Research Article

Functional Communication: Panacea for Persons with Aphasia (PWA)

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Abstract

Optimal treatment outcome can be witnessed by methodically working on the functional communication skills and progressively move up the hierarchy to achieve effective communication. Since a complex interplay between various levels of linguistic skills exists, reinforcing relatively holistic skills like that of functional communication is hypothesized to strengthen other linguistic skills. Therefore, the present study aims to highlight the positive results of working on functional communication skills on the domains of Naming, Repetition, Comprehension and Expression using the Manual for Adult Aphasia Therapy (MAAT). This study involved comparing the scores of the 1st, 7th, 14th and the 21st sessions of Speech-Language Therapy using MAAT. The therapy outcomes of 20 PWAs in the age range of 19-70 years were examined. A general trend of improved scores across sessions was found across all participants in the domains of Functional Communication, Naming, Repetition and Comprehension & Expression. Also, correlation between the distinct domains of the manual was demonstrated. The authors have qualitatively described the correlation between Functional Communication and the other prospective domains since the former can facilitate improvements in the latter.

Introduction

Perspectives on language rehabilitation in aphasia have undergone substantial changes over the years. A basic premise of language rehabilitation is to establish effective communication in persons with aphasia (PWAs). Broadening and emphasizing this philosophy is the Life Participation Approach to Aphasia (LPAA, Duchan, Linda, Garcia, Lyon, & Simmons-Mackie, 2001). This standpoint places importance on the dual purpose of communication; the first being exchange of ideas or feelings and the second being maintenance of social links in real life situations. LPAA shares a few values with approaches that focus on treatment of functional communication. Communication at its core has basic language skills which circle around communicating immediate needs, requirements and feelings. These skills have a high relevance in day-to-day functioning of the PWA (Simmons-Mackie, 2001; Lyon, 1998). Functional communication skills do not restrict a person's ability to master conventional methods of communication- i.e., speaking but enhance the overall communication process within a social pragmatic purview. These skills include gaining expertise in choice making, overcoming communication breakdowns in everyday events, independence in activities of daily life (Beukelman & Mirenda, 2013). Attempts of maximizing the activity and participation of PWA in everyday life have been targeted by functional profiling during assessment procedures and following a more relevant social model of service delivery. Establishing functional communicative efficacy has known to show positive outcomes on other communicative domains. Thus, to witness a holistic improvement one must work on the functional communication skills and gradually move up the hierarchy to achieve effective communicative performance by a PWA (Elman, 2005).

PWA, speech language pathologists and funding agencies desire evidence of therapy outcomes that improve communication and enhance quality of life for people with aphasia (Simmons-Mackie, Threats, & Kagan, 2005). Functional communication abilities are largely predictive of the PWA's quality of life. A review based on 39 randomized controlled trials involving 2,518 randomized patients (Brady, Kelly, Godwin, & Enderby, 2012) concluded that the analyzed studies gave some evidence of the effectiveness of speech language therapy (SLT) for the improvement of functional communication, receptive and expressive language after stroke. Notably, they found a significant effect in the meta-analysis of nineteen randomized comparisons (1,414 partici-

pants) of SLT versus no SLT on patients' functional communication.

Treatment efficacy studies in the past have not always produced consistent results owing to numerous variables like spontaneous recovery, skill levels before and after treatment, vague information on health status and poor recording of treatment procedures in PWA. In light of numerous studies aimed at establishing the efficacy of a number of treatment techniques, a striking variable that distinguishes these findings is the lack of uniformity of stimuli. Also, certain aspects of a formal treatment program such as treatment hierarchy, progression criteria and stimulus organization are most often not well defined. Thus, having relevant and reliable therapy material or manuals add uniformity to the therapy process across professionals and provide a systematic platform to document therapy outcome measures (Goswami, Thomas, & Varghese, 2015).

For a structured treatment process of PWA in the Indian Context, few treatment manuals such as 'Manual for Adult Aphasia Therapy' (MAAT, Goswami, Shanbal, Chaitra & Ranjini, 2011) were developed and field tested in six Indian languages. Features such as relevant stimuli chosen from functional environment, methodical means of choosing goals, hierarchy of the stimuli, flexibility of stimulus and response mode, clear and culturally appropriate color pictures, black & white word cards and an ICF model based scoring system that helps in identifying environmental barriers and facilitators along with recording treatment outcomes make it an effective treatment tool to be used with PWAs. This field tested manual is quite compliant and can be used by speech language pathologists, student clinicians and caregivers of PWA to improve the communication abilities.

