspects with the goal of guiding to adjustment by adding to methods of obtaining information that affect communication behaviors, thus revolving on associates among speech circumstances as well as personality to the betterment of the aphasics' Grammatical Pragmatic Communication Competence.

As a result, overall, accommodation is impressed to be between the sender of the message and its receiver; however, the communicator frequently accommodates to a larger audience- be it a group, watching the conversation, or society at large- including not only grammar but also nonverbal and discursive modes of social conversation (Eling & Whitaker, 2009).

The communication transactional lesser amount of efficient is affected during translating to the need to adopt the Krashen's Monitor Model for dependent variable-to enhance the Grammatical Pragmatic Communication Competence of the aphasics. Hence, the theory and the monitor will be usefully in Promoting Aphasic's Communicative Effectiveness (PACE) which improves patients' category of remedy communicative techniques by subjecting them in social interaction (Eling & Whitaker, 2009).

## **METHODOLOGY**

This research is a case study at MTRH Eldoret, Kenya for the Aphasic patients; it sought to assess the impact of Aphasia on their Grammatical Pragmatic Communication Competences and whose main goal was to assess their language pragmatic competence using the Pragmatic Evaluation Protocol-Revised [PREP-R]; to linguistic analysis.

A descriptive survey research design was the focus of the study. This was because the design allowed the study to adopt both qualitative and quantitative data of the study variables (Mugenda & Mugenda, 2003).

The study was carried out in Moi teaching and referral hospital which is well equipped with qualified medical staff from the facility and college of Health Sciences, provided by different Clinical Departments in the Hospital.

The study considered the following Nurses, aphasiologist, neuro-linguists, and patients with aphasic syndrome as indicated in Table 1.

**Table 1: Target Population**

Study population	Sampling techniques	Target Population
Aphasia patients	Purposive	20
Nurses	Convenient	70
Aphasiologist	Purposive	5
Neuro-linguists	Purposive	1
Care-takers	Convenient	20
Total		116

Both probability and non-probability sampling techniques were used in the study. The sample size of the study was 36 respondents selected using a sample size of 30% according to (Kothari, 2011). The study used purposive sampling on Aphasia patients, Aphasiologist and Neuro-linguists. This was because the respondents were the key informants for provision of relevant information needed in the study. The study sampled also nurses and care-takers using convenient sampling because they also provided vital information about the respondents. The sample size of the study was 36 respondents as indicated in the table 2 below.

**Table 2: Sample Size**

Study population	Sampling techniques	Target Population	Sample Size
Aphasia patients	Purposive	20	6
Nurses	Convenient	70	21
Aphasiologist	Purposive	5	2
Neuro-linguists	Purposive	1	1
Care-takers	Convenient	20	6
Total		116	36

The study adopted the following collection tools for the respondents.

**Table 3: Instruments of the Study**

Study population	Instruments
Aphasia patients	Interview schedule
Nurses	Questionnaire
Aphasiologists	Interview Schedule
Neuro-linguists	Questionnaire
Care-takers	Interview schedule

Construct and face validity was obtained by involving the opinion of expertise in the department of linguistics and the supervisor. Construct validity was done through pilot study at Kenyatta National Facility while face and content validity was determined by getting the opinion of two experts from department of languages and linguistics. The study considered the instrument to be valid with value of 0.07 as confirmed by (Cooper & Schindler, 2014).

The study applied Cronbach's alpha coefficient to determine and computed a reliability index of the instruments (Rousson, et al, 2012). The study considered reliability coefficient of 0.7 above as reliable (Cooper & Schindler, 2014).

Linguistic data Analysis Procedure: According to Zoltan (2018) the data was obtained from questionnaire, DCT, Checklists and the recorded verbalism were analyzed

through empirical based evidences using quantitative research methods as put by Lord Kelvin. The collected data were classified as non-literal and literal.

Pragmatic Evaluation Protocol-Revised (PREP-R) was used to establish the relationship between the aphasia and pragmatic communication competency (Fernández et al., 2015). The test assessed classical linguistic components like grammar, semantic, morphology, lexicology, syntax, and phonology, efficacy of the components. The PREP-R established whether the impairment was linked to pragmatic communication competency or specific pragmatic deficit during speaking. Content analysis was used and verbalism captured from the field which were transcribed and coded thereafter, be arranged thematically based on objectives.