MAAT is intended for persons with any severity of non-fluent and fluent aphasia. The broad domains include Functional communication (FC), Repetition (R), Comprehension and Expression (C&E), Naming (N) and Reading and writing (R&W). Each of these domains is further subdivided into several sub-sections. In terms of the WHO, PWAs impairments (e.g. semantic or phonological deficits) may result in limitations in activities limitations (communicative disability) and participation (e.g. losing a job). The ultimate goal of aphasia treatment is to improve the patients' communicative ability in daily life (Doesborgh, 2004). This is approached with a focus at the "impairment level" by the MAAT Manual. Adhering to the profile presented in the traditional classification of aphasia type during standardized assessment procedures as in the Western Aphasia Battery the above mentioned domains were incorporated into the manual. It can be used for home training for the care-givers of the PWA. Finally, the manual can be applied for impairment based or communication based aphasia therapies stated by National Aphasia Association (NAA), 2011. In impairment based therapies, clinicians directly treat the impaired domain (comprehension, expression, naming etc.) using many techniques available such as the Constraint Induced Therapy (Pulvermüller, Neininger, Elbert, Mohr, Rockstroh, Koebbel, & Taub, 2001) and Melodic Intonation Therapy (MIT, Albert, Sparks & Helm- Estrabrooks, 1973).For example, an SLT targeting semantic deficits will use semantic decision tasks at the word, sentence or text level to improve linguistic semantic processing whereas in the case of phonological deficits, SLT will train phonological input and output processing (Doesborgh et al., 2004). Attempts to study effects of impairment based therapies and communication based therapies were made by Kelly, Brady & Enderby (2010) who provided an updated Cochrane review including results from a total of 30 trials comparing i) speech and language therapy (SLT) with no SLT, ii) SLT with social support and communication stimulation and iii) two different approaches to SLT. Few significant differences were noted in SLT vs. no SLT comparisons; however, the authors note that there is a consistent direction of results in favor of speech and language therapy. There was some evidence that the provision of social support and stimulation was associated with improved receptive and expressive language skills, although this result was based primarily upon findings of a single study. The domain wise arrangement of stimuli in the MAAT applies for impairment based therapies placing functional communication in the forefront. Communication based therapies intend to enhance communication through any means and involve support from caregivers by simulating natural interactions involving real life communicative challenges. Response hierarchy (starting from pointing, gestures and/or verbal) enhances communication through any modality which in turn can be used for communication based therapy that is suggested by the manual. Sociolinguists emphasize the importance of communication in establishing and maintaining social relationships, in sharing feelings, and in expressing the identity of an individual (Holmes, 2001). Thus, one may assess improvement in other linguistic domains once the functional communication is established in PWA. This will pave the way for positive treatment effects from both a linguistic and psychosocial perspective.

Aim of the study

The present study aims to: 1) To test the improvements across sessions and across domains. 2) To identify the overlay effect of improvement in functional communication on other linguistic domains such as Repetition, Comprehension and Expression and Naming during language intervention for PWAs using MAAT.

Method

Participants

A total of 19 PWA between the age range of 19-70 years (Mean age: 45.57 Years) served as participants while attending therapy at the All India Institute of Speech and Hearing, Mysore. Inclusionary and exclusionary criteria with respect to pre-morbid status and confounding variables were followed adhering to best ethical and research practices. The diagnosis of aphasia was made after administering the standardized and adapted version of Western Aphasia Battery in the respective languages of the participants. Furthermore, there were no reports of any symptoms consistent with dysphagia, psychiatric or specific cognitive deficits or vocal fold dysfunction. The demographic details of the participants are represented in Table 1.

Procedure

Each of the participants attended a minimum of 21 sessions of speech-language therapy with a frequency of two or three sessions per week, each session for duration of 45 minutes. Therapy was provided by Post-Graduate students of Speech-Language Pathology. Therapists were either native speakers of the language in which therapy was being provided or had native-like language skills. Manual for Adult Aphasia Treatment (MAAT, Goswami et al., 2011) was used for language rehabilitation of PWA. The study compared the scores of PWA under each domain of MAAT manual. The chosen activities from MAAT for each of the therapy sessions were based on principles of aphasia management with the target of emphasizing improvement in functional communication. As the literacy levels of participants varied, Reading and Writing data was not analyzed. The scores of the 1st, 7th, 14th and the 21st sessions on the four domains (Functional Communication Domain: FC1, FC2,FC3,FC4; Naming Domain: N1, N2,N3,N4; Repetition Domain: R1,R2,R3,R4; Comprehension & Expression Domain: CE1,CE2,CE3,CE4) were used for the analysis. The treatment targets were chosen after a baseline assessment and hence, the treatment targets across all participants were not common.

Scoring and Analysis

The participant's responses were charted out using a treatment recording sheet developed to be used with MAAT manual in all the therapy sessions. A score of '0', '1/2' or '1' corresponding to 'incorrect/no response', 'partial/intelligible response' and 'correct response' respectively were used. Further statistical analysis was done after the raw scores of each PWA were converted into percentage scores.

Results

As the aim of this study was to identify effects of improvement in functional communication on the domains of repetition, naming, comprehension and expression, scores were compared across the 1st, 7th, 14th and 21st sessions of therapy. Cumulative scores of the participants on each of the target stimuli were converted into percentage. The statistical analysis was done using the SPSS 21.0 software. The mean and standard deviation for the scores of all participants across the 1st, 7th, 14th and 21st sessions were computed (Table 2). The prospective domains were tested for normality. Out of the four domains, Functional Communication, Repetition and Comprehension & Expression were normally distributed (p¿ 0.05). The Naming domain was not normally distributed (p ¡0.05) and had high standard deviation in the scores. The outliers in the data were excluded from the statistical analysis.

A general trend of improved scores across sessions was found amongst all the domains of Functional Communication, Naming, Repetition, and Comprehension & Expression (Figure 1). The mean scores showed an increment from 49.61 to 70.59 in the domain of FC domain 54.32 to 69.93 in the Repetition domain and 53.30 to 66.46 in C & E domains. The median scores on Naming domain progressed from 50.6 to 86.08.

Functional Communication

In the functional communication domain, scores of 17 PWA on FC1, FC2 and FC3 were subjected to Repeated Measures Analysis of Variance (ANOVA) which revealed no significant differences between the scores ($F(2,32) = 3.128$; $p > 0.05$). As FC4 had certain missing data, FC4 was analyzed separately using Paired Sample t- Test with FC1, FC2 and FC3. FC4 was significantly different from all the other sessions (FC1 & FC4: $t\ (11) = 2.989$, $p < 0.05$; FC2 & FC4: $t\ (11) = 2.872$, $p < 0.05$; FC3 & FC4: $t\ (11) = 2.919$, $p < 0.05$). This suggests encouraging effects of treatment as evidenced in the increased mean scores on FC4 as well (Figure 2).

Naming

The scores on Naming domain were not normally distributed and had high standard deviations. Hence, Friedman test was employed on N1, N2, and N3 scores of 11 PWA. The results revealed no significant differences across the sessions of therapy ($\chi^2 = 0.207$; $p > 0.05$). Scores of N4 had missing values and hence was not considered for Friedman Test. Wilcoxon Signed Ranks Test was employed across scores on N4 with N1, N2 and N3. Significant differences were observed between scores of N4- N1 sessions (Figure 3) ($Z = 2.201$, $p < 0.05$) and N4- N3 sessions ($Z = 2.023$, $p < 0.05$) but

showed no significant difference between the scores of N4- N2 sessions. This is also indicative of the positive outcomes of treatment as shown in Figure 3.

Repetition

In the repetition domain, scores of 13 PWA on R1, R2 and R3 were subjected to Repeated Measures Analysis of Variance (ANOVA) which revealed no significant differences between the scores ($F(2,24) = 1.815$; $p > 0.05$). As R4 had certain missing data, it was analyzed separately using Paired Sample t- Test with R1, R2 and R3. R4 was not significantly different from all the other sessions though there is an improvement in the mean scores (Figure 4).

Comprehension & Expression

In the Comprehension & Expression domain, scores of 13 PWA on CE1, CE2 and CE3 were subjected to Repeated Measures Analysis of Variance (ANOVA) which revealed no significant differences between the scores ($F(2,22) = 4.508$; $p > 0.05$). CE4 was analyzed separately using Paired Sample t- Test with CE1, CE2 and CE3 as CE4 had certain missing data. CE4 was significantly different from CE1 (Figure 5) (CE1 & CE4: $t(9) = 2.48$, $p < 0.05$). No significant difference was found between CE4-CE2 (CE4 & C: $t(9) = 0.173$, $p > 0.05$) E2 and CE4-CE3 (CE4- CE3: $t(9) = -1.385$, $p > 0.05$).