All questionnaires were accompanied with a letter of introduction from the researcher with assurance to the respondents about confidentiality of any data obtained on the research topic under study only. The topic revealed to them and the role they are going to play will be explained to them. Any other concerns raised by the respondents were also addressed.

Each questionnaire was accompanied by a letter from the researcher assuring the respondents of the confidentiality of any data gathered only on the research topic. The topic and role they will play were revealed to them. On an additionally addressed the respondents' other concerns. With these precautions in place, the responders' and other government officials' cooperation was straightforward. Research permit letter from Mount Kenya University, The National Commission for Science, Technology and Innovation (NACOSTI).

## RESULTS AND DISCUSSIONS

### Response Rate

The study considered nurses, aphasiologists, neuro-linguists, and patients with aphasia syndrome. The study sampled 36 respondents and managed to collect data from all the respondents. This represented 100 per cent response rate. This was affirmed by Field (2013) who noted that a response rate of more than 75% is appropriate for data analysis.

### Reliability Results

The questionnaire tool was subjected to a pilot study to determine its reliability. The pilot results were as follows;

**Table 4: Reliability Results**

Objective	Number of items	Alpha value
Grammatical pragmatic competence	5	0.841

The pilot results indicated that the reliability of the Grammatical Pragmatic Communication Competence of the aphasics was 0.829 using Cronbach's alpha test of reliability; the reliability of the grammatical pragmatic competence was 0.841. The study results revealed that all the variables gave an alpha test value of greater than 0.70, therefore all the items were regarded reliable hence valid for data analysis.

### Aphasia and Grammatical Pragmatic Competence of the Aphasics

The study sought to determine the impact of aphasia on grammatical pragmatic competence of the aphasics. The study responses were as in Table 5.

**Table 5: Aphasia and Grammatical Pragmatic Competence of the Aphasics**

Statements		SA	A	U	D	SD	Mean	Std Dev
The aphasics are unable to observe phonological rules for instance impaired repetition	F	22	7	4	1	2	4.52	1.160
	%	60.1	20.2	10.8	3.0	6.0		
The aphasic find it hard to distinguish between bound morphemes and free morphemes	F	21	8	4	1	1	4.51	0.275
	%	59.1	23.2	10.8	3.0	4.0		
The aphasics have insufficient knowledge on lexical items	F	21	9	4	1	1	4.48	0.450
	%	58	26.2	10.8	3.0	2.0		
Syntactically the aphasics show variation on subject verb agreement order	F	16	17	3	1	0	4.28	0.273
	%	43.1	46.2	9.2	3.1	0		
The aphasic show impairment in meaning production	F	18	7	4	4	3	4.48	0.445
	%	50	20.2	10.8	10.0	9.0		

The study results indicated that 29 (80.3%) of the respondents agreed that the aphasics are unable to observe phonological rules for instance impaired repetition (Mean=4.52; SD=1.115) as 3 (9.0%) of the respondents disagreed with the statement. The study findings also revealed that 29 (82.3%) agreed that the aphasic find it hard to distinguish between bound morphemes and free morphemes (Mean=4.51; SD=0.275) as compared to 2 (7.0%) who disagreed. The study results indicated that 30 (84.2%) agreed that the aphasics have insufficient knowledge on lexical items (Mean=4.48; SD=0.450) while 2 (7.0%) who disagreed. The study findings showed that 33 (89.3%) of the respondents agreed that syntactically the aphasics show variation on subject verb agreement order (Mean=4.28; SD=0.273) as compared 1 (3.1%) who disagreed. Lastly, the study results showed that 25 (70.2%) agreed that the aphasic show impairment in meaning production (Mean=4.48; SD=0.445) as compared to 7 (19.0%) who disagreed that the aphasic show impairment in meaning production.

The study findings indicated that majority of the respondents were of the view that the aphasics are unable to observe phonological rules for instance impaired repetition. Meaning, people with non-fluent aphasia would not so much have problems with selecting the right words, but in pronouncing them. People with fluent aphasia on the other hand would not suffer from phonetic, but from phonemic disintegration: the mis-planning of phonemes while phonetic realization is still intact. However, this distinction cannot be so easily made. People with aphasia seem to suffer to some degree from both disintegrations, and not solely from one.