Correlation Between the Domains

A Pearson correlation coefficient was computed to assess the relationship between the domains. The study revealed a marginal significant correlation between the total scores of Functional Communication with total scores of Naming domain($r = 0.594$, $n = 11$, $p = 0.05$). Also, marginal significant correlation between scores on FC1 and CE1 sessions ($r = 0.481$, $n = 16$, $p= 0.05$) were found. No correlation between the domains of Functional

Table 1: Demographic details of the participants

Subjects	Type of Aphasia	Age(years)/Gender	Language
1.	Broca's Aphasia	42/Female	Kannada
2.	Broca's Aphasia	35/Male	Kannada
3.	Broca's Aphasia	30/Male	Hindi
4.	Broca's Aphasia	41/Female	Kannada
5.	Broca's Aphasia	68/Male	Kannada
6.	Broca's Aphasia	30/Male	Kannada
7.	Broca's Aphasia	60/Male	Kannada
8.	Broca's Aphasia	30 /Male	Kannada
9.	Broca's Aphasia	19/Female	Malayalam
10.	Broca's Aphasia	48/Male	Kannada
11.	Broca's Aphasia	63/Male	Kannada
12.	Global Aphasia	64/Male	English
13.	Global Aphasia	36/Male	Malayalam
14.	Conduction Aphasia	60/Female	Kannada
15.	Conduction Aphasia	24/Male	Kannada
16.	Conduction Aphasia	31/Male	Kannada
17.	Wernicke's Aphasia	63/Male	Kannada
18.	Wernicke's Aphasia	69/Female	Kannada
19.	Isolation Aphasia	53/Male	Kannada

Table 2: Demographic details of the participants

	Session 1		Session 7		Session 14		Session 21	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
FC	55.75	24.01	61.87	15.90	63.86	16.48	70.59	14.54
N	46.48	39.58	42.86	42.47	64.00	23.71	84.36	12.14
R	56.27	31.57	61.33	23.08	67.52	10.86	69.93	14.61
C & E	53.30	25.52	65.69	25.00	68.69	12.84	73.22	13.81

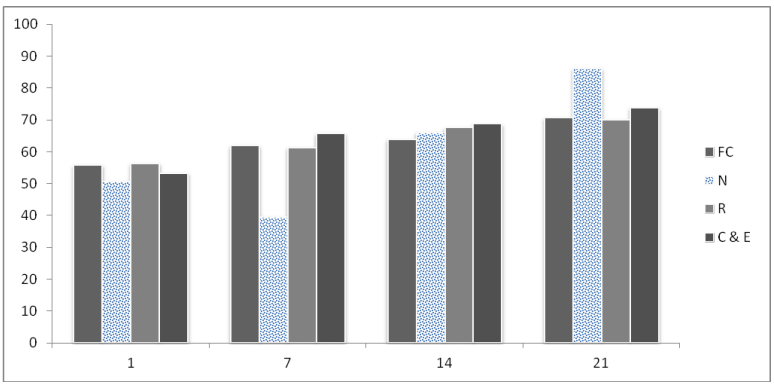

Figure 1: Mean Scores on domains of Functional Communication, Repetition and Comprehension & Expression and Median Scores on Naming Domain across Sessions.
Note: As naming was not normally distributed median was employed.

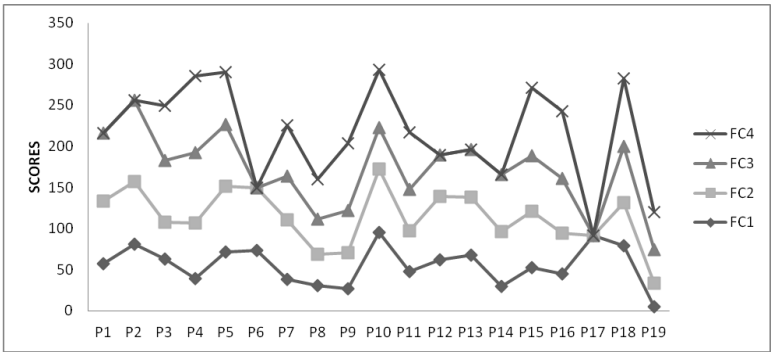

Figure 2: Performance of Participants on Functional communication Domain.
Note: Data includes the statistical outliers.

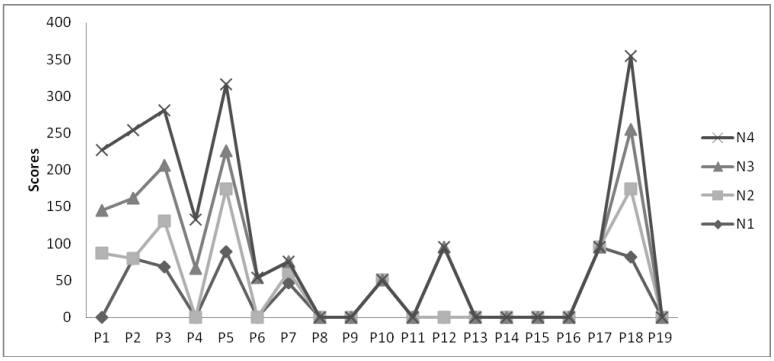

Figure 3: Performance of participants on Naming Domain.
Note: Data includes the statistical outliers.

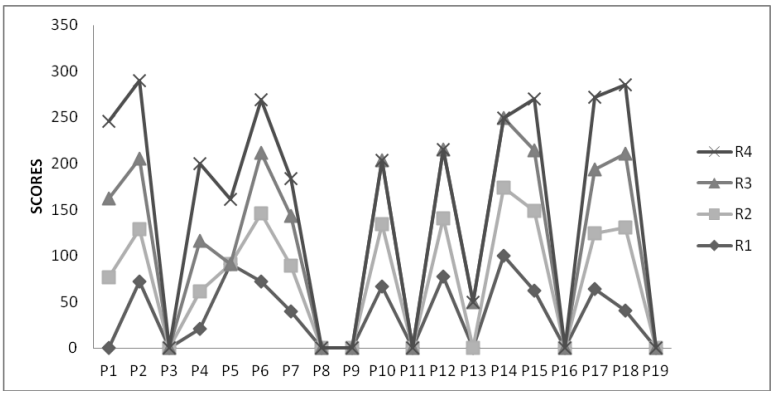

Figure 4: Performance of participants on Repetition Domain.
Note: Data includes the statistical outliers.

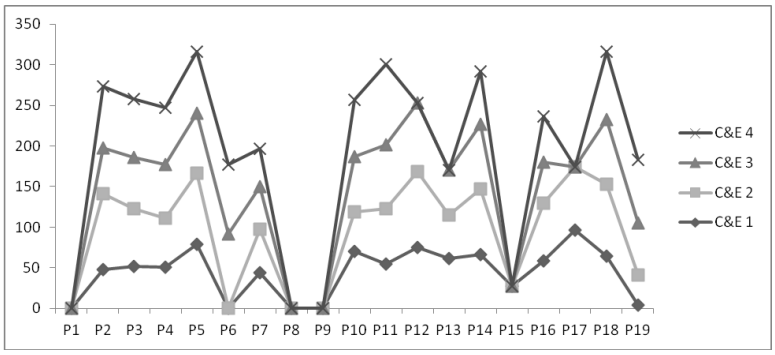

Figure 5: Performance of participants on Comprehension & Expression Domain. Note: Data includes the statistical outliers.

Communication and Repetition was found.

Regression Analysis

Furthermore, regression analysis was applied in order to study the causal effect of FC on other domains of MAAT. Regression analysis revealed marginal significance on the domains of FC and N (N Total = -11.23 + FC Total * 1.168; r=0.594, r^2 = 0.35, p = 0.05) and FC1 and C&E1 (CE 1 = 23.34 + FC1 * 0.508; r= 0.481, r^2 = 0.23, p = 0.05).

Discussion

From the results quoted above, the improved scores across sessions are indicative of positive treatment outcome. Firstly, the results obtained suggest that use of structured treatment tool for language rehabilitation yields significant improvements in the target linguistic domains. Since the stimulus (graphic and/or verbal) and response hierarchy (pointing/gestural and/or verbal modality) proceed from maximal to minimal assistance, communication modalities encounter facilitation suggestive of de-blocking type phenomenon. This view receives support from principle underlying deblocking technique in aphasia rehabilitation (Weigl, 1968). Thus, it proposes that providing systematic and structured, direct and indirect stimulation facilitates path for effective communication. The various repair strategies used for improving the response of PWA suggested in the manual include vocal/sub vocal rehearsal, self-correction, cueing, rephrasing, modifying the rate of stimuli presentation and rate of speaking, and providing appropriate feedback of their responses. Such strategies help maintain and generalize the effects of treatment (Nickels, 2002; Norton, Zipse, Marchina & Schlaug, 2009). Secondly, language rehabilitation that revolves around goals relevant to making everyday communication more effective assuages the participation in the rehabilitation program. The progress of a participant in such a treatment program is propelled as the manual provides the clinician with the flexibility of choosing relevant goals specific to deficits in PWAs.

On scrutinizing the scores of individual participants closely, lowering of scores across consecutive sessions in certain domains of treatment was found. But, the decline across the scores on the same domain across sessions was found to be not lower than 50% of the score obtained on an earlier session. These discrepancies between scores across two consecutive sessions of the same domain can be attributed to the change in stimuli or due to the individualized factors such as lack of appropriate home training or psychosocial factors. Few stimuli that were taken up for treatment both on the 1st and 21st session not only showed maintenance of responses but also improved scores on the same. This indicated the maintenance of positive change of improved functional communication on the percentage scores of other domains across the sessions.