The interviewees noted that the problem the aphasic patient faces is essentially one of language use, that is, the actualization of the linguistic knowledge which is stored in the memory. Several characteristics of the errors point to this direction: their unsystematic nature, the errors can be considered unsuccessful attempts at a correct target, and the modality specificity of the deficits. One of them observed that;

*“It is most difficult for a person with apraxia to correctly produce articulatory postures or sequences of postures”.*

These findings are in agreement with findings by Bu (2011) who observed that people with non-fluent aphasia make substantially more phonological errors than people with fluent aphasia do. For example, Blumstein (1973) reports in her research that the total

number of phonological errors made by the group with Broca's aphasia is 1993, while the group of people with Wernicke's aphasia made only 219 errors.

Another one, Ferreres (1990) showed a somewhat similar distribution of error types for Spanish speaking people with Broca's aphasia. Substitutions were the error type most often made (59%), followed by omissions (29%), then insertions (10%) and at last metathesis/displacement (2%). The hierarchy of Ferreres' results differs from Blumstein's results in that insertions and contextual errors are switched. Percentages are not very different from Blumstein's group of people with Broca's aphasia.

Also, Caramazza and Chialant (2000) researched two fluent Italian speaking people with aphasia. They also showed predominance for substitution errors, with an average of 61.5% of the total errors made. Then, unlike the results from Blumstein and Ferreres, after substitutions one patient makes most mistakes on omissions (14%) and insertions (14%) and the other patient makes most errors on other types (12%), followed by omissions (5%) and insertions (5%). In this study contextual errors seem to play a less important role.

Two Italian people were compared, one with non-fluent aphasia and one with fluent aphasia by Romani et al. (2002). Noteworthy, they looked at single word production of the person with non-fluent aphasia but at spontaneous speech and sentence repetition of the person with fluent aphasia. Both patients made most errors in substitutions (respectively 59% and 66%). After substitutions, omissions were the most common made mistakes (26% and 14%), followed by insertions (9% and 6%) and metathesis (7% and 8%).

### Relationship between Study Variables

Pearson correlation analysis was used to test the association between the study variables.

**Table 6: Relationship between Study Variables**

			Lexical pragmatic competence
Grammatical Pragmatic Communication Competence		Pearson Correlation	.623**
		Sig. (2-tailed)	0.000
		N	36

\*\**. Correlation is significant at the 0.01 level (2-tailed).*

The study findings indicated that there was a statistical significant positive correlation between lexical pragmatic competence on Grammatical Pragmatic Communication Competence of the aphasics at Moi Teaching and Referral Facility ( $r=0.623$ ,  $p<0.05$ ).

## CONCLUSIONS

The study concluded that the aphasics are unable to observe phonological rules for instance impaired repetition. This means that, people with non-fluent aphasia would not so much have problems with selecting the right words, but in pronouncing them. People with fluent aphasia on the other hand would not suffer from phonetic, but from phonemic disintegration: the mis-planning of phonemes while phonetic realization is still intact. Moreover, people with aphasia make substantially more phonological errors than people with fluent aphasia do.

## RECOMMENDATIONS

The study recommended that a detailed analysis of communicative abilities should be carried out in the assessment phase, and that the teachers, parents, caretakers and clinicians understand the patient's specific impairments and draw tailored rehabilitative paths, both at an individual and at a group level through hypnotherapy in order to help with physical or emotional problems.

### Contributions to Knowledge and Research

This study focused on the relationship of aphasia on Grammatical Pragmatic Communication Competence of the aphasics at Moi Teaching and Referral facility in Eldoret, Kenya. This study hence contributes to knowledge and research since the study variables are new to the area of language and linguistics; the approach is new, the procedure as well as the findings of the study. Moreover, the topic is new in Africa, East Africa, Kenya and study locale. The study variables are innovative ideas hence the relationship between variables is new. The, theoretical approach to the study area and variables are new; no studies have been conducted on study variables as entirely a research topic presentation, so it's new innovative approach to the body of knowledge more so with the aim to inform the education sector of the need for language accommodation in ordinary institutions in case of an acquired language disorder amongst the Learners besides special education.

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