Functional Communication

The scores of FC4 were significantly different from all the other sessions which are also seen as improved mean scores through the sessions of treatment. These results seem to be in agreement with the existing literature, which propagates the remediation of functional communication at the outset of treatment for PWAs to enable effective communication (Elman, 2005). The treatment process facilitated all communication modalities thereby strengthening the goal of treatment i.e., improving the quality of life of PWA. As, functional communication is of paramount significance at personal and social levels to the PWAs it is bound to improve significantly during the initial days of treatment. This process can be affected by factors such as spontaneous recovery; family support and participation in the treatment program (Hegde, 2003).

Naming

A trend of improving scores in the naming domain, seen as improved mean scores (Table 2) is attributed to factors like treatment targets being relevant to the PWAs immediate requirements and the use of a structured treatment program with

germane stimuli. Speech-Language Pathologists require meticulous planning and organization for tackling diverse communication deficits in PWAs (Elman, 2005). At the commencement of treatment program, naming skills need to be remediated since inability to name objects on visual confrontation markedly impairs the communicative efficacy of PWA. However, explicitly working on naming skills might not be required since it overlaps with functional language.

Repetition

Though a general trend of improvement in scores is witnessed with respect to scores of Repetition tasks (Figure 4 and Table 2), they do not seem to be statistically significant since the scores exhibit a very high standard deviation. This improvement derives from the simplicity and relevance of the stimuli in the manual which boosts communicative efficiency of PWA. The manual proposes a progression criterion of 75%. A slower progression across sessions among the participants might be a reason for not achieving the progression criteria within the stipulated time of 21 sessions. The manual advocates choosing goals to maximize the communicative skills of the PWA within the arena of his/her capabilities, thereby, repetition was probably not considered as a prioritized target for treatment. However, remediating repetition has good impact on the communication process since it acts as a tool that helps in supporting and maintaining the conversation between the communication partners and also is a part of everyday communication (Hengst et al., 2010).

Comprehension & Expression

The scores of Comprehension & Expression on 21st session were significantly different from that of 1st session. These results can be attributed to remediation of comprehension and expression deficits at multiple levels of semantics, syntax and discourse through verbal/non-verbal modes as per the manual. Auditory comprehension of everyday vocabulary, simple noun-verb combinations and yes-no questions is of prime importance during the early post-morbid days. These noun-verb combinations also drive the process of comprehension of Wh-questions. The treatment hierarchy makes it easy for these improvements to set in through interactive sessions involving stimuli- response occurrences in multimodality fashion. The multi-modality presentation of stimuli strengthens auditory channel by means of de-blocking (Weigl, 1968). However, the results in the current study may be insignificant due to the high standard deviation in the scores of participants in each treatment session owing to effects of multiple factors like change in stimuli, psychosocial factors, and effectiveness of home training.

Correlation between Functional Communication and Naming

The present study found a marginal significant correlation between Functional Communication and Naming. Improved scores on FC were parallel to improved scores on Naming. This could be because of the treatment tool having a facilitative effect of functional communication on naming. A large majority of researches in aphasia to date have focused on labeling nouns and verbs, but the range of other linguistic resources used for effective communication is less studied (Halliday, 1994; Armstrong & Ferguson, 2010). Deficits in confrontation naming of objects of daily use markedly impairs the PWAs functional communication. Hence, one may assume that a general trend of improvement is seen in the domain of naming alongside functional communication as the two are mutually inclusive. The progress seen might only be in the linguistic level of semantics. Treatment targets under semantics included vocabulary of everyday relevance. These targets were facilitated in the other domains of treatment (Functional communication and Naming); hence the development of these targets is assumed to be influenced by the other domains. The intricate associations between these linguistic skills results in concurrent improvement in both the domains. This is in coherence with Jakobson's (1980) findings which posit that all the linguistic levels are not isolated but are interrelated.

Parallel trends of improvement between the linguistic domains improve the untrained target items as progress in one domain may facilitate the revival of linguistic skills in other. Though the current study could not evidence such effects, their existence may be hypothesized to be present as all the linguistic levels are not isolated but are interrelated (Jakobson, 1980).

Variability of disorder characteristics and treatment outcomes is central to most studies on PWAs. Individual differences in linguistic domains of PWAs are as unique as the brain organization and cognitive makeup of a person (Telzrow, 1985). Literacy level, linguistic experiences, profession, motivation, type and frequency of treatment, environmental and contextual variables do play an important role from person to person for rehabilitation. These inconsistencies attribute to the quantitative and qualitative differences in the statistically insignificant results of this study. The quantitative and qualitative analyses should be treated at par cautiously attending to the statistical variations. In neurobehavioral sciences, the sheer insignificance of numbers should not be a factor in designing treatment plans. The small number of participants and varying levels of treatment resulted in more outliers and the results deviated from our initial hypothesis. Furthermore, the statistical insignificant results should be viewed as significant from a rehabilitative

perspective. The use of MAAT manual on a large number of participants with same type of aphasia and preferably the same level of severity will give a more evident picture of how functional communication is necessary for living and how therapy measures work within the social frame. Also since the regression analysis showed marginal improvement, hence the results are not good predictors for studying such effects.

Conclusions

In the Indian scenario, treatment efficacy studies in aphasia are scarce. A population so diverse in all of its aspects starting from linguistic background to socio-cultural aspects; treatment programs require to be both structured as well as flexible for effective implementation across population. The process of founding appropriate treatment tools to guide the consumer-driven treatment process that can aid in choosing real-life goals has picked up pace over the last few years with the advent of tools such as MAAT. In vogue with the philosophy of Life Participation Approach to Aphasia (Chapey, Duchan, Elman, Garcia, Kagan, Lyon, and Simmons-Mackie, (2001) which emphasizes reengagement in life through strengthening daily participation in activities of choice; tools like MAAT not only provide a structured and hierarchical dimension to the treatment process but also make the remediation flexible to include life participation goals. Despite the qualitative and quantitative differences among various types of aphasias, remediating functional communication remains indispensible during the treatment process. The linguistic domains interact at multiple levels in an inexplicable manner, strengthening relatively dynamic skills such as those of functional communication, that simultaneously augment other linguistic skills, thereby enhancing the overall communicative efficiency of PWA. 'Quality of Life' must become central to this treatment process to evidence its maximal effectiveness. The International Classification of Functioning, Disability and Health (ICF) (World Health Organization, 2001), attempts to address issues like the interactions among ability to perform activities and participate in society; environmental barriers and personal factors by defining the problem on a functional level. Thereby, it advocates broadening of the perspective of assessment and treatment procedures to arrive at a function specific outcome. In this context, it is noteworthy that efficiency of treatment outcomes can be recorded by meticulously working on the functional communication skills. A treatment process of this kind will help optimize the participation of PWA in meaningful activities in turn confirming to the ideology of the Life Participation Approach and the International Classification of Functioning, Disability and Health (World Health Organization, 2001).

References

Albert, M. L., Sparks, R. W., & Helm, N. A. (1973).Melodic intonation therapy for aphasia. *Archives of Neurology, 29*(2), 130-131.

Armstrong, E. M. & Ferguson, A. (2010).Language, Meaning, Context and Functional Communication. *Aphasiology, 24*(4), 480-496.

Aten, J., Caliguri, M., & Holland, A. (1982). The efficacy of functional communication therapy for chronic aphasic patients. *Journal of Speech and Hearing Disorders, 47,* 93-96.

Basso, A. (2003).*Aphasia and Its Therapy.* New York: Oxford University Press.

Beeke, S. (2003).'I suppose' as a resource for the construction of turns at talk in agrammatic aphasia. *Clinical Lnguistics & Phonetics, 17*(4-5), 291-298.

Chaitra, S. & Goswami, S. P. (2010). Manual for Adult Fluent Aphasia Therapy in Kannada (MAFAT-K). *Articles based on Dissertation done at AIISH, Part-B Speech Language Pathology, VII*, 62-66

Chapey, R., Duchan, J. F., Elman, R. J., Kagan, A., Lyon, J. G., & Simmons-Mackie, N. (2001). *Life participation approach to aphasia: A statement of values for the future.* In R. Chapey (Ed.), Language intervention strategies in aphasia and related neurogenic communication disorders (4th ed., pp.235-245). Philadelphia: Lippincott Williams & Wilkins.

Doesborgh, S. (2004). *Assessment and treatment of linguistic deficits in aphasic patients.* Retrieved from http://hdl.handle.net/1765/7269

Duchan, R., Linda, J., Garcia, A. K., Lyon, J. G., & Simmons-Mackie, N. (2001). Life participation approach to aphasia: A statement of values for the future. *Language intervention strategies in aphasia and related neurogenic communication disorders, 235.* Baltimore, MD: Lippincott Williams & Wilkins.

Elman, R. J. (2005). *Social and life participation approaches to aphasia intervention.* In L. L. La Pointe (Ed.).,Aphasia and related neurogenic disorders (3rd ed., pp.39-50). New York: Theime Medical Publishers.

Goswami, S. P., Shanbal, J. C., Samasthitha, S., & Navitha, U. (2012). Field Testing of Manual for Adult: Non-Fluent Aphasia Therapy In Kannada (Manat-K). *Journal of the All India Institute of Speech & Hearing, 31*, 97-108.

Goswami, S. P., Shanbal, J. C., Chaitra, S., & Ranjini. (2011). *Manual for Adult Aphasia Therapy in Kannada* (MAAT-K).Project funded by AIISH research Fund, All India Institute of Speech and Hearing, Mysore, India.

Goswami, S. P., Thomas, P., & Varghese, R. (2015). *Manual for Adult Aphasia Therapy- 6.* Project funded by Department of Science and Technology (DST No: SR/CSI/75/2011), New Delhi, India.

Greener, J., Enderby, P., & Whurr, R. (1999). Speech and language therapy for aphasia following stroke.*The Cochrane Database of Systematic Reviews, 4,* CD000425.

Greener, J., Enderby, P., & Whurr, R. (2001).Pharmacological treatment for aphasia following stroke. Cochrane Database Systematic Reviews, 4, CD000424.

Halliday, M. A. K. (1994). *An introduction to functional grammar (2nd ed.).* London: Arnold.

Hegde, M. N. (2003). *Clinical research in communicative disorders: Principles and strategies (ed.).* Austin, TX: Pro-Ed.

Helm-Estabrooks, N., & Albert, M. (2004). *Manual of aphasia and aphasia therapy.* Austin, TX: Pro-Ed.

Hengst, J. A., Duff, M. C., & Dettmer, A. (2010).Rethinking repetition in therapy: Repeated engagement as the social ground of learning. *Aphasiology, 24*(6-8), 887-901.

Holland, A. (1977). *Some practical considerations in the treatment of aphasic patients.* In M. Sullivan & M.

Kommers (Eds.), Rationale for Adult Aphasia Therapy (pp. 167-180). Omaha, NE: University of Nebraska Press.

Holmes J. (2001). *An introduction to sociolinguistics (2nd ed.).* Harlow, UK: Pearson Education.

Jakobson, R. *On aphasic disorders from a linguistic angle.* In R. Jakobson (ed.) The Framework of Language.(1980) pp. 93-111. Ann Arbor: Michigan Studies in Humanities.

Kagan, A., & Gailey, G. (1993). *Functional is not enough: Training conversation partners for aphasic adults.* In A. Holland & M. Forbes (Eds.), Aphasia treatment: World perspectives (pp. 199-215). San Diego: Singular

Kelly, H., Brady, M. C., & Enderby, P. (2010).Speech and language therapy for aphasia following stroke. *Cochrane Database System Reviews, 5,* CD000425.

Leiwo, M., & Klippi, A. (2000). Lexical repetition as a communicative strategy in Broca's aphasia. *Aphasiology, 14*(2), 203-224.

Lomas, J., Pigkard, L., & Mohide, A. (1987). Patient versus clinician item generation for quality of life measures: The case of language disabled adults. *Medical Care, 25,* 764-769.

Longerich, M. C. & Bordeaux, (1954) *Aphasia Therapeutics.* New York: The Macmillian Company.

Nickels, L. (2002). Therapy for naming disorders: Revisiting, revising and reviewing. *Aphasiology, 16*(10-11), 935-979.

Norton, A., Zipse, L., Marchina, S., & Schlaug, G. (2009). Melodic Intonantion Therapy : Shared Insights on How it is Done and Why it Might Help. *Annals of the New York Academy of Science, 1169,* 431-436.

Oelschlaeger, M., & Damico, J. S. (1998). Spontaneous verbal repetition: A social strategy in aphasic conversation. *Aphasiology, 12*(11), 971-988.

Pulvermüller, F., Neininger, B., Elbert, T., Mohr, B., Rockstroh, B., Koebbel, P., & Taub, E. (2001). Constraint-induced therapy of chronic aphasia after stroke. *Stroke, 32*(7), 1621-1626.

Ross, D., & Spencer, S. (1980). *Aphasia Rehabilitation-An Auditory and Verbal Task Hierarchy.* Illinois: Charles.C.Thomas.

Simmons-Mackie, N. (2001). Social approaches to aphasia intervention. In: R. Chapey (Ed.) *Language intervention strategies in aphasia and related neurogenic communication disorders* (pp. 246-268). Lippincott, Williams & Wilkins, Philadelphia.

Simmons-Mackie, N., Threats, T. T., & Kagan, A. (2005). Outcome assessment in aphasia: A survey. *Journal of Communication Disorders, 38*(1), 1-27.

Tannen, D. (2007) *Talking Voices.* Cambridge, UK: Cambridge University Press.

Ulatowska, H. K., StreitOlness, G., Hill, C. L., Roberts, J. A., & Keebler, M. W. (2000). Repetition in narratives of African Americans: The effects of aphasia. *Discourse processes, 30*(3), 265-283.

Venugopal, M. B., & Goswami, S. P. (2008).Manual for Adult Non-fluent Aphasia Therapy-in Kannada (MANAT-Kannada). *Student Research at AIISH, III,* 181-